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Mr. Bhaumik M., Associate Executive Editor, NJMR
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ORIGINAL ARTICLE

INDUCIBLE CLINDAMYCIN RESISTANCE AMONG CLINICAL ISOLATES OF STAPHYLOCOCCUS AUREUS

Hetal Sida¹, Bimal Chauhan², Jayshri Pethani³, Lata Patel⁴, Parul Shah⁵

Author's Affiliations: ¹Resident; ²Asst. Professor; ³Asst Professor; ⁴Tutor; ⁵Professor and Head, Dept. of Microbiology, Smt NHL Municipal Medical College, Ahmedabad, Gujarat

Correspondence: Dr Hetal Sida Email: hodedra@yahoo.com

ABSTRACT

Introduction: The resistance to antimicrobial agents among staphylococci is an increasing problem. This has led to renewed interest in the usage of macrolide-lincosamide-streptogramin B (MLSB) antibiotics to treat Staphylococcus aureus infections. Clinical failure has been reported due to multiple mechanisms that confer resistance to MLSB antibiotics.

Aims: The present study was aimed to detect inducible clindamycin resistance among S. aureus isolates and to study the relationship between clindamycin and methicillin resistance.

Materials and Methods: During a period of 6 months, a total 297 S. aureus isolates from various clinical specimens were included in the study. Antimicrobial susceptibility test was done by Kirby-Bauer’s disc diffusion method as per Clinical and Laboratory Standards Institute (CLSI) guidelines. For detection of inducible clindamycin resistance, D test using erythromycin and clindamycin as per CLSI guidelines was performed, and three different phenotypes were interpreted as MS phenotype (D test negative), inducible MLSB (iMLSB) phenotype (D test positive), and constitutive MLSB phenotype.

Results: Of the total 297 S. aureus isolates, majority were obtained from pus 35% (104), from swab 52% (153) followed by blood, tissue samples and body fluids 13% (40). Out of 297, 71% (211) were erythromycin resistant. Out of the total 297 isolates, 30.30% (90) were methicillin-resistant S. aureus (MRSA) and 69.69% (207) were methicillin-sensitive S. aureus (MSSA). MLSB phenotype in 13.46%, MS phenotype in 32.65%, and constitutive MLSB phenotype was observed in 24.91% of isolates. Inducible clindamycin resistance was more among MRSA than MSSA isolates.

Conclusion: D test should be included as a mandatory method in routine disc diffusion testing to detect inducible clindamycin resistance in staphylococci for the optimum treatment of patients.

Key words: Clindamycin, Erythromycin, methicillin-resistant S. aureus, methicillin-sensitive S. aureus

INTRODUCTION

Methicillin-resistant Staphylococcus aureus (MRSA) are increasingly being reported as multidrug resistant with high resistance to macrolides (erythromycin, clarithromycin) and lincosamides (clindamycin, lincomycin), leaving very few therapeutic options.¹ Newer antibiotics like vancomycin, linezolid, and quinupristin-dalfopristin have been advocated in the management of such isolates, but recent reports of resistance to these agents raise real concerns over how long these uniform susceptibilities will hold good.¹³ This has led to renewed interest in the usage of macrolide-lincosamide-streptogramin B (MLSB) antibiotics to treat S. aureus infections with clindamycin being the preferred agent due to its excellent pharmacokinetic properties.⁴⁻⁵ MLSB antibiotics are structurally unrelated; however, they are related microbiologically because of their similar mode of action. They inhibit bacterial protein synthesis by binding to 23s rRNA, which is a part of large ribosomal subunit. They have a spectrum of activity directed against gram-positive cocci, gramnegative cocci and intracellular bacteria such as chlamydiae and rickettsiae.⁶ For years, macrolides have been used as an alternative to penicillin and cephalosporins in the treatment of infections caused by gram positive...
bacteria, but the worldwide development of macrolide resistance has now limited the use of these antibiotics. Macrolide resistance is by diverse mechanisms. The resistance to macrolide can be mediated by mtr(4-A) gene coding for efflux mechanism or via erm gene encoding for enzymes that confer inducible or constitutive resistance to MLSB antibiotics. In constitutive resistance, rRNA methylase is always produced (cMLS); whereas in inducible, methylase is produced only in the presence of an inducing agent (iMLS).

Erythromycin is an effective inducer whereas clindamycin is a weak inducer. In vitro, S. aureus isolates with constitutive resistance are resistant to both erythromycin and clindamycin whereas those with inducible resistance are resistant to erythromycin and appear sensitive to clindamycin (iMLS). The treatment of patients harboring MLSB staphylococci with clindamycin leads to the development of constitutive resistance, subsequently leading to therapeutic failure. The present study was aimed to detect inducible clindamycin resistance among S. aureus isolates and to study the relationship between clindamycin and methicillin resistance.

MATERIALS AND METHODS

The present study was a prospective study conducted during a period of 6 months from 1st January 2015 to 30th June 2015, on the patients admitted in Vadilal Sarabhai General Hospital, Ahmedabad. A total of 297 S. aureus isolates from various clinical specimens like pus, wound swab, aspirates, blood, body fluids, tissue, etc. were included in the study. General profile of patients is given in Table 1. S. aureus isolates were identified by standard biochemical techniques. Antimicrobial susceptibility testing was done by Kirby-Bauer’s disc diffusion method using various antimicrobial agents like penicillin G (10 Units), cefoxitin (30 mcg), gentamycin (10 mcg), chloramphenicol (30 mcg), tetracycline (30 mcg), erythromycin (15 mcg), cotrimoxazole (25 mcg), ciprofloxacin (5 mcg), vancomycin (30 mcg), linezolid (30 mcg) as per CLSI guidelines. For quality control (QC), S. aureus ATCC 25923 was used. For detection of methicillin resistance, 30 mcg of cefoxitin disc was placed and plates were incubated at 35°C for 24 h. Isolates with zone diameters ≤22 mm were labeled as methicillin resistant. For detection of inducible clindamycin resistance, a disk approximation test was performed by placing a 2 mcg clindamycin disc from 21 mm away from the edge of a 15 mcg erythromycin disc. Following overnight incubation at 37°C, three different phenotypes were appreciated and interpreted as follows:

1. MS phenotype: S. aureus isolates exhibiting resistance to erythromycin (zone size ≤13 mm), while sensitive to clindamycin (zone size ≥21 mm) and giving circular zone of inhibition around clindamycin (D test negative).

2. Inducible MLSB phenotype: iMLSB S. aureus isolates which showed resistance to erythromycin (zone size ≤13 mm) while being sensitive to clindamycin (zone size ≥21 mm) and giving D shaped zone of inhibition around clindamycin with flattening towards erythromycin disc (D test positive).

3. Constitutive MLSB phenotype: cMLS S. aureus isolates which showed resistance to both erythromycin (zone size ≤13 mm) and clindamycin (zone size ≤14 mm) with circular shape zone of inhibition around clindamycin.

RESULTS

Of the 297 S. aureus isolates, majority was obtained from swabs 52% (153), pus 35% (104) followed by tissue, blood and body fluids 13% (40). All the S. aureus isolates were sensitive to vancomycin, and linezolid.

Table 1: General profile of patients included in study (Total -297)

<table>
<thead>
<tr>
<th>Details</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>184(61.95)</td>
</tr>
<tr>
<td>Female</td>
<td>103(34.68)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Samples from various departments</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery dept.</td>
<td>146(49.15)</td>
</tr>
<tr>
<td>Obs-gynec.dept.</td>
<td>42(14.14)</td>
</tr>
<tr>
<td>Orthopedic dept.</td>
<td>29(9.76)</td>
</tr>
<tr>
<td>Medicine dept.</td>
<td>17(5.72)</td>
</tr>
<tr>
<td>OPD</td>
<td>63(21.21)</td>
</tr>
</tbody>
</table>

Out of total 297 isolates, 71%(211) S. aureus isolates were resistant to erythromycin, 30.30% (90) were MRSA and 69.69% (207) were MSSA. Among the 297 isolates, D test was positive in 13.46% (40) (inducible MLSB Phenotype) and negative in 32.65% (97) isolates (MS phenotype). Constitutive MLSB phenotype was seen in 24.91% (74) isolates. Percentage of inducible phenotype resistance was more among the methicillin resistant than methicillin susceptible S. aureus isolates.
DISCUSSION

Clindamycin is used in the treatment of skin and soft-tissue infections, caused by staphylococcal species. Good oral absorption makes this drug an important option in outpatient therapy or as follow-up after intravenous therapy. Clindamycin strain carrying inducible erm gene using clindamycin or any non-inducer macrolide can lead to clinical failure.\textsuperscript{8,14} Constitutive mutants can be selected in vitro in the presence of clindamycin or any other non-inducer macrolide as they are widespread among methicillin-resistant strains.\textsuperscript{7} In vitro routine tests for clindamycin susceptibility may fail to detect inducible clindamycin resistance due to erm genes resulting in treatment failure, thus necessitating the need to detect such resistance by a simple D test on a routine basis.

Among the 297 \textit{S. aureus} isolates studied, 71\% isolates were erythromycin resistant, which is in concordance with study by Mallikajurua et al 70.1\%\textsuperscript{18} and Kanwal et al 50.1\%\textsuperscript{17}. Inducible clindamycin resistance was observed in 13.46\% isolates which was in concordance with study by prabhu k et al.10.5\%\textsuperscript{16} and Kanwal et al 13.1\%\textsuperscript{17}.

The percentage of inducible resistance was higher among methicillin resistant (8.08\%) than methicillin susceptible (5.38\%) \textit{S. aureus} isolates, which correlates with other studies\textsuperscript{13,17,18,16} suggesting higher rate of inducible resistance in MRSA than MSSA. Constitutive (24.91\%) and MS phenotype (32.65\%) clindamycin resistance which correlates with study by Kanwal et al 21.9\% and 44.8\% respectively and study by Nilima et al. 11.81\% and 45\% respectively. This suggests variation in clindamycin resistance pattern and its relation with MRSA and MSSA in various geographical areas. [Table-3]

CONCLUSION

Reporting \textit{S. aureus} as susceptible to clindamycin without checking for inducible resistance may result in institution of inappropriate clindamycin therapy. On the other hand, negative result for inducible clindamycin resistance confirms clindamycin susceptibility and provides a very good therapeutic option. Use of D test in a routine laboratory enables us in guiding the clinicians in judicious use of clindamycin, as clindamycin is not a suitable drug for D test positive isolates; while it can definitely prove to be a drug of choice in case of D test negative isolates.

REFERENCES


ORIGINAL ARTICLE

DRUG UTILIZATION PATTERN IN ORAL MEDICINE
DEPARTMENT OF SAVEETHA DENTAL COLLEGE, TAMIL
NADU, INDIA

Pratiti Datta¹, Pratyay Pratim Datta²

Author’s Affiliations: ¹BDS Student, Saveetha Dental College; ²Assistant Professor, Pharmacology, Gouri Devi Medical College, Durgapur, West Bengal, India

Correspondence: Dr Pratyay Datta Email: pratyaypratimdatta@gmail.com

ABSTRACT

Introduction: Drug utilization study helps to understand the pattern of drug use in different set up. Very limited numbers of drug utilization pattern studies have been conducted in dental colleges in India. The present study was done to find out the drug utilization pattern of the oral medicine department of a dental college in India.

Methodology: The study was conducted among the out patients in the oral medicine department of Saveetha Dental College of South India from May to June, 2014. The different drugs prescribed, average number of drugs per prescription, percentage of prescription having injectable drugs, percentage of prescriptions having antibiotics prescribed, percentage of prescriptions having analgesics prescribed, percentage of drugs prescribed from generic name were analyzed in SPSS (version 16.0).

Results and Discussion: Total 278 drugs were prescribed for 300 prescriptions having 0.93 average numbers of drugs per prescription. Only 10.97% drugs were prescribed in generic name. 42% prescriptions had antibiotics and 21.67% prescriptions had analgesics. Main antibiotics prescribed were metronidazole, amoxicillin, azithromycin. Main analgesics prescribed are diclofenac, paracetamol and aceclofenac. Further study in larger sample size is required to have an overall idea about the pattern of prescription of the drugs by the dentists. Beside dentists should be motivated to prescribe drugs by generic name as well as they should be trained in rational use of medicine.

Key words: Drug utilization, oral medicine, antibiotics, analgesics

INTRODUCTION

Drug utilization research was defined by World Health Organization in 1977 as “the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences”. Drug utilization studies aims to evaluate factors related to the prescribing, dispensing, administering and taking of medication, and its associated events. Drug utilization study helps to understand the pattern of use of drugs in different set up after the drug is approved by the proper regulating authority. It is very closely related to the pharmacoeconomic impact on the society as a whole. Dentistry is the study, diagnosis, prevention, and treatment of diseases, disorders and conditions of the oral cavity, especially the teeth, and to an extent related conditions in the maxillofacial (jaws and face) area. Dentists are modern medicine practitioners. But, very limited studies have been conducted on the drug utilization pattern by dentists. In this background the present study was undertaken to study the drug utilization pattern of the oral medicine department of a dental college in India.

MATERIALS AND METHODS

Study area: The study was conducted in Saveetha Dental College and Hospital, Chennai, India.

Study period: The study was done from May, 2014 to June, 2014.
Study population: The patients attending outdoor of oral medicine Department, Saveetha Dental College were included in the study population. The prescriptions were analyzed. Total 300 patients were included in the study.

Inclusion and exclusion criteria: The prescriptions were taken only for those patients whose treatment was done in oral medicine department without referral to other department. Informed consent was taken from the patients and those who gave informed consent, only those patients were included in the study. If the patient was referred to other department for treatment and if the patients were not agreed to give informed consent then those patients were excluded from the study.

Permission was taken from Institutional Ethics Committee before conducting the study.

Study parameters: Parameters for drug utilization study were taken. The parameters used in this study are:

- Drug prescribed
- Average number of drugs per prescription
- Percentage of drugs prescribed in generic name
- Percentage of prescriptions having antibiotics prescribed
- Percentage of prescription having injectable drugs prescribed
- Percentage of prescriptions having analgesic prescribed

After collection of data, it was compiled in Microsoft Excel sheet and after verification the data was copied to SPSS (version 16.0). Then the whole data was analyzed in SPSS (version 16.0).

Results

Table 1 shows the drug utilization parameters of the study population. Total 300 prescriptions were checked. Total number of drugs prescribed was 278; so average number of drugs per prescription was 0.93. 42% prescriptions had antibiotics prescribed. 21.67% prescriptions had analgesic prescribed. 0.67% prescriptions had injectable drugs prescribed. Only 10.97% drugs were prescribed in generic name.

Table 2 shows the different antibiotics prescribed. Among the antibiotics prescribed, most common was Metronidazole (29 prescriptions). Azithromycin was prescribed to 24 patients and Amoxicillin was prescribed to 22 patients. Other prescribed antibiotics were Ciprofloxacin (4 patients), Levofloxacin (14 patients), Amoxicillin + Clavulanic acid (5 patients), Cefixime (15 patients) and Roxithromycin (13 patients).

Table 3 shows the distribution of analgesics prescribed to the study population. Diclofenac was the most common antibiotics (prescribed to 18 patients) followed by paracetamol (prescribed to 17 patients) and acetylsalicilic acid (prescribed to 15 patients). Other analgesics prescribed were Ibuprofen (prescribed to 9 patients) and Nimesulide (prescribed to 4 patients).

Except antibiotics and analgesics other drugs prescribed were H2 blockers (Ranitidine 12, Famotidine 8 patients), Proton pump inhibitors (Pantoprazole 17 patients, Omeprazole 10 patients, Rabeprazole 8 patients). Other drugs were prescribed to 34 patients.

Table 1: Drug utilization parameters in the studied prescriptions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of prescription studied</td>
<td>300</td>
</tr>
<tr>
<td>Total number of drugs prescribed</td>
<td>278</td>
</tr>
<tr>
<td>Average number of drugs per prescription</td>
<td>0.93</td>
</tr>
<tr>
<td>No. of prescription having antibiotic prescribed</td>
<td>126</td>
</tr>
<tr>
<td>%age of prescription with antibiotic prescribed</td>
<td>42%</td>
</tr>
<tr>
<td>No. of prescription having analgesic prescribed</td>
<td>65</td>
</tr>
<tr>
<td>%age of prescription with analgesic prescribed</td>
<td>21.67%</td>
</tr>
<tr>
<td>No. of prescription having injectable drugs prescribed</td>
<td>2</td>
</tr>
<tr>
<td>%age of prescription with injectable drugs prescribed</td>
<td>0.67%</td>
</tr>
<tr>
<td>Total number of drugs prescribed</td>
<td>164</td>
</tr>
<tr>
<td>No. of drugs prescribed in generic name</td>
<td>18</td>
</tr>
<tr>
<td>%age of drugs prescribed in generic name</td>
<td>10.97%</td>
</tr>
</tbody>
</table>
Table 2: Distribution of antibiotics:

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Prescription</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td>4</td>
</tr>
<tr>
<td>Levofloxacin</td>
<td>14</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>22</td>
</tr>
<tr>
<td>Amoxicillin + Clavulanic acid</td>
<td>5</td>
</tr>
<tr>
<td>Cefixime</td>
<td>15</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>24</td>
</tr>
<tr>
<td>Roxithromycin</td>
<td>13</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 3: Distribution of analgesics:

<table>
<thead>
<tr>
<th>Analgesic</th>
<th>No. of prescription</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diclofenac</td>
<td>18</td>
</tr>
<tr>
<td>Aceclofenac</td>
<td>15</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>9</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>17</td>
</tr>
<tr>
<td>Nimesulide</td>
<td>4</td>
</tr>
</tbody>
</table>

DISCUSSION

A prescription reflects the attitude of a doctor towards a particular disease or towards a particular drug or towards a particular patient. Prescription pattern varies from doctor to doctor. Drug utilization pattern study requires analysis of type of drugs prescribed for a particular disease or from a particular department. This type of study is useful for obtaining information about drug use pattern. In the present study average number of drugs prescribed per prescription was 0.93. In a study by Jayanthi et al, average number of drugs prescribed from paediatric dentistry department of an Indian medical college was 0.52 which is much less than the findings of the present study. Like the study by Jayanthi et al, in the present study also main prescribed drugs were antibiotics and analgesics. The prescription of drugs by generic name is very less in the present study. This increases the cost spent by the patients as well as the health system. The dentists should be sensitized about this and they should be motivated to prescribe drugs by generic name. The present study was an initiative to have an idea about the main drugs prescribed from the oral medicine department of a dental college. Further study in greater detail on a larger population is required and the dentists should be sensitized about the rational prescription of medicine.

REFERENCES

ORIGINAL ARTICLE

IMMUNOHISTOCHEMICAL PROFILE OF BREAST CARCINOMAS IN CORRELATION WITH HISTOLOGICAL GRADE- EXPERIENCE OF A TERTIARY CARE HOSPITAL IN ANDHRA PRADESH

Aparna Chinnam¹, Swetha Naidu², Himabindu Gurram³, Padmavathi Devi Chaganti⁴

Author's Affiliations: ¹Associate Professor; ²Postgraduate; ³Senior Resident; ⁴Professor & Head, Dept. of Pathology, Guntur Medical College, Guntur, Andhra Pradesh, India.

Correspondence: Dr Aparna Chinnam Email: achinnam893@gmail.com

ABSTRACT

Background: Breast cancer is the most common female cancer worldwide. The two most important prognostic factors are histological grading (NBR Grading) and hormone receptor status namely estrogen receptor (ER) progesterone receptor (PR) and HER2. However few studies have evaluated the relationship between these two variables.

Aim: Aim of the present study was to correlate hormone receptor status with NBR Grading.

Material and methods: Breast cancer statistics were retrieved from the department records from 2012 to 2015.

Results: A total of 202 cases were subjected to immuno histochemistry. Out of this 168 cases were stained for ER, PR and 34 cases for ER, PR and HER2. Out of this 66 cases were ER, PR positive, ER, PR negative were 102 cases, triple positive were 20 cases, triple negative were 14 cases, ER positive, PR negative were 20 cases, ER negative, PR positive were 14.

Conclusion: There was not much correlation found between receptor status and grade of the tumor.

Keywords: Estrogen receptor, Progesterone receptor, HER-2 receptor, triple positive, triple negative, NBR grading.

INTRODUCTION

Breast cancer is heterogenous disease. ¹It is the second most common cancer among women in India, after cancer cervix³. The information on the epidemiology of breast cancer is limited. Presently 75,000 new cases occur in Indian women every year³. Prognosis of breast cancer depends on more than 40 variables like age at presentation, size of the tumour, hormone receptor positivity, histological grade etc⁴ but hormone receptor status plays a prime role in treatment as estrogen receptor positive tumors respond well to tamoxifen therapy and HER-2 positive cases to trastuzumab. ER is a nuclear transcription factor, that when activated by estrogen stimulates the proliferation of cells. PR also present on the nucleus, the presence of PR indicates that ER pathway is functional. HER-2 is present on chromosome 17. It encodes a growth factor receptor on cell membrane.⁵ Aim of the present study was to correlate hormone receptor status with NBR Grading.

MATERIAL AND METHODS

Breast cancer statistics were collected from 1-8-2012 to 31-8-2015. All the cases were subjected to IHC. Formalin fixed paraffin processed tissues were routinely stained with Haematoxylin and Eosin. Later they were subjected to IHC for ER, PR, HER-2 using Dako antibodies.

RESULTS

Out of 202 cases 167 cases reported as invasive duct cell carcinoma. Out of 202 cases In situ duct cell carcinomas were 2, mucinous carcinomas
were seven, invasive papillary carcinomas were 6 cases, invasive lobular carcinoma one case, comedo carcinoma 2, medullary carcinomas were 2, signet ring cell one case, metaplastic carcinoma five cases, secretory carcinoma one case, Paget disease one case, and tumors with mixed pattern were 8 cases.

Table 1: The statistics of various morphological types of breast carcinomas

<table>
<thead>
<tr>
<th>Type</th>
<th>Cases</th>
<th>ER +ve</th>
</tr>
</thead>
<tbody>
<tr>
<td>In situ duct cell carcinoma</td>
<td>2</td>
<td>none</td>
</tr>
<tr>
<td>Invasive duct cell carcinoma</td>
<td>166</td>
<td>86</td>
</tr>
<tr>
<td>Invasive lobular carcinoma</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Invasive papillary carcinoma</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Medullary carcinoma</td>
<td>2</td>
<td>none</td>
</tr>
<tr>
<td>Mucinous carcinoma</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Metaplastic carcinoma</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Comedo carcinoma</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mixed patterns</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Paget disease</td>
<td>1</td>
<td>none</td>
</tr>
<tr>
<td>Secretory carcinoma</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Signet ring cell carcinoma</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Out of 202 cases 66 cases ER, PR positive, 102 cases were ER, PR negative, HER-2 was done for 34 cases. ER, PR, HER-2 were positive in 20 cases, negative in 14 cases, ER negative, PR positive in 14 cases, ER positive, PR negative in 20 cases.

Table 2: IHC profile of breast carcinomas

<table>
<thead>
<tr>
<th>IHC</th>
<th>No.of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER,PR +ve</td>
<td>66</td>
</tr>
<tr>
<td>ER,PR-ve</td>
<td>102</td>
</tr>
<tr>
<td>Triple +ve</td>
<td>20</td>
</tr>
<tr>
<td>Triple-ve</td>
<td>14</td>
</tr>
<tr>
<td>ER+ve,PR-ve</td>
<td>20</td>
</tr>
<tr>
<td>ER-ve,PR+ve</td>
<td>14</td>
</tr>
</tbody>
</table>

Out of 167 cases of invasive carcinoma no special type (NST) 112 cases were given NBR grade. Out of 31 cases of grade 1, only 16 cases were ER +ve, out of 72 cases of grade 2, 31 cases were ER +ve, out of 9 cases of grade 3 only 2 cases were ER +ve.

Table 3: The statistics of ER positivity according to NBR grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total</th>
<th>ER+ve</th>
<th>ER-ve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>31</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Grade 2</td>
<td>72</td>
<td>31</td>
<td>41</td>
</tr>
<tr>
<td>Grade 3</td>
<td>9</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

DISCUSSION

Breast cancer is a heterogenous disease. Mortality rates depend upon a number of parameters; the two important parameters are histological grade of the tumor and hormone receptor status. Histological grade is done by Nottingham modification of Bloom- Richardson system. In this scheme, the grade is obtained by adding up the scores for tubule formation, nuclear pleomorphism and mitotic activity, each of which is given 1, 2 or 3 points. This is translated into the final grade as 3-5 points grade 1, 6-7 points is grade 2, 8-9 points as grade 3. In the present study out of 202 cases 167 cases (82%) were invasive duct cell carcinoma no special type (NST). 6 Out of this 112 cases were graded. 27% cases were grade 1; 64.2% cases were of grade 2, only 8% were grade 3.

Three molecular biomarkers are used in the routine management of breast cancer, those are ER, PR and HER2. Estrogen receptor is a nuclear transcription factor that, when activated by estrogen stimulates the growth of normal breast epithelial cells. Proliferation may also be activated in the cells of invasive breast carcinoma expressing ER which is detrimental. ER expression has been measured in invasive breast cancers by various methods for almost 40 years. But today IHC is the widely used method, which is sensitive, specific, easy, inexpensive, can be done on formalin fixed paraffin processed tissues. PR also routinely assessed by IHC in invasive breast cancers. ER regulates the expression of PR, presence of PR indicates that ER pathway is functional. PR is activated by progesterone which stimulates the growth of tumor cells. Four possible phenotypes are observed.5

1. ER+ve and PR+ve;
2. ER+ve and PR−ve;
3. ER−ve and PR+ve;
4. ER+ve and PR−ve.

There has been a lot of controversy whether ER+ve, PR+ve entity exists at all. For ER positive cases after treating with tamoxifen and aromatase inhibitors survival is more. HER2/neu; is located on chromosome 17, encodes a growth factor receptor on the surface of normal breast epithelial cells. Gene amplified in 15% of tumor cells. HER2 positive cancers respond positively to targeted therapy with trastuzumab and lapatinib. Positive results are interpreted as 3+, characterized by strong, diffuse membrane staining (chicken wire) and 2+, at least 10% of cells showing complete membrane staining but weak intensity. Less than 10% of cells staining
and incomplete membrane staining are reported as negative.

According to the Ackerman, 80% of invasive duct cell carcinomas are positive for ER, but the prevalence of hormone positivity is low in Asian countries. In the present study 42.5% are positive for ER. According to desai etal32.6% of tumors were ER+ve. In ‘Fischer et al’ study ER positive tumors have low grade histology, absence of tumor necrosis, marked tumor elastosis. In the present study in situ duct cell carcinomas were ER –ve, 51% of grade 1 tumors were ER +ve, 49% were ER –ve. But in grade 2,43% cases ER+ve, 57% ER –ve, in grade3, 22% are ER+ve, 78% are ER-ve.(table3)

Low histological grade correlated with receptor positivity in Sepidae et al study. In Desai et al study grade of the tumor correlated with hormone receptor status.  

American Society of Clinical Oncology (ASCO)/College of American Pathologists (CAP) guidelines, for ER, PR IHC:

1. The pathologist must report the % of cells that are that are immuno reactive.
2. Tumors having 1% or more invasive cancer cell staining is regarded positive
3. The average intensity of the stain must be included.
4. The pathologist must give an interpretation as to whether stain is negative or positive.

The two main features that are evaluated are the proportion of stained cells and the intensity of staining. The first is expressed as the percentage of tumor nuclei population stained. There are several different methods to evaluate these parameters; Quick score, H score, Allred score. In the present study Allred score is used. 

Allred score: The semi quantitation of this method is elegant yet simple. It incorporates intensity and proportion of nuclear staining for ER or PR. Add the proportion score (PS) and intensity score (IS) (PS+IS=TS) for the overall value of 0 to 8.

ASCO guidelines for Her2 positivity

1. IHC 3+ in >30% of invasive tumor cells;
2. FISH >6 HER2/neu nuclear copies;
3. FISH ratio <1.8

Guidelines for negative result

1. IHC 0 or 1+;

2. FISH < 4 gene copies;
3. FISH ratio <1.8

CONCLUSION

In the present study ER positivity was low, in correlation with Indian literature. There is not much correlation with Histological grade and ER positivity. The study would have been better if disease free survival rates of the patients were also correlated with other parameters.

REFERENCES

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ORIGINAL ARTICLE

PREVALENCE OF DERMATOPHYTEs IN SKIN, HAIR AND NAIL AT TERTIARY CARE HOSPITAL AT AHMEDABAD

Komal D. Patel¹, Jaysukh D. Mangukiya², Mahendra M . Vegad³

Author’s Affiliations: ¹Class 1 Microbiologist, General Hospital, Mehsana; ²Class 1 Microbiologist, General Hospital, Navsari; ³Professor & Head, Microbiology Department, B.J. Medical College, Ahmedabad, Gujarat

Correspondence: Dr. Komal D. Patel Email: drkomalpatel3011@gmail.com

ABSTRACT

Introduction: Dermatophytosis is common worldwide and continues to increase. Aim of this study was to determine the prevalence of various etiological agents of dermatophytosis in skin outpatient department of a tertiary care hospital, Ahmedabad.

Materials and Method: 125 cases of clinically diagnosed superficial dermatophytic infection were enrolled in this study. Skin scraping, hair plucking and nail clipping were taken for direct KOH mount and culture on Sabouroud’s dextrose agar with and without antibiotics and Dermatophyte test medium with supplements.

Result: T. corporis was the predominant clinical manifestation accounting for 32% of the cases. This study comprising of 92 males (73.6%) and 33 females (26.4%) having male to female ratio of 2.78:1. The commonest age group involved was 21-30 years (28%) followed by 11-20 years (17.6%). T. rubrum (60.71%) was the commonest isolate followed by T. Mentagrophyte (23.80%). The KOH positivity rate is 73.6% and culture positivity rate is 67.2%.

Conclusion: Further intensive epidemiological studies of Dermatophytic infection which have public health importance are needed.

Keywords: Prevalence, Keratinophilic, Dermatophytosis

INTRODUCTION

Dermatophytosis is caused by a group of closely related keratinophilic fungi, capable of invading keratinized tissues of skin and its appendages.¹,² They use keratin as nitrogen source.³ These mycoses are highly contagious and might develop into epidemics in some population groups, as for example, tinea pedis in military personnel and athletes.³ Its high prevalence in India is due to favorable climatic conditions like high temperature and air humidity. This climate retards sweat evaporation due to high environmental moisture content, thus facilitating fungal dispersion and development. Other factors that favor the high incidence and dissemination of mycoses are poor socio economic development, overpopulation, prolonged contact with domestic animals, hygiene conditions, synthetic clothing, etc.. The increasing use of invasive treatment and medication that affects the immune system (broad spectrum antibiotics, cytotoxic drugs, immunosuppressive drugs) as well as immunosuppressive diseases are some factors associated with the raising incidence of superficial mycoses in the last decades.¹,²,⁴ Aim of this study was to determine the prevalence of various etiological agents of dermatophytosis in skin outpatient department of a tertiary care hospital, Ahmedabad.
MATERIALS AND METHOD

125 cases of clinically diagnosed superficial dermatophytic infection patients attending the outpatient department of a tertiary care hospital at Ahmedabad were selected randomly from June 2010 to June 2012. Informed written consent from all participants was taken. These were clinically diagnosed and skin scraping, hair plucking and nail clipping were taken for direct KOH mount and culture on Sabouraud’s dextrose agar with and without antibiotics and Dermatophyte test medium with supplements.

RESULT

This study included 125 cases of clinically diagnosed superficial dermatophytes on random basis. As evident from the table 1, the commonest dermatophytosis was T. corporis in 40 (32%) patients and followed by T. cruris in 35 (28%) patients. This study comprised of 92 males (73.6%) and 33 females (26.4%). There was a high prevalence among males (73.6%) in this study with male to female ratio being 2.78:1. The commonest age group involved was 21-30 years (28%) followed by 11-20 years (17.6%).

Table 1: Prevalence of different clinical types of Tenia infections (n=125)

<table>
<thead>
<tr>
<th>Clinical Types</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. corporis</td>
<td>40 (32.0)</td>
</tr>
<tr>
<td>T. capitis</td>
<td>24 (19.2)</td>
</tr>
<tr>
<td>T. cruris</td>
<td>35 (28.0)</td>
</tr>
<tr>
<td>T. unguium / onchomycosis</td>
<td>5 (4.0)</td>
</tr>
<tr>
<td>T. manuum</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>T. pedis</td>
<td>4 (3.2)</td>
</tr>
<tr>
<td>T. barbace</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>T. faciei</td>
<td>10 (8.0)</td>
</tr>
<tr>
<td>T. corporis with T. capitis</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>T. corporis with T. cruris</td>
<td>4 (3.2)</td>
</tr>
<tr>
<td>T. corporis with T. faciei</td>
<td>1 (0.8)</td>
</tr>
</tbody>
</table>

As evident from the table 2 T. rubrum (60.71%) was the commonest isolate followed by T. mentagrophyte (23.80%). Out of 125 samples 92 (73.6%) were KOH positive and 84 (67.2%) were culture positive. In this study 77 (61.6%) isolates are KOH positive and culture positive. Out of 77 (61.6%) isolates 58 (46.4%) from skin samples, 15 (12%) from hair samples and 4 (3.2%) from nail samples. 15 (12%) isolates are KOH positive and culture negative. Out of 15 (12%) isolates 11 (8.8%) from skin samples, 2 (1.6%) from hair samples and 2 (1.6%) from nail samples. 26 (20.8%) isolates are KOH negative and culture negative. Out of 26 (20.8%) isolates 21 (16.8%) from skin samples, 4 (3.2%) from hair samples and 1 (0.8%) from nail samples. 7 (5.6%) isolates are KOH negative and culture positive. Out of 7 (5.6%) isolates 4 (3.2%) from skin samples, 2 (1.6%) from hair samples and 1 (0.8%) from nail samples.

Table 2: Prevalence of different Dermatophyte species (n=84)

<table>
<thead>
<tr>
<th>Species</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. rubrum</td>
<td>51 (60.71)</td>
</tr>
<tr>
<td>T. mentagrophytes</td>
<td>20 (23.80)</td>
</tr>
<tr>
<td>T. schoenleinii</td>
<td>2 (2.38)</td>
</tr>
<tr>
<td>Microsporum gypseum</td>
<td>1 (1.19)</td>
</tr>
<tr>
<td>T. violaceum</td>
<td>2 (2.38)</td>
</tr>
<tr>
<td>T. tonsurans</td>
<td>7 (8.33)</td>
</tr>
<tr>
<td>E. floccosum</td>
<td>1 (1.19)</td>
</tr>
</tbody>
</table>

DISCUSSION

Superficial mycoses form a large fraction in patients attending the skin outpatient department. These infections are not fatal but enzymatic digestion of soft and hard keratin of healthy glossy skin, hair and nails by mycotic infection results in cosmetic disfigurement. In addition affection of skin causes intense pruritis. In present study T. corporis (32%) was the commonest clinical type of Tenia infection and followed by T. cruris (28%). The commonest incidence of T. corporis is consistent with other workers in India such as Madhavi et al. (2011) at Hyderabad (27%), Jain Neetu et al. (2008) at Jaipur (37.5%), N Patvardhan et al. (1999) at Aurangabad (24.57%), Mishra et al. (1998) at Brurla Sambalper (24.55%). T. cruris was the second most common clinical type of Tenia infection in our study (28%) and well correlated with study of N Patvardhan et al. (1999) at Aurangabad (24.57%), Mishra et al. (1998) at Brurla Sambalper (24.55%). T. cruris was the second most common clinical type of Tenia infection in our study (28%) and well correlated with study of N Patvardhan et al. (1999) at Aurangabad (22.28%), Agarwalla Arun et al. (2001) at Nepal (33%), Patil Deena et al. (2008) at Belgaun (20.8%). Incidence of T. capitis was (19.2%) in our study which was well correlated with study of Jain Neetu et al. (2008) at Jaipur (20%). In present study...
the males are more commonly affected than females giving a male:female ratio of 2.78:1. Most of the workers reported a high, male incidence e.g. reported by Jain Neetu et al\textsuperscript{6} at Jaipur (2008), Sharma Sunita et al\textsuperscript{11} at Assam (2007), Singh S et al\textsuperscript{12} Baroda (2003) etc. The high incidence in male is presumably due to higher physical activity in male leading to excess of perspiration in a hot and a humid climate. In our study age distribution revealed maximum incidence in 3rd decade of life (28\%) which is in consistency with other workers in India such as Jain Neetu et al\textsuperscript{6} (2008) at Jaipur (19.17\%) and Sharma Sunita et al\textsuperscript{11} (2007) at Assam (39\%). Maximum incidence in 3rd decade of life is probably due to heavy physical activity predisposing to increased perspiration. Occupations like labourers doing heavy physical work predispose them to excess perspiration in a humid environment. Exposure to soil i.e. farming occupation and exposure to animal predispose such people to infection. As universally reported by most of the workers, T. capitis is an infection of childhood. Out of 24 patients, 15 patients belong to 0-10 year of age group. The changing pattern of hormones after puberty is held responsible for decrease in the incidence of T. capitis with age. Children are more exposed to risk factors, such as poor hygiene, crowded schools and day care centers and favourable PH of sebaceous gland secretions. Direct contact with animals and playing with sand contribute to a higher occurrence of this condition in this age group.\textsuperscript{19} Children are less affected by onychomycoses due to faster growth rate of the nail and reduced superficial area for spore invasion. On the other hand, onychomycoses are more frequent in the elderly population due to reduced growth rate of the ungula plate, poor peripheral circulation, diabetes and inability to maintain good foot care.\textsuperscript{13} The two extremes of age showed the least incidence of infection. The findings are consistent with other studies.

T. rubrum (60.71\%) was the commonest dermatophyte isolated in our study which correlates with other studies e.g. Madhavi S et al\textsuperscript{14} (2011) at Hyderabad (57.10\%), Lal Sardari et al\textsuperscript{15}(1983) at costal area(57.10\%) , V Bindu et al\textsuperscript{16} (2002) at Calicut (66.20\%), Mahendra et al\textsuperscript{16} (1996) at Madras (58.40\%), Kumar Kennedy et al\textsuperscript{17} (2007) at Chennai (67.50\%) and Sen S.S. et al\textsuperscript{18}(2006) at Assam(68.63\%). T. rubrum was the main isolate from cases of T. corporis (47.05\%) and T. cruris (33.33\%). The reasons for overall high isolation of T. rubrum are:

1. T. rubrum has an affinity for inhospitable and tough keratin, like that of palms, soles and nails.
2. No age group is spared.
3. T. rubrum have remarkable adaptability.

T. mentagrophyte (23.80\%) was the second most common dermatophyte isolated in our study which correlates with other studies e.g. MadhaviS et al\textsuperscript{14} (2011) at Hyderabad (31\%), Sen S.S. et al\textsuperscript{18} (2006) at Assam (25.53\%), Kumar Kennedy et al\textsuperscript{17}(2007) at Chennai (18.00\%), Agarwalia/Arun et al\textsuperscript{19} (2001) at Nepal (25\%), Mishra M. Et al\textsuperscript{20}(1998) at BurlaSambalpur (26.60\%), Sharma Sunita et al\textsuperscript{11}(2007) at Assam (22.95\%).

In this study out of 125 cases – 77 isolates were positive on direct KOH examination and culture, 15 isolates were positive on direct KOH but negative on culture, 26 were KOH negative and culture negative and 7 isolates were negative on direct KOH and culture positive.

Our KOH positivity was 73.6\% which is almost near to other workers e.g. Jain Neetu et al\textsuperscript{6} (2008) at Jaipur (72.5\%), V Bindu et al\textsuperscript{16} (2002) at Calicut (64\%) and Singh S et al\textsuperscript{12} (2003) at Baroda (60.38\%). Our culture positivity was 67.2\% which is almost near to other workers e.g. Jain Neetuet al\textsuperscript{6} (2008) at Jaipur (58.33\%) and Amin AG et al\textsuperscript{19} (1971) at Ahmedabad (68.79\%). Our culture positivity rate is higher than many other study e.g. Sen S et al\textsuperscript{18} (2006) at Assam (47\%), Singh S et al\textsuperscript{12} (2003) at Baroda (44.62\%) and N Patvadhan et al\textsuperscript{21} (1999) at Aurangabad (40.90\%). Discrepancy observed between detecting fungal hyphae in direct microscopy and culture is mainly due to various contributory factors involved in collection, transport, inoculation of specimen, culture conditions, severity, type and stage of lesion and effect of antifungal ointments and creams applied. The small size of sample and contamination during transport may be responsible. In this study 7 isolates (5.6\%) were culture positive and KOH negative may be due to fungal hyphae missed in direct KOH mount.
CONCLUSION

Ringworm infections are more prevalent in male than in females. Male to female ratio is 2.78:1. Age distribution reveals maximum incidence in 3rd decade of life (28%). Tinea corporis (32%) is the most common clinical presentation. The commonest dermatophyte isolated is Trichophyton rubrum (60.71%), followed by Trichophyton mentagrophyte (23.80%). The KOH positivity rate is 73.6% and culture positivity rate is 67.2%. SDA with and without antibiotics; and Dermatophyte test medium with supplements give satisfactory results for primary isolation. Our results are comparable with some of the reports available from other authors in India and abroad.

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ORIGINAL ARTICLE

STUDY OF SEMINAL ACID PHOSPHATASE AND ALKALINE PHOSPHATASE LEVEL IN RELATION TO SPERM COUNT IN TEACHING HOSPITAL

Nayak Jitendra¹, Patel Piyush², Patel Sangeeta³, Chavda Bipin⁴

Author’s Affiliations: ¹Consultant Pathologist; Ahmedabad, ²Associate Professor; Department of Microbiology; ³Assistant Professor, Dept of Pathology, GMERS Medical College, Gandhinagar, Gujarat.

Correspondence: Dr. Piyush Ashokbhai Patel Email: piyush_doctor@yahoo.co.in

ABSTRACT

Background: There are multiple diagnostic tests and procedures are available for diagnosis of infertility but semen analysis still is considered as most valuable diagnostic test for investigation of infertility. It is equally important that the semen analysis should be performed by experienced and expert person by proper technique. Biochemical analysis seminal fluid provide valuable information regarding functional status of main and accessory genital organs. the acid phosphatase and alkaline phosphatase level in seminal fluid is higher than blood but its relation to infertility is still unidentified and its results are conflicting. So this study is carried out to know any relationship between seminal acid phosphatase and alkaline phosphatase level to sperm counts.

Objective: This study is carried out to know any relationship between seminal acid phosphatase and alkaline phosphatase level to sperm counts.

Materials and Methods: this study was carried out at Department of Pathology of Shree M. P. Shah Medical College, Jamnagar, Gujarat, India during the one and half year period from 1st April 2004 to 31st October 2005. 100 cases of male infertility patients were enrolled as study group visiting OPD, G. G. Hospital, Jamnagar, Gujarat, India. Sperm count is done by improved Neubauer counting chamber. seminal acid phosphatase and alkaline phosphatase level is determined by method suggested by kind and king.

Results & conclusion: out of 100 patients most of the patient is in 26-35 years of age group. there is highest amount of acid phosphatase levels in azoospermic patients while lowest in patient with highest sperm counts. there is no any significant relationship between alkaline phosphatase level with sperm count while there is inverse relationship between acid phosphatase levels with sperm count.

Keywords: Semen analysis, Acid Phosphatase, Alkaline Phosphatase

INTRODUCTION

Today there are multiple diagnostics tools available for diagnosis of infertility, but semen analysis still remains the most basic and simple screening test for the evaluation of infertility. In 1886 the importance of presence of spermatozoa for fertilization described by Sims who performed post-coital examination of fluid present in vagina and endocervix. he stated that spermatozoa has to be present in endo cervix mucus for conception to occur. Wiesman stated that a semen analysis was not complete unless the volume, motility, concentration and morphology were determined. This was further supported by the work of Hotchkiss in 1945. Semen analysis has and will be the most important factor in the initial investigation of male infertility. It is therefore extremely important that a semen analysis be performed skillfully and properly.

The biochemical analysis of the seminal fluid would provide valuable information on the function of the accessory genital glands under normal and pathologic conditions. The main portion of human semen originates from testes, seminal vesicles, and prostate. Testes forms spermatozoa, seminal vesicles forms fructose and prostate forms phosphatase enzyme.
Alkaline phosphatase and acid phosphatases are specific enzymes which react on compounds containing monophosphate or diphosphate group. These enzymes are found in a wide variety of animal tissues. In females, their activity varies with the phase of menstrual cycle and in cervical mucous, it is influenced by progesterone. Phosphatases are enzyme which catalysed the splitting of phosphoric acid from certain monophosphoric esters. The role of phosphatase in the metabolism related to the maturation of sperm in the epididymis was described by Bovedek and Glover in 1970.

Gutmen and Gutmen observed high level of acid phosphatase in the human seminal fluid. The main source of acid phosphatase production is prostrate. This acid phosphatase is increasing in prostatic carcinoma thought to be androgenic dependent. Moon and Bunge observed high level of alkaline phosphatase in the human seminal fluid than blood, but the factors influencing its concentration are still unidentified. They also observed that studies available about the relation of activity of alkaline and acid phosphatase to the sperm count and motility were conflicting. Analysis of acid phosphatase level is most convenient chemical indicator of functional status of prostate.

AIMS & OBJECTIVES

This study was carried out to evaluate male infertility by semen analysis and to observe any relationship between semen alkaline phosphatase and acid phosphatase with sperm motility.

MATERIALS AND METHODS

The present study was carried out at Department of Pathology of Shree M. P. Shah Medical College, Jamnagar, Gujarat, India during the one and half year period from 1st April 2004 to 31st October 2005. 100 cases of male infertility patients were enrolled as study group visiting OPD, G. G. Hospital, Jamnagar, Gujarat India. All the patients were between 21 to 45 years of age.

Semen sample were collected in clean, dry, wide mouth, biologically inert plastic container at OPD laboratory side room by masturbation after 3 days of abstinence of coitus: volume and viscosity, liquefaction time of seminal fluid were noted. Sperm count is done by improved neubaur counting chamber. Sperm motility were assessed by slide technique by using fresh coverslip preparation observing minimum 200 sperm motility assessment done in duplicate and average is taken for assessing motility. Field stained slide preparation of undiluted semen is used to assess morphology. Semen alkaline phosphatase and acid phosphatase were measure by the method given by Kind and King 1954.

The patients who do not show any spermatozoa considered azoospermic. Preliminary details of the patients like age, medical history and the details like patients name, age, medical history, sperm count, sperm motility, acid phosphatase alkaline phosphatase level were recorded and noted in specially formed Performa. Obtained Observations and results are tabulated, analysed and compared with the similar studies by the other authors.

RESULTS

<table>
<thead>
<tr>
<th>Table 1: Age group wise distribution of patients (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group(years)</td>
</tr>
<tr>
<td>20-25</td>
</tr>
<tr>
<td>26-30</td>
</tr>
<tr>
<td>31-35</td>
</tr>
<tr>
<td>36-40</td>
</tr>
<tr>
<td>41-45</td>
</tr>
</tbody>
</table>

Age group wise distribution of male infertility patients under investigation is shown in table no 1. It can be seen that most patients are in the age groups of 26-30 years followed by 31-35 years, 36-40 years and 41-45 years comprise of 42%, 38%, 12%, 6%, 2% respectively.

<table>
<thead>
<tr>
<th>Table 2: Sperm count of patients (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sperm count (million/ml)</td>
</tr>
<tr>
<td>Azoospermia</td>
</tr>
<tr>
<td>1-10</td>
</tr>
<tr>
<td>11-20</td>
</tr>
<tr>
<td>21-30</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>41-50</td>
</tr>
<tr>
<td>51-60</td>
</tr>
<tr>
<td>61-70</td>
</tr>
<tr>
<td>71-80</td>
</tr>
<tr>
<td>Above 80</td>
</tr>
</tbody>
</table>

Table 2 shows out of 100 male patients 11% were azoospermic while 9% shows 1-10, 10% shows 11-20, 5% shows 21-30, 11% shows 31-40, 20% shows 41-50, 14% shows 51-60, 9% shows 61-70, 7% shows 71-80, 4% shows above 80 million/ml sperm count respectively.
Table 3: Relation of sperm count with alkaline phosphatase

<table>
<thead>
<tr>
<th>Sperm count (million/ml)</th>
<th>Cases</th>
<th>Alkaline Phosphatase (KAU/ml) (Mean ± 2SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azoospermia</td>
<td>11</td>
<td>0.49±0.016</td>
</tr>
<tr>
<td>1-10</td>
<td>9</td>
<td>0.48±0.019</td>
</tr>
<tr>
<td>11-20</td>
<td>10</td>
<td>0.40±0.017</td>
</tr>
<tr>
<td>21-30</td>
<td>5</td>
<td>0.46±0.017</td>
</tr>
<tr>
<td>31-40</td>
<td>11</td>
<td>0.43±0.022</td>
</tr>
<tr>
<td>41-50</td>
<td>20</td>
<td>0.48±0.021</td>
</tr>
<tr>
<td>51-60</td>
<td>14</td>
<td>0.51±0.016</td>
</tr>
<tr>
<td>61-70</td>
<td>9</td>
<td>0.53±0.019</td>
</tr>
<tr>
<td>71-80</td>
<td>7</td>
<td>0.48±0.010</td>
</tr>
<tr>
<td>Above 80</td>
<td>4</td>
<td>0.46±0.014</td>
</tr>
</tbody>
</table>

Relationship between sperm counts and alkaline phosphatase is shown in table no.3.it can be seen from table no. 3 that there is no any significant relationship between sperm counts and alkaline phosphatase.

Table 4: Relation of sperm count with acid phosphatase

<table>
<thead>
<tr>
<th>Sperm count (million/ml)</th>
<th>Cases</th>
<th>Acid phosphatase (KAU/ml) (Mean ± 2SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azoospermia</td>
<td>11</td>
<td>9181.81±252.26</td>
</tr>
<tr>
<td>1-10</td>
<td>9</td>
<td>8277.77±263.52</td>
</tr>
<tr>
<td>11-20</td>
<td>10</td>
<td>7650.00±241.52</td>
</tr>
<tr>
<td>21-30</td>
<td>5</td>
<td>6800.00±273.86</td>
</tr>
<tr>
<td>31-40</td>
<td>11</td>
<td>6181.81±337.10</td>
</tr>
<tr>
<td>41-50</td>
<td>20</td>
<td>5200.00±251.31</td>
</tr>
<tr>
<td>51-60</td>
<td>14</td>
<td>4321.42±372.47</td>
</tr>
<tr>
<td>61-70</td>
<td>9</td>
<td>3944.44±390.87</td>
</tr>
<tr>
<td>71-80</td>
<td>7</td>
<td>3714.28±267.26</td>
</tr>
<tr>
<td>Above 80</td>
<td>4</td>
<td>3375.00±250.00</td>
</tr>
</tbody>
</table>

It can be seen from table no 4 that in azoospermic patient the acid phosphatase concentration level is highest and those patient with sperm counts above 80 million/ml shows least of acid phosphatase concentration level.the table no. 4 further shows that as the sperm count increase, the acid phosphatase concentration level decreases and vice versa.

DISCUSSION

Table 1 shows age group wise distribution of patients with infertility. it shows there is highest number of patients is in 26 – 35 years of age group and least number of patients with 41-45 years of age group. This is because the legal age of marriage for men in india is 22 years.the couple does not have child after 5 to 7 years of active marriage then they will go for medical advice from qualified doctor. Patients after 40 years are least in number because by that time they have already taken the medical or surgical treatment or they have accepted the infertility. Sperm count of patients is shown in table no 2. Most of the patients shows 30 to 60 million /ml sperm counts while 11% patients is azoospermic.

Table no.3 shows relationship between of sperm count and alkaline phosphatase. it shows there is no any significant relationship between between sperm counts and alkaline phosphatase. This finding supported by other studies done by, patel A. et al, Samnel et al and V.S. Jather et al and Lewin-L. M et al.

Patel A. et al did not observe significant correlation between alkaline phosphatase level and sperm count in their study on 100 infertile patient .Samnel et al did not observe significant correlation between alkaline phosphatase level and sperm count in their study on fertile, subfertile and vasectomy induced azoospermic individuals. V.S. Jather et al studied 60 normal adults and compared with 60 oligospermic and 24 azoospermic Indian subjects. They also did not show any relationship between seminal alkaline phosphatase level and sperm count as show in table 8.Lewin-L. M et al studied total alkaline phosphatase activity in 30 samples of human semen .They found no significant relation between the enzyme activity and the sperm count, and semen volume. This finding is in constrast with the finding of the study done by R.P. Das et al. They found positive correlation of seminal alkaline phosphatase level with sperm count.

Table no 4 shows that as the sperm count increase, the acid phosphatase concentration level decreases and vice versa. So there is inverse relationship between sperm counts and acid phosphatase.Our findings were compared by other studies done by different authors. Present study suggest there is inverse relationship between sperm counts and acid phosphatase. The finding is same as the other studies done in india and abroad by, patel A. et al, V.S. Jathar et al, Upadhyaya M. et al and Samnel et al.
fertile group), significantly higher mean values of seminal acid phosphatase activity were observed in oligospermic (subfertile group) and azoospermic group. Upadhaya M. et al14 studied 176 males attending infertility clinic and 88 controls awaiting elective vasectomy. They also found that the activity of seminal acid phosphatase was higher in the former group. Our study finding is in contrast with the findings of study done by Vaishwanar et al15. They did not find any significant correlation of seminal acid phosphatase with concentration of sperm. No significant difference in the activities of seminal acid phosphatase for azoospermic and non-azoospermic men was observed by them.

CONCLUSION

Semen analysis in all patients shows there is significant amount of acid phosphatase and alkaline phosphatase in human seminal fluid. The concentration of acid phosphatase and alkaline phosphatase is significantly variable in different individual. There is inverse relationship between acid phosphatase concentration level and sperm counts. There is no any significant relationship between alkaline phosphatase concentration level and sperm counts.

REFERENCES

ORIGINAL ARTICLE

COMPLETENESS OF INSTITUTIONAL ETHICS APPLICATION FORMS SUBMITTED TO THE ETHICS COMMITTEE IN A RURAL TERTIARY TEACHING HOSPITAL

Asha Dattatraye Jadhav¹, Sushma S. Jadhav², Sudhir L. Padwal³, Swapnil S. Jadhav⁴, Rushikesh P. Deshpande⁵

Author’s Affiliations: ¹Assistant Professor; ³Associate Professor; Dept. of Pharmacology, S.R.T.R. GMC Ambajogai; ²Associate Professor, Dept. of Physiology, GMC Latur; ⁴Assistant Professor, Dept. of Pharmacology, GMC Miraj; ⁵Assistant Professor, Dept. of Pharmacology, GMC Nagpur, Maharashtra.

Correspondence: Dr Asha Dattatraye Jadhav Email: ashajadhav706@yahoo.in

ABSTRACT

Aim & objective: To evaluate the completeness of ethics application forms submitted for review to institutional ethics committee.

Materials & methods: Application forms of year 2011-2013 submitted to our institutional ethics committee were studied.

Results: The total numbers of application forms submitted to ethics committee were 100. Of these 67 were dissertation and 33 were research project. The type of studies consists of observational prospective studies (88%), procedure related studies (8%) & interventional studies consist of clinical trial (4%). Title of study was incomplete in 15 forms and place of the study was not mentioned in 11 forms. Time period required was mentioned in 76 forms. Only 37 forms have attached the consent form. Involvement of risk to participating subjects mention in 7 forms, none of form filled information related to compensation, financial burden will be met and conflict of interest and data maintence and storage of application forms.

Conclusion: The present study highlights the importance of knowledge and awareness about the filling of the application forms of ethics committee. A uniform well prepared application form of ethics committee required for evaluation and understanding of research project.

Keywords: Application form, Institutional Ethics Committee, Standard Operating Procedure.

INTRODUCTION

The most important & first step to carry out study or research is to design the protocol & get ethical approval from ethics committee. Permission of ethics committee is taken through the application form. The complete information in the application form not only results in well planning of study by the investigators but also helps to member of ethics committee to understand study in short period of time & for assessment, analyzing the research project. It is also important to keep & maintain the records of study and research over a period of time. Failure of mentioning important points lead to difficulty in understanding as well as giving permission for approval of the study.

The Indian council of medical research (ICMR) New Delhi 2006¹, World Health Organization (WHO)² recommends the formation of Ethical Review Committees (ERCs) at the Regional, National and Institutional level and had provided operational guidelines for ERCs.

Institutional Ethics Committee (IEC) is an independent body whose responsibility is to ensure the protection of the rights, safety, dignity and well-being of human subjects involved in a clinical trial and to provide public assurance of that protection. IEC will be multidisciplinary and multi-sectorial in composition. It will comprise of active members who represent an appropriate balance of professional, ethical, legal, cultural, educational, and community interests³.
The ideal application form should include all information regarding study plan procedure, regulatory, permission, financial, ethical aspects of study. The checklist of compulsory mandatory documents should be enclosed with the application form when a study proposal is submitted to the ethics review committee.

After analysis & review of the study application form by members of the ethics committee, the committee gives a decision regarding the approval of study. Failure of mentioning important details in application form leads to difficulty in understanding study design further prolongation of procedure.

Requirement of ethics review forms of studies submitted to ethics committee vary from one ethics committee to other. To have a uniform requirement about filling the application form there was need of increasing awareness and knowledge among the investigators & committee members of IEC. It essential to check completeness of application form of institutional ethics committee, hence the present study was carried out to evaluate the completeness of application forms submitted to our institutional ethics committee.

MATERIALS AND METHODS

This was retrospective observational study carried out at our rural tertiary teaching care hospital. Total 100 application forms of year June 2011 to December 2013 were analyzed for their completeness. The parameter evaluated were: Total number of studies, type of study, filling of application forms containing - title of study, name & signature of principle & co-investigator, permission obtained from the head of department, other department that are involved, place of study, risk factor related with the study & patients, involvement of vulnerable population, consent of patient, conflict of interest, sponsoring authority for the study, data maintenance and record keeping of application forms.

RESULTS

The results of study were obtained after analyzing the parameters with use of Microsoft office Excel 2007 sheet.

a) Number of studies submitted to the ethics committee: There were a total number of 100 studies evaluated of which 67 were dissertation studies & 33 were research projects.

b) Type of studies submitted to the ethics committee: A total 100 studies were submitted to IEC consist of 88 observational epidemiological studies, 8 were procedural related, 4 were intervention studies consist of four clinical trials, only one of which is initiated.

c) The title of study: Title was incomplete in respect to use of the short forms which was complete in 85 forms and incomplete in 15 forms.

d) Permission aspect: Name and signature of primary & co-investigators were present in all application forms. Permission of other department was required in 27 studies out of 100. Of these 22 forms mention the permission by including name and signature of head of relevant department along with stamp remaining 5 study forms does not mention about the permission of other departments. The permission from the head of concerned department and the head of institute was sought in all the study proposal.

e) Place of study to carried out: Most of studies (90) were carried out at our institute however 10 studies fails to mention the location of study.

f) Study duration: The expected duration required to complete study was mentioned in 76 forms & fails to mention in 24 forms.

g) Patient safety factors: Involvement of risk of study or procedure, adverse drug reaction, measures to counteract the risk factor to the patient were mentioned only in 7 patients out of which 3 of them mention the actual risk to the patient. None of the application form gives information related to about compensation given due to the risk involvement.

h) Details about the research project: The application form submitted to our ethics committee included objectives of study (100%), current knowledge about research subject (92%), research plan protocol (90%).

i) Conflict of interest & sponsorship: Conflict of interest in study was not mentioned in of the any application forms. Only single study was sponsored by ICMR. None of study proposal submitted for approval provides information regarding the source of funding involved in conducting the study.

j) Informed consent: Informed consent of the subject was required in 46 studies but only 27 study proposal mentioned about informed consent.
Case record form attached: Case record form required to attached in 39 form, however only 8 application forms had attached case record form.

Data maintenance and storage: None of application forms mentioned about data maintenance and storage.

Table 1: Type of studies mentioned in application forms

<table>
<thead>
<tr>
<th>Type of study</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissertation</td>
<td></td>
</tr>
<tr>
<td>Observational</td>
<td>62</td>
</tr>
<tr>
<td>Procedure related</td>
<td>5</td>
</tr>
<tr>
<td>Research studies</td>
<td></td>
</tr>
<tr>
<td>Observational</td>
<td>26</td>
</tr>
<tr>
<td>Procedure related</td>
<td>3</td>
</tr>
<tr>
<td>Interventional (clinical trial)</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2: Points mentioned in all application forms

<table>
<thead>
<tr>
<th></th>
<th>Name and signature of principle investigators</th>
<th>Name and sign of co-investigators</th>
<th>Permission from the head of department &amp; head of institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Factors fail to mention in all application forms

<table>
<thead>
<tr>
<th></th>
<th>Conflict of interest</th>
<th>Patient safety factors</th>
<th>Compensation given to the participants if risk occur</th>
<th>Involvement of vulnerable populations</th>
<th>Data maintenance and storage of the application forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Discrepancy related to the filling of application form

<table>
<thead>
<tr>
<th>Discrepancy in</th>
<th>Total (out of 100)</th>
<th>Dissertation (67)</th>
<th>Research (33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete title</td>
<td>15</td>
<td>10</td>
<td>05</td>
</tr>
<tr>
<td>Permission of interdepartment</td>
<td>5</td>
<td>4</td>
<td>01</td>
</tr>
<tr>
<td>Place of study to carried out not mention in</td>
<td>10</td>
<td>8</td>
<td>02</td>
</tr>
<tr>
<td>Study duration not mention in</td>
<td>24</td>
<td>20</td>
<td>04</td>
</tr>
<tr>
<td>Informed consent not mention in</td>
<td>19</td>
<td>14</td>
<td>05</td>
</tr>
<tr>
<td>Case record form not attached in</td>
<td>61</td>
<td>52</td>
<td>09</td>
</tr>
<tr>
<td>Sponsoring authority not mentioned in</td>
<td>99</td>
<td>67</td>
<td>32</td>
</tr>
</tbody>
</table>

DISCUSSION

Ethics review research is essential for projects involving of human subjects to protect the rights and safety of research subjects. It also helps to maintain trust between researchers and society. The purpose of IEC is to ensure quality and consistency in review of clinical research proposals. The IEC follows the ICMR guidelines 2006 and National Ethical Guidelines for Biomedical Research involving human subjects. Guidelines given by ICMR for the requirements of ethics committee, review and decision making process of research. The WHO Guidelines which also helps to Ethics Committees review and approve Biomedical Research proposals involving human participants with a view to safeguard their dignity, rights, safety.

Every IEC have its own written standard operating procedures (SOPs) according to which the committee should function. The SOPs should be updated periodically based on the changing requirements. In ethics committee the review process consist of procedural issue and proper review of study proposal. The responsibility of an Institutional Ethics Committee (IEC) is to review all ethical aspects of the project proposals received by it in an Objective manner. IECs members should provide advice to the researchers on all aspects of the welfare and safety of the research participants after ensuring the scientific soundness of the proposed research.

In present study the application forms were according to the standard operating guidelines of ICMR 2006 & WHO Guidelines, however the application form filled by the investigator fail to mention information regarding conflict of interest, patient safety factors, compensation given to the participants if risk occur, involvement of vulnerable populations, maintence of record form.

In the present study highlights the discrepancy in filling of application form such as incomplete title, Permission of interdepartmental, Place of study to carried out not mention in, study duration not mention, informed consent, case record forms, sponsoring authority. These results were similar to study conducted by Sheety et al. These discrepancies in filling of application forms among the investigators which could due to majority studies were dissertations & the majority of investigators were not skilled in research work during the first year of their admission, improper knowledge regarding the availability of facility & feasibility in-
Incluing the procedures or instruments for conduction of study. The review and approval of research synopsis from the ethics committee were occurring in beginning of first year.

It is important duty of both investigators and IEC committee to provide the complete information of study or research, review and analyze in time so that there was no need of repeated meetings for the getting approval of studies. It also helps to increase standards of study.

CONCLUSION

The present study highlights the importance of knowledge and awareness about the filling of the application forms of ethics committee. A uniform well prepared application form of ethics committee required for evaluation and understanding of research project.

REFERENCES


ROLE OF SOCIAL INTERACTION ON QUALITY OF LIFE

Debalina Datta¹, Pratyay Pratim Datta², Kunal Kanti Majumdar³

Author’s Affiliations: ¹Ph.D Scholar, Public Health, Sai Nath University, Ranchi; ²Assistant Professor, Dept. Pharmacology, Gouri Devi Medical College, Durgapur, W.B.; ³Professor, Dept. Community Medicine, KPC Medical College, Kolkata, India

Correspondence: Dr. Pratyay Pratim Datta Email: pratyaypratimdatta@gmail.com

ABSTRACT

Introduction: Society plays an important role in determining quality of life of human beings particularly in case of loneliness, physical inability and loss of income. In this background there is a great role of social interaction in improving quality of life of geriatric population.

Methodology: This community-based interventional longitudinal study was done among the study population using Quality of Life Questionnaire developed by World Health Organization (WHOQOL-BREF) by conducting interviews by house to house visit. The selected study subjects according to gender and place of residence were told to conduct regular social interaction session as per their convenient time and place. After 8 weeks of social interaction sessions again the participants were asked about their quality of life by conducting interviews using WHOQOL-BREF questionnaire.

Results: It was found that mean transformed scores of quality of life improved significantly in all domains after social interaction as compared to score at the beginning of the study. Further, the difference of score (before and after social interaction) was significantly higher among those who attended social interaction session for more number of days.

Conclusion: Social interaction has a significant role in improving the quality of life of elderly people.

Keywords: Social interaction, quality of life, WHOQOL-BREF Questionnaire.

INTRODUCTION

Man is a social animal. Society plays an important role in determining physical, psychological, behavioral and attitudinal factors. Perception, values and expectations are also greatly influenced by the society where an individual belongs to. The role of social support enhance particularly in case of disablement, pain, anxiety and loss of income of a person. It ultimately reflects on the person’s various domains of quality of life of a person. It has been seen that supportive social interactions is related to higher quality of life in all of the four domains. It is seen in various studies that lack of social interaction has caused anxiety, insomnia, stress, social dysfunction and severe depression which ultimately affects on physical as well as psychological morbidity and hence quality of life of a person decreases. More often this deterioration is significantly associated with poor quality of life of a person. There is a positive correlation between social interaction and quality of life. Family plays vital role in this social support system. In spite of physical and psychological morbidity, one’s quality of life may be better enough due to strong social support and association of supportive family members. This finding is supported by other studies also. Stress, loneliness, loss of income, ill health, feeling of neglect, loss of superiority in family are very common problems faced by elderly in our society which ultimately leads to poor quality of life of elderly.

India is the second largest country in the world next to China. It has been projected that by the year 2025 there will be 177 million elderly populations in India which would constitute 14 percent of the whole population. The life expectancy is expected to cross 70 years by the year 2020. So, they should be provided substantial importance for betterment of our society. There are new challenges and opportunities to work on various problems of different aspects faced by this aged group of people for betterment of their life as well as the whole society. This can be done by allowing them for making important family decisions, supporting
economically. Government, policy makers, programme managers play important role by providing special scheme, facilities based on their needs; e.g. old age pension, travel related concessions by Indian Railway, Indian Airlines and state transport corporations, income tax concessions and health care provided by rural group life insurance schemes and Bhabisyo Arogyo Mediclaim to the older persons.

Social interaction may play a critical role in betterment of quality of life. But there was no study previously indicating the effect of social interaction on quality of life of elderly. In this background the present study was conducted in urban area of West Bengal, India to assess the effect of social interaction on different domains of quality of life of elderly.

METHODOLOGY

**Study area:** This study was conducted in urban municipal area of Sonarpur and Kolkata Municipal Corporation of West Bengal, India.

**Study population:** This study was conducted among people aged 60 years and above.

**Study tool:** WHO-QOL BREF questionnaire having four domains namely physical health domain, psychological health domain, social relationship domain and environmental health domain was used as study tool in the present study.

**Study technique:** At first interview was conducted using WHOQOL-BREF questionnaire among study population by house to house visit after taking informed consent from them in writing. The participants were divided into groups according to gender and place of their residence. Each participant in every group was called upon at local place where they were told to regularly interact among themselves as per their convenience. Attendance register notebooks were supplied at the proposed places where they met for taking signature or thumb imprint (for illiterates). After 8 weeks of social interaction session the attendance register notebooks were collected and all the participants were again interviewed using WHOQOL-BREF questionnaire.

Before conducting the study permission was taken from Institutional Ethics Committee.

**Statistical analysis:** Statistical analysis was done to identify the difference between mean quality of life score between first and last interview. Correlation was done between the number of attended days of the participants and the differences of score in each domain.

**RESULTS**

Scores of quality of life in different domains were assessed at the beginning and after completion of 8 weeks social interaction session. In social interaction sessions different persons attended for different number of days. Accordingly correlation was calculated between differences of score in different domains with number of days attended social interaction session. This has been shown in Table 1.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Before Intervention Mean ± S.D.</th>
<th>After Intervention Mean ± S.D.</th>
<th>95% Confidence Interval</th>
<th>P Value</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>44.80±14.07</td>
<td>49.63±12.86</td>
<td>5.45</td>
<td>4.21</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Psychological</td>
<td>42.68±14.42</td>
<td>53.68±12.75</td>
<td>11.86</td>
<td>10.13</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Social Interaction</td>
<td>41.67±16.03</td>
<td>48.38±17.42</td>
<td>7.80</td>
<td>5.61</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>49.95±12.50</td>
<td>58.22±12.45</td>
<td>9.01</td>
<td>7.54</td>
<td>&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparing variables</th>
<th>Pearson correlation coefficient</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference of score in physical domain with number of days met</td>
<td>0.559</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Difference of score in psychological domain with number of days met</td>
<td>0.641</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Difference of score in social relationship domain with number of days met</td>
<td>0.820</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Difference of score in environmental domain with number of days met</td>
<td>0.755</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Difference of score in overall quality of life with number of days met</td>
<td>0.802</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Difference of score in overall health status with number of days met</td>
<td>0.778</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
It is seen that in physical, psychological, social relationship and environmental domain the differences of score of quality of life was significantly more among elderly people who participated in social interaction session as compared to those who participated lesser number of days than them.

In Table 2 the difference between transformed score of different domains before and after intervention were shown. In all domains the mean score increased significantly after completion of social interaction session than before starting session.

**CONCLUSION**

The present study has highlighted that social interaction has a significant role in improving the quality of life of elderly. The social interaction helps elderly in preventing their loneliness and thus improves their mental health. By sharing their feelings the elderly people can help each other in improving their quality of life. They can find the meaning of their life.

**REFERENCE**


8. WHO Quality of Life BREF [Homepage in the internet]. Available at http://www.who.int/substance_abuse/research_tools/whoqolbref/en/
ORIGINAL ARTICLE

A STUDY OF PREVALENCE OF VARIOUS OPHTHALMIC PROBLEMS IN POLICEMEN AND THEIR FAMILY MEMBERS OF VADODARA, GUJARAT

Jyotindra Natwarlal Brahmbhatt¹, Dipak B. Patel², Sheril Shah³, Ruta Shah³, Poonam Rana³, Aakash Patel³

Author's Affiliations: ¹Professor; ²Associate Professor; ³Resident, Dept of Ophthalmology, SBKS MIRC, Sumandeepvidyapeeth, Pipariya, Vadodara, Gujarat

Correspondence: Dr. Jyotindra Natwarlal Brahmbhatt E-mail: drjbrahmbhatt@gmail.com

ABSTRACT

Purpose: To find out the incidence of eye disorders amongst policemen and their family members in Vadodara district and create awareness about common eye problems.

Methods: Prospective study of 167 patients attending eye OPD, Dhiraj Hospital and eye camps organised by the hospital from July 2015 to October 2015 with the help of Snellen's chart, near vision chart, colour vision chart, slit lamp, trial set, torch, auto-refractometer, Lensometer, schiotztonometer, NCT, and ophthalmoscope. We utilised ophthalmic OT for surgical management.

Results: Out of 167 patients, refractive error was seen in 19, watering in 7, itching in 5 and redness in 2.

Conclusion: Police officers are prone to work intensively for long hours in sunlight. They are exposed to work in wind, dust and pollutants so in our study we found majority of them with refractive error and ocular allergies.

Keywords: Policemen, ophthalmic,
included. Patients were examined by whole of our team. For examination we used Snellen's chart to check visual acuity. We performed torch light examination and undilated ophthalmoscopy. Patient that needed further examination was taken to the ophthalmology department at Dhiraj General Hospital, Piparia. We examined refraction with auto-refractometer, trial set with cycloplegic refraction. Anterior segment examination was done with slit lamp biomicroscope and posterior segment with ophthalmoscopes (direct, indirect). For screening of glaucoma, we measured intra-ocular pressure with NCT (non-contact tonometer) and with Goldman napplanation tonometry if needed, followed by Humphrey's automated perimeter. For diabetic retinopathy and other retinal problems, we performed OCT (optical coherence tomography). Patients who needed surgical treatment were taken to ophthalmology operation theatre and managed accordingly after admission in our ward.

Statistically Analysis: For analysis, we have used SPSS V.20.0. All results displayed in frequency and percentage and Chi square test has been used to calculate p value.

RESULTS

We have examined 167 patients out of which almost 152 were males which make it 91.01% and only 15 which make it 8.98% were females.

Table 1: Pattern of ocular disorders (n = 63)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractive error</td>
<td>27 (42.8)</td>
</tr>
<tr>
<td>Cataract</td>
<td>15 (23.8)</td>
</tr>
<tr>
<td>Pterygium</td>
<td>4 (6.34)</td>
</tr>
<tr>
<td>Dry eye</td>
<td>2 (3.17)</td>
</tr>
<tr>
<td>MGD</td>
<td>2 (3.17)</td>
</tr>
<tr>
<td>Allergic disease</td>
<td>1 (1.58)</td>
</tr>
<tr>
<td>Colour blindness</td>
<td>3 (4.76)</td>
</tr>
<tr>
<td>Systemic disease</td>
<td>8 (12.69)</td>
</tr>
<tr>
<td>Chalazion</td>
<td>1 (1.58)</td>
</tr>
</tbody>
</table>

Table 2: Age distribution (n = 167)

<table>
<thead>
<tr>
<th>Age (in Years)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>81 (48.50)</td>
</tr>
<tr>
<td>30-60</td>
<td>83 (49.70)</td>
</tr>
<tr>
<td>60-100</td>
<td>3 (1.79)</td>
</tr>
</tbody>
</table>

The mean age of the patients was between 30-60 years. Out of 167 patients, 104 did not have any ophthalmic finding. From the remaining 63, we found refractive error in 42.8%, cataract in 23.8%, pterygium in 6.34%, dry eye in 3.17%, MGD (meibomian gland dysfunction) in 3.17%, allergic disease in 1.58%, colour blindness in 4.76%, systemic diseases like diabetes, hypertension etc in 12.69% and chalazion in 1.58%.

In our study 48.50% (81) patients were between age groups of 0-30 yrs, 49.70% (83) were from 30-60 yrs, and very few came in range from 60-100 only 1.79%(3).

DISCUSSION

Our study is conducted in a rural hospital. The policemen have no time for their ophthalmic problems. So we have done diagnostic camp in our hospital and their residential area with permissions from respective authorities. We have included policemen and their family members attending our outdoor patient department. Pterygium prevalence in rural Central India is about 13% among adult Indians aged 30+ years. Older age, male gender, lower educational level, lower body height and more time spent outdoors with vigorous work were associated factors. In our study we found 3 cases of nasal pterygium. Allergic conjunctivitis is an inclusive term that encompasses seasonal allergic conjunctivitis (SAC), perennial allergic conjunctivitis (PAC), vernal keratoconjunctivitis (VKC), and atopic keratoconjunctivitis (AKC).3

Inherited congenital colour vision defects (CVD), comprising a number of distinct disorders, are relatively common. The X-linked disorder which results in difficulties in distinguishing between colours in the red/green spectrum is most common, while more severe types of CVD are rare. Although these disorders are non-progressive and untreatable, universal population screening for early identification is practised in many countries. 4-6 Incidence of colour vision defects in India: males-3.69% and females-1.044%.7

The study found 3 cases of partial colour blindness. A refractive error may be defined as a state in which the optical system of the non-accommodating eye fails to bring parallel rays of light to focus on the fovea. Myopia and hyperopia are the states of refractive error in which the optical system of the eye brings parallel rays of light into focus anterior and posterior to the fovea, respectively, resulting in blurred vision. 8 Undercorrected refractive error is the most common cause of reversible blindness in India.9 Studies from urban India suggest that 49.3 million of those aged ≥15 years may have refractive errors. In our study we found 27 cases of refractive error.
We have found more cases of refractive error including presbyopia. 15 cases of cataract were detected and for immature cataract we have advised 3 months follow up. for mature cataract we have given appointments for planned surgery. Due to lack of personal hygiene MGD and chalazion cases were found. exposure to sunlight, dust and pollu-
tants dry eye was also found.

Ocular trauma is one of the leading causes of mono ocular blindness in police officers. In a study by Aravind hospital, a history of ocular trauma in either eye from 229 (4.5%) persons, including 21 (0.4%) persons with bilateral ocular trauma. Blunt injuries (n = 124; 54.9%) were the major cause for trauma. The most common cause was ocular trauma occurred in agricultural laborer (n = 107; 46.9%). In our study no case of ocular trauma was reported.

CONCLUSION

Police officers are prone to work intensively for long hours in sunlight. They are exposed to work in wind, dust and pollutant hence they are likely to get eye problems frequently due to lack of personal time for themselves and their family’s health problems. In our study we found majority of them with refractive error, ocular allergies, dry eyes, MGD and colour blindness.

By this study we have created awareness about eye care and common eye diseases amongst them. We have guided them how to work on computer, mobiles and other electronic gadgets while taking care of their eyes. We even showed them how to keep their eyes hygienic while working on the fields.

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9. Prema Raju; S. Ve Ramesh; Hemamalini Arvind; Ronnie George; Mani Baskaran; Pradeep G; Paul; Govindasamy Kumaramanickavel; Catherine McCarty; Lingam Vijaya. Prevalence of Refractive Errors in a Rural South Indian Population. Investigative Ophthalmology & Visual Science 2004;45:4268-4272. doi:10.1167/iovs.04-0221

ORIGINAL ARTICLE

CYTODIAGNOSIS OF METASTATIC CERVICAL LYMPHADENOPATHY IN A TERTIARY CARE CENTRE IN NORTH-EAST INDIA - A ONE YEAR STUDY

Sanjay Nath¹, Nabaneet Majumder², Samarpita Nama³, Ramit Chakraborty³, Ganes Chandra Hati⁴, Habibul Islam⁵

Author’s Affiliations: ¹Associate Professor; ²Assistant Professor; ³Post Graduate Trainee; ⁴Professor; ⁵Professor & Head, Dept. of Pathology, Tripura Medical College & Dr.BRAM Teaching Hospital, Agartala

Correspondence: Dr Sanjay Nath Email: iamsanjoy@hotmail.com

ABSTRACT

Background: Malignancies in lymph nodes in our country are predominantly metastatic in nature with an incidence varying from 65.7% to 80.4% and lymphomas range from 2% to 15.3% among lymph nodes aspirated from all sites. Cervical lymphadenopathy accounts for majority of metastatic malignancy. In the present study, 77 cases with cervical lymphadenopathy were included over a period of 1 year; out of 105 cases of overall lymphadenopathy (73.3%) & 76.6% of cases turned out to be metastatic in nature.

Objectives: 1. To find age & sex incidence of metastatic cervical lymphadenopathy at TMC & BRAM Teaching Hospital. 2. To study the cytomorphological pattern of malignancy.

Material & Methods: All the patients referred to Department of Pathology, Tripura Medical College and Dr. BRAM Teaching Hospital for FNAC of cervical lymph nodes were included in present study. The study design was retrospective and study duration was from June 2014 to May 2015 (1 year)

Results: Our study included 77 cases, corresponding to 73% of total number of cases of lymphadenopathy at our hospital. Males were commonly affected (M: F is 2.28:1). Fifth decade was the common age group involved. Metastatic lesions were reported in 23 (29.8%) of total number of cases. Out of 23 cases, 14 were metastatic squamous cell carcinoma (61%), 7 were metastatic adenocarcinoma (30.4%) and 2 were others (8.6%) which include one small cell carcinoma and one undifferentiated carcinoma.

Conclusion: Cervical lymph nodes were the commonest sites involved by metastatic malignancy with male preponderance. Peak age of incidence was noted in 5th decade. Squamous cell carcinoma was the most common malignancy reported followed by adenocarcinoma.

Keywords: Lymphadenopathy, Metastatic, Cytomorphological Pattern

INTRODUCTION

Needle aspiration of lymph nodes is one of the oldest applications of the technique in diagnosis of human diseases. The procedure dates back to 1904, when two British military surgeons published a paper describing diagnosis of sleeping sickness. In 1930, Martin and Ellis of Memorial Hospital for Cancer included tumours that had metastasized to lymph node among targets of aspiration biopsy.

With growing awareness in the general population regarding cervical neck swellings, it has been observed that middle aged male patient’s were the commonest presentation in the out patient department of ENT and general Surgery at our hospital. In the present study, it has been observed; most patients with cervical neck swelling were reported as metastatic lymphadenopathy amongst all malignant neck swellings. Lymph nodes are the most common site of metastatic malignancy; sometimes constitute the first clinical manifestation of the disease. Cervical lymph node malignancies are predominantly metastatic in nature (65.7% to 80%). Fine Needle Aspiration Cytology (FNAC) is excellent first line method for investigating the nature of lesion, as it is economical and convenient alternative to open biopsy. Enlarged lymph nodes were one of the first organs to be
biopsied by fine needle aspiration; today they are frequently sampled tissues.2

Fine needle aspiration (FNAC) is a simple and rapid diagnostic technique. Due to early availability of results, minimal trauma and complications, fine needle aspiration cytology is now considered a valuable diagnostic aid.3 The cytomorphological features obtained in fine needle aspiration cytology correlate very well with histologic appearances of same lesion and in some situations has qualities of micro biopsy.3 Fine needle aspiration cytology was initially conceived as a means to confirm a clinical suspicion of local recurrence or metastasis of know cancer without subjecting patient to further surgical intervention.3

The clinical value of FNAC is not limited to neoplastic conditions. It is also valuable in diagnosis of inflammatory, infectious and degenerative conditions, in which sample can be used for microbiological and immunohistochemical analysis in addition to cytological preparations.4

The present retrospective study was undertaken to evaluate FNAC in different cytomorphological patterns of metastatic cervical lymphadenopathy in Tripura Medical College & Dr. BRAM Teaching Hospital, Hapania from June 2014 to May 2015 (1 year).

AIM & OBJECTIVE

The objectives of this study were to find age & sex incidence of metastatic cervical lymphadenopathy at TMC & BRAM Teaching Hospital and also to study the cytomorphological pattern of malignancy

MATERIALS AND METHOD

All patients with metastatic cervical lymphadenopathy reported from Dept. Of Pathology, T.M.C & BRAM Teaching Hospital was analysed. Study design was retrospective. Study duration was from June 2014 to May 2015 (1 year). The study was approved by ethical comity of the institute. Informed consent of all the authors have been taken. Under aseptic precaution node was held between left index finger and thumb followed by insertion of 22-23 gauge needle fitted with 10 ml syringe for aspiration. The needle with syringe was introduced in node, plunger of syringe pulled to create negative pressure. With the negative pressure maintained needle was moved to and fro within node to aspirate material. The negative pressure was released and needle with syringe was withdrawn from node. Pressure with cotton swab was applied to node after withdrawal of needle. Needle was detached from syringe, air drawn into syringe, needle reattached and material pushed on slides. Multiple smears were made; few of them air dried for Romanowsky stain like May-Grunwald Giemsa stain and few were fixed with ethyl alcohol for staining with Hematoxylin & Eosin stain and Periodic-Acid Schiff stain. Special stain such as Ziehl-Neelsen’s stain was used wherever indicated.

RESULTS

In the present study, maximum number of cases were observed in the 5th decade (10) followed by 6th decade (07) and 4th decade (03), showed in Table 1.

<table>
<thead>
<tr>
<th>Age groups (years)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>41 – 50</td>
<td>4 (17.39)</td>
</tr>
<tr>
<td>51 – 60</td>
<td>10 (43.47)</td>
</tr>
<tr>
<td>61 – 70</td>
<td>8 (34.78)</td>
</tr>
<tr>
<td>71 - 80</td>
<td>2 (8.69)</td>
</tr>
<tr>
<td>81 - 90</td>
<td>1 (4.34)</td>
</tr>
</tbody>
</table>

Table 1: Distribution of cases in various Age groups

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>15 (65.21)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>8 (34.78)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Sex wise distribution of cases

Table no.2 showed the sex distribution of metastatic cervical lymphadenopathy. In our study, male patients outnumbered the female patients. 15 cases were male whereas only 8 female patients were observed.

<table>
<thead>
<tr>
<th>No. of nodes</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>17 (73.91)</td>
</tr>
<tr>
<td>Multiple unilateral</td>
<td>5 (21.73)</td>
</tr>
<tr>
<td>Multiple bilateral</td>
<td>1 (4.30)</td>
</tr>
</tbody>
</table>

Table 3: Distribution of number of nodes involved

<table>
<thead>
<tr>
<th>Lymph Nodes</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior cervical</td>
<td>4 (17.39)</td>
</tr>
<tr>
<td>Lateral cervical</td>
<td>5 (21.73)</td>
</tr>
<tr>
<td>Submandibular</td>
<td>11 (47.82)</td>
</tr>
<tr>
<td>Submental</td>
<td>2 (8.6)</td>
</tr>
<tr>
<td>Posterior cervical</td>
<td>1 (4.3)</td>
</tr>
</tbody>
</table>

Table 4: Distribution of site of nodes involve
Distribution of number of node involved has been described in Table no.3 which showed highest number of cases being reported as solitary nodule (73.91%). Site of involved lymphnode has been showed in Table no.4. It has been observed that the commonest node involved was the submandibular node (47.82%).

Table no.5 showed cytomorphological distribution of metastatic cervical lymphadenopathy.

<table>
<thead>
<tr>
<th>FNAC diagnosis</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squamous cell carcinoma</td>
<td>14 (60.86)</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>07 (30.43)</td>
</tr>
<tr>
<td>Small cell carcinoma</td>
<td>1 (4.3)</td>
</tr>
<tr>
<td>Undifferentiated carcinoma</td>
<td>1 (4.3)</td>
</tr>
</tbody>
</table>

Fig 1a: Microphotograph showing metastatic deposits of Squamous cell carcinoma; x10

Fig 1b Metastatic Squamous cell Carcinoma (Poorly Differentiated) MGG;40x

Fig:2 Metastatic Undifferentiated carcinoma; Leishman Giemsa ;40x

Fig 3: Metastatic small cell carcinoma; MGG:40x

The commonest cytomorphological pattern was metastatic squamous cell carcinoma (Fig.1) followed by metastatic adenocarcinoma. Few cases of undifferentiated (Fig 2) and small cell carcinoma (Fig 3) were also reported. Amongst total 23 cases of metastatic lymphadenopathy, 14 were metastatic squamous cell carcinoma (60.86%) and 7 were metastatic adenocarcinoma (30.4%). Single case of small cell carcinoma (4.3%) and undifferentiated carcinoma (4.3%) has been reported.

**DISCUSSION**

Enlarged lymph nodes were one of the first organs to be biopsied by fine needle aspiration; today they are frequently sampled tissues. In our study, a total 77 cases of cervical lymphadenopathy have been evaluated. 23 cases were of metastatic cervical
lymphadenopathy i.e 29.8%, where as Wilkinson A.R et al observed in their study an incidence of 13.88% of metastatic lymphadenopathy.5 The variation may be either due to small sample size of our study as well the overall incidence of oropharyngeal malignancy is high in the north eastern India. Moreover the study has been conducted in a tertiary care centre. Mohanty R et al 6 reported 6th decade as the peak age incidence.

In the present study the peak age of incidence is seen in 5th decade which correlates with the study by Kamat GC.7 Metastatic Squamous cell carcinoma was predominantly seen in 5th decade of life, where as metastatic adenocarcinoma does not show any specific age dominance. In the present study 7 cases were reported as metastatic Adenocarcinoma corresponding to 30.4% which correlates with a study done by H.H.Nesreen et al which reported 25.8%. Male preponderance is noted in the present study. Similar observations are seen in the studies done by Khajuria R et al 8, Qadri SK et al 9, Mohanty R et al.10

CONCLUSION

Present study cytologically highlights spectrum of metastatic lesions causing cervical lymphadenopathy over a period of 1 year at the Dept of Pathology, TMC and Dr BRAM Teaching Hospital. A total number of 77 cases of cervical lymphadenopathy were encountered among which 23 were metastatic in origin(29.8%) . Metastatic Squamous cell carcinoma is the commonest (61%), followed by metastatic adenocarcinoma (30.4%). Metastatic lesions dominated elderly age group (5th decade) invariably affecting males.

REFERENCES

ORIGINAL ARTICLE

A STUDY PROFILE OF LUNG ABSCESS PATIENT COMING TO TERTIARY CARE CENTER AHMEDABAD

Anil Gupta1, Nilesh Dutt2

Author's Affiliations: 1Associate Professor; 2Professor&Head, Dept. of TB & Chest, Smt.N.H.I Municipal Medical College, Shardaben Chimanlal Hospital, Ahmedabad, Gujarat

Correspondence: Dr Anil Gupta E-mail: dr.niruanil@gmail.com

ABSTRACT

Introduction: In the strict sense, all lesions sue to suppuration and necrosis in the substance of the lung should rank as abscess. In this study are abscesses due to tuberculosis, fungal infections, necrosis in malignant tumours and infected cysts. The mortality and morbidity rates for lung abscess decreased significantly with advent of modern antibiotic therapy beginning with discovery and use of penicillin in mid 1940’s. Newer antibiotics have extended the armamentarium and further reduced the mortality and morbidity rates.

Material and Methods: 25 patients presenting to the Pulmonary Medicine Department, Smt.N.H.I Municipal Medical College, shardaben hospital saraspur Ahmadabad, who were suffering from lung abscess, were studied.Various parameters considered included age, sex, Occupation and socio-economic status etc.

Results: The peak age incidence of occurrence of lung abscess was between 41-50 years and the major predisposing factor was poor oral hygiene in 68% cases in present study. Alcoholism might have favoured aspiration by altered mentation. Haemoptysis was observed in 24%, Clubbing was observed in 28% and Leucocytosis was present in 36% in present study. Potential pathogens were comprising 60%. Most commonly involved segments were superior segment of lower lobe and posterior segment of the upper lobe. 96% patients required only medical treatment. Surgical intervention was required only in one case.

Conclusion: Medical treatment found very effective, surgical intervention was rarely required. Penicillins alone or in combination with other antimicrobials was found to be very effective. Satisfactory response was achieved in 80% cases. No correlation was observed between anatomical location of abscess and response to medical treatment.

INTRODUCTION

In the strict sense, all lesions sue to suppuration and necrosis in the substance of the lung should rank as abscess. In this study are abscesses due to tuberculosis, fungal infections, necrosis in malignant tumours and infected cysts. With these and other specific conditions excluded the term lung abscess is customarily restricted to necrotic, suppurative and cavitated lesions due to infection by pyogenic organisms.

The incidence of lung abscess is steadily falling owing to wider use of antimicrobial drugs, advances in anaesthetic techniques and advances in head and neck surgery with consequent reduction in post operative pulmonary complications- a fruitful cause of lung abscess in the past.

The mortality and morbidity rates for lung abscess decreased significantly with advent of modern anti-biotic therapy beginning with discovery and use of penicillin in mid 1940’s. Newer antibiotics have extended the armamentarium and further reduced the mortality and morbidity rates.

AIMS AND OBJECTIVES

The study was undertaken to study predisposing factors responsible for development of lung abscess; to study clinical features and mode of onset in patients with lung abscess; to study bacteriology of expectorated sputum to isolate specific organisms like staphylococcus aureus and pseudomonas by routine aerobic culture; to know anatomical localization of lung abscess by chest X-ray examination- PA and lateral view; and to evaluate response to medical treatment.
MATERIALS & METHODS

Total 25 patients presenting to the Pulmonary Medicine Department of the hospital, who were suffering from lung abscess, were studied. Various parameters considered included age, sex, Occupation and socio-economic status etc.

Patients suspected from clinical history of cough, expectoration, fever, hemoptysis, chest pain, breathlessness and weight loss evaluated with clinical examination, Routine blood investigation, urine examination, sputum microscopy for acid fast bacilli, gram stain, sputum culture for pyogenic organism drug sensitivity, fungus, cytology and radiological investigation including chest X-ray examination PA and lateral view, computerized tomography and bronchoscopy carried out.

RESULTS

Out of 25 cases; 8% belonged to 0-10, 16% to 11-20, 20% to 21-30, 16% to 31-40, 24% to 41-50, 12% to 51-60 and 4% to >61. Out of 25 cases, majority of patients i.e. 76% were males while only 24% were females. This shows male to female ratio is 3.2:1.

More than 1 predisposing factors was responsible in 5 cases. Poor oral hygiene was predisposing factor in majority of patients i.e. 68%. History of alcoholism or unconsciousness was present in 8% patients, in 28% no known predisposing factor was present. Pneumonia, D.M., bronchogenic carcinoma and seizure were present as one of the predisposing factors in 4% of cases. It can be seen that cough with expectoration was commonest symptoms found in all cases. Fever varying from low grade to high grade often associated with rigors was present in 68% cases, purid sputum in 64%, chest pain, haemoptysis and weight loss in 48%, 24% and 24% of cases respectively. 20% complained of heliotis, 28% had clubbing and 36% had leukocytosis.

Frequency of organisms isolated on aerobic culture of expectorated sputum. Specific organisms like S. Aureus and pseudomonas were found respectively in 28% and 16% of cases. No pathogen was isolated in 24% of cases. Above table shows that mode of onset was insidious in majority of patients i.e. subacute or chronic. Acute onset was found in 2 patients i.e. 8% of cases. In 80% and 12% of cases, onset was subacute and chronic respectively.

It is seen that abscess was solitary in 92% of cases and multiple were found in only 8% of cases. In 64% cases, abscesses were found on right side which also includes 2 cases in which multiple abscesses were present on right side only. In 36% cases abscesses were found on left side. It shows lobar distribution of abscesses: 16%, 8% and 32% had respectively right upper lobe, middle lobe and lower lobe abscesses. 8% and 28% had respectively left upper and lower lobe abscesses.

Table 1: Predisposing factors

<table>
<thead>
<tr>
<th>Predisposing factors</th>
<th>Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor oral hygiene</td>
<td>17 (68.0)</td>
</tr>
<tr>
<td>Alcoholism</td>
<td>2 (8.0)</td>
</tr>
<tr>
<td>Unconsciousness</td>
<td>2 (8.0)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Bronchogenic carcinoma</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>DM</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Seizure</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>No known factors</td>
<td>7 (28.0)</td>
</tr>
</tbody>
</table>

Table 2: Bacteriology of expectorated sputum

<table>
<thead>
<tr>
<th>Organisms isolated</th>
<th>Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha haemolytic Streptococci</td>
<td>4 (16.0)</td>
</tr>
<tr>
<td>Beta haemolytic Streptococci</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Streptococcus Pneumonia</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Haemophilus Influenza</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Staphylococcus Aureus</td>
<td>7 (28.0)</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>4 (16.0)</td>
</tr>
<tr>
<td>E.coli</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Enterobacter</td>
<td>3 (12.0)</td>
</tr>
<tr>
<td>Mixed</td>
<td>3 (12.0)</td>
</tr>
<tr>
<td>No pathogen</td>
<td>6 (24.0)</td>
</tr>
</tbody>
</table>

Table 3: Segmental distribution

<table>
<thead>
<tr>
<th>Segment involved</th>
<th>Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper lobe- Right Side</td>
<td></td>
</tr>
<tr>
<td>Posterior</td>
<td>3 (12)</td>
</tr>
<tr>
<td>Anterior</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Middle lobe- Right Side</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Medial</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Lower lobe- Right Side</td>
<td></td>
</tr>
<tr>
<td>Superior</td>
<td>6 (24)</td>
</tr>
<tr>
<td>Medial basal</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Anterior basal</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Upper lobe- Left Side</td>
<td></td>
</tr>
<tr>
<td>Anterior</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Superior lingular</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Lower lobe- Left Side</td>
<td></td>
</tr>
<tr>
<td>Superior</td>
<td>4 (16)</td>
</tr>
<tr>
<td>Anterior basal</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Lateral basal</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Posterior basal</td>
<td>1 (4)</td>
</tr>
</tbody>
</table>
The major predisposing factor was poor oral hygiene in 68% cases in present study. Estrera\textsuperscript{2} and Abernathy\textsuperscript{4} observed it in 59.8% and 69% cases respectively. Shafron and Tate\textsuperscript{11} observed the same.

DISCUSSION

The peak age incidence of occurrence of lung abscess was between 41-50 years; similar to that found by Rumbaug and Prior\textsuperscript{4}, Abernathy\textsuperscript{4}, Shafron & Tate\textsuperscript{11} and Barnet and Hering\textsuperscript{10}. Weiss\textsuperscript{14} noted that 75% of his patients were <50 years of age. In this study, 84% were under 50 yrs of age. Estrera\textsuperscript{2} found maximum incidence in 4\textsuperscript{th} & 5\textsuperscript{th} decade of life. Chidi C.C. et al\textsuperscript{6} observed 43% between 26-51 years of age. The incidence of lung abscess was in relation to sex with present study of different studies. Males were affected more commonly than females in all studies and also in present series. No reasonable explanation is available for the low incidence in females.

Table 5 shows response to medical treatment in relation to anatomical localization of abscess. Among patients who completed treatment, all responded satisfactorily except one patient with abscess in upper lobe. This was due to associated bronchogenic carcinoma which was found on investigation. Out of 25 patients, 4 patients did not take complete treatment. One patient (case no.22) expired during treatment due to associated chronic bronchitis and emphysema; although radiologically there was improvement in lung abscess. The remaining 3 patients improved with treatment, but went home while on treatment and did not return for follow up.

Table 6 shows satisfactory response was obtained in 80% cases. Response was considered satisfactory when patient became asymptomatic clinically and radiologically; either there was complete clearing or stable residual lesion in form of linear or small thin walled cystic lesion <2cm in diameter. Among those patients who responded satisfactorily, duration of antimicrobials varies from 2 to 8 weeks with average duration of 3.7 weeks.

Response was considered satisfactory when patient became asymptomatic clinically and radiologically; either there was complete clearing or stable residual lesion in form of linear or small thin walled cystic lesion <2cm in diameter. Among those patients who responded satisfactorily, duration of antimicrobials varies from 2 to 8 weeks with average duration of 3.7 weeks.

Table 4: Types of antimicrobials used

<table>
<thead>
<tr>
<th>Types of antimicrobial used</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxycillin</td>
<td>8 (32.0)</td>
</tr>
<tr>
<td>Amoxycillin + Metronidazole</td>
<td>4 (16.0)</td>
</tr>
<tr>
<td>Amoxycillin + Azithromycin with or without Metronidazole</td>
<td>9 (36.0)</td>
</tr>
<tr>
<td>Antimicrobials other than Amoxycillin</td>
<td>4 (16.0)</td>
</tr>
<tr>
<td>Total</td>
<td>25 (100)</td>
</tr>
</tbody>
</table>

Table 5: Anatomical localization of abscess

<table>
<thead>
<tr>
<th>Anatomical localization of abscess</th>
<th>Cases who completed treatment</th>
<th>Cases with satisfactory response to treatment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper lobe</td>
<td>5</td>
<td>4 (80)</td>
</tr>
<tr>
<td>Middle lobe</td>
<td>1</td>
<td>1 (100)</td>
</tr>
<tr>
<td>Lower lobe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superior seg</td>
<td>8</td>
<td>8 (100)</td>
</tr>
<tr>
<td>Basal segment</td>
<td>5</td>
<td>5 (100)</td>
</tr>
<tr>
<td>Multiple</td>
<td>2</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>20 (96)</td>
</tr>
</tbody>
</table>

Table 6: Outcome of treatment

<table>
<thead>
<tr>
<th>Outcome of treatment</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory</td>
<td>20 (80.0)</td>
</tr>
<tr>
<td>Cancer detected</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Improved but died due to other disease</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td>Lost to follow up</td>
<td>3 (12.0)</td>
</tr>
</tbody>
</table>

Table 3 shows segmental distribution of lung abscesses. On right side in upper lobe posterior and anterior segments were involved in 12% and 4% cases respectively. In middle lobe, each lateral and medial segment involved 4% cases. On right side in lower lobe, superior segment was involved in 24% cases while medial basal and anterior basal were involved only in 4% cases each. On left side in upper lobe, anterior or superior lingular were involved in 4% cases. In left lower lobe, superior segment was involved in 10% of cases and each anterior basal, lateral basal and posterior basal segment were involved in 4% of cases. 96% cases were treated by medical treatment alone while in 4% cases surgical intervention was needed in form of closed intercostal drainage for associated empyema.

Table 4 shows that Amoxycillin were used in 32% cases, metronidazole in 16% cases and in association with other antibiotics in 36% cases. 16% cases were treated with antibiotics other than Amoxycillin. Duration of antimicrobials in patients with satisfactory response:

Range: 2-8 weeks and Average: 3.7 weeks.
finding in 25% cases. In 2 patients, both alcoholism and poor oral hygiene were responsible. Alcoholism might have favoured aspiration by altered mentation. Chidi³ and Abernathy⁴ have incriminated alcoholism in 36.6% and 12% of their patients respectively. In one patient (case no.8), unconsciousness due to diabetic ketoacidosis was responsible for development of lung abscess. The other contributing factors in this patient were D.M. and poor oral hygiene. Estrera² and Chidi² detected diabetes in 5.7% and 11.1% of their patients respectively. Following post partum eclampsia, one patient (case no.7) developed lung abscess. Both seizure and unconsciousness were considered contributing factors. Seizure were found in 7.4%, 10% and 6.6% of cases in Estrera’s², Abernathy’s⁴ and Chidi’s³ studies respectively. Most cavitating bronchogenic carcinoma have unexplained predilection for upper lobes. Brock⁶ found that incidence of lung abscess secondary to bronchial carcinoma was 17.5% while Strand & Simpson¹⁹% and Hamer and Wolpaw¹²% 12%. It is estimated that 9-17% of cavity lung lesions are related to carcinoma². The mechanism of abscess formation in carcinoma is not fully understood. In 28% of cases, no known predisposing factor was observed in present study. Estrera², Chidi³ and Abernathy⁴ did not find any predisposing factor in 24.2%, 15.5% and 50% of their cases respectively.

Duration of symptoms varied from <1 week to 12 weeks. In majority of patients, onset was insidious. Chidi³ noted insidious onset in more than 50% cases. Barlett J.G. The most common symptom was cough with expectoration. Estrera², Barnett¹⁰ and Shafron¹¹ found this symptom in 73.5%, 98% and 80% respectively. Fever with rigor was present in 68% of cases. Barnett¹⁰ and Shafron¹¹ observed it in 70% and 47% respectively. Barlett¹² noted it in 95% cases and Collins¹³ in 60%. Chest pain was present in 48%. It was present in 65% and 42% in studies of Barnett and Hering³ and Shafron and Tate¹¹ respectively. Haemoptysis was observed in 24%. Estrera² observed this symptom in 38.2% cases. Barnett and Hering¹⁰ and Shafron and Tate¹¹ observed it in 43% and 38% respectively. Clubbing was observed in 28% in present study while in 3.8% in study of Estrera². Leucocytosis was present in 36% in present study. Barnett and Hering¹⁰ observed it in 50% cases. Barlett J.G.¹² found it in 87.4% cases but line demarcation was 9000/cu.mm. WBC count in his study. Normal oral flora was found in 16%. Potential pathogens comprised 60%. Isolation of specific organisms helped to consider specific aetiology and treatment was modified according to sensitivity tests. Most commonly involved segments were superior segment of lower lobe and posterior segment of the upper lobe (see table 20). Estrera² and Weiss¹⁴ observed involvement of superior segment of the lower lobe in 50.3% and 52.9% of their cases respectively. The involvement of these segments has also been illustrated by Brock⁶. This could be explained on basis that dependent segments in recumbent position are posterior segment of upper lobe and superior segment of the lower lobe and are consequently favoured by gravitational flow during periods of compromised consciousness. 96% patients required only medical treatment. Surgical intervention was required only in one case. Closed drainage by intercostal tube was done in that case as she developed empyema during the course of her treatment for multiple lung abscesses. Block¹⁵ also found medical treatment to be more effective in almost all his cases of lung abscess. Ferguson T.B. et al¹⁶ has mentioned that the role of operation in treatment of lung abscess has been relegated to the background since the introduction of penicillin in 1945. It is apparent that among patients who completed treatment, satisfactory treatment was achieved in all patients with abscesses in middle or lower lobe or multiple abscesses. Only one patient with abscess in upper lobe did not respond. But this has been attributed to bronchogenic carcinoma. Thus no correlation has been observed between anatomical localization of abscess and response to treatment. Anderson and McDonald⁸ claimed that basilar lower lobe abscesses have the worst prognosis; primarily due to difficulty in obtaining satisfactory postural drainage. However Estrera et al² have not noticed any difference in therapeutic response of lung abscesses. In their study, all nine lower lobe basilar segmental abscesses responded well to usual medical treatment. Satisfactory response was achieved in 80% of patients. One patient responded unsatisfactorily to medical treatment as he was found to have bronchogenic carcinoma. One patient responded well but succumbed to death due to associated disease - chronic bronchitis and emphysema. Three patients left the hospital while on treatment and did not turn for follow up. Among those patients who responded satisfactorily, range of antimicrobial treatment varied from 2-8 weeks with average duration of 3.7 weeks. Cure rates of 85-90% have been reported by Fox J.R. et al¹⁸ and Gittens S.A. et al¹⁹. Barlett J.G.¹² observed cure rate of 92% (24 cases) in 26 cases. The remaining two of his patients died as a result of associated disease - one from Ca. Oesophagus and other due to haemorrhage in glioblastoma.
CONCLUSION

From this study it was concluded that most of the patients with lung abscess were under age of 50. Most of them belonged to 2nd to 5th decade. Males were affected more commonly than females. Most important predisposing factor encountered was poor oral hygiene. Cough with putrid sputum and fever were present in more than half cases. Duration of symptoms was >1 week in majority of cases. Routine aerobic culture and sensitivity were helpful in management. Lung abscess was more common on right side and commonly involved segments were superior segment of lower lobe and posterior segment of upper lobe i.e. segments which are dependent in supine position. Medical treatment found very effective, surgical intervention was rarely required. Penicillins alone or in combination with other antimicrobials was found to be very effective. Satisfactory response was achieved in 80% cases. If only those patients who completed treatment are considered; it was 95%. No correlation was observed between anatomical location of abscess and response to medical treatment.

REFERENCES

ROLE OF CHEST XRAY IN ASSESSING THE SEVERITY IN H1N1 INFLUENZA CASES

Viral D. Panchal¹, Purvi Desai², Mahesh. K. Vadel³

Author's Affiliations: ¹Resident; ²Associate Professor; ³Professor & Head, Department of Radiodiagnosis and Imaging, New Civil Hospital, Surat, Gujarat

Correspondence: Dr. Viral D Panchal E mail: dr.vdpanchal@gmail.com

ABSTRACT

Introduction: Chest x-rays may play an important role in the diagnosis and treatment of H1N1 influenza by predicting which patients are likely to become sicker-who may be treated on out patient basis; who may need short duration of hospitalization; -who may need Intensive critical care viz. ventilator support

Methodology: We retrospectively studied 130 patients with H1N1 influenza infection. The most common abnormality was consolidation in the lower zones (46/130) followed by multiple zonal involvement (41/130). Although a normal chest x-ray did not exclude the possibility of an adverse outcome, the study's findings can help physicians better identify high-risk H1N1 patients who require close monitoring.

Result: The most common abnormality was consolidation in the lower zones (46/130) followed by multiple zonal involvement (41/130). On follow up 18 patients expired. Seropositive patients had predominant lower zone involvement While Patients with unizonal involvement has better outcome.

INTRODUCTION

Swine influenza (H1N1) is a very contagious respiratory infection and World Health Organization (WHO) has raised the alert level to phase 6 (pandemic). The study of clinical and X ray imaging findings helps in its early diagnosis.¹,²

The new H1N1 influenza infection or the swine flu is a very contagious respiratory tract infection which came to attention in Mexico in April 2009.¹ Since then it has rapidly spread in different countries and the World Health Organization (WHO) raised the alert level to phase 6 (pandemic level) by June 2009.¹

Although most patients have mild symptoms and those with severe symptoms (sepsis, pneumonia, ARDS) mostly had an underlying disease, it was recognized that H1N1 may affect young previously healthy individuals and unlike other subtypes of influenza may cause severe symptoms in this age group.²

A case fatality rate (CFR) of 0.45% has been reported for this infection.³ The patients may have different flu like manifestations such as fever, cough, sore throat, body aches, nausea and vomiting. The recognition of the pulmonary manifestations and radiologic features helps in early diagnosis, treatment and isolation of patients in order to prevent the spread of this very contagious respiratory tract infection. Several studies have been conducted in order to obtain information regarding the chest X-ray and computed tomography (CT) scan findings and correlation of these manifestations with disease severity has been made. The most common radiologic findings were the opacities observed in the lower lung zones.¹,³,⁴

In H1N1, as in various types of community-acquired pneumonia, initial chest x-rays may not show abnormalities that develop later in the course of the disease. Further x-rays should be performed according to the patient's clinical course

METHODOLOGY

In this retrospective study, the files of confirmed H1N1 positive patients with clinical history and examination findings were studied and followed. Pattern and extent of involvement were studied and number of hospitalizations and critically ill patients were followed. Critically ill patients in-
cluded in this study are the patients who have been on ventilator support any time during their hospital stay and ambulatory patients comprises the other group. Ninety Five patients had a postero-anterior chest radiograph and five patients had an antero-posterior chest radiograph. The radiographs were obtained with ‘ALLANGERS X-RAY MACHINE 300mA, MODEL NUMBER – ALLENGER /MARS 30’. Whenever a previous radiograph was available, the new chest X-ray was compared to the previous one and if a new abnormality was present it was defined and recorded. The radiographs were studied regarding being normal or abnormal; unilateral or bilateral involvement and the pattern of involvement including ground glass, consolidation, reticulation and nodules. Ground glass opacities were considered when the background vascularity could be observed and consolidation when the underlying vascularity could not be observed. The presence of bilateral or unilateral lymph node enlargement in the mediastinum or hilum as well as bilateral or unilateral pleural thickening or effusion was assessed.

The distribution of abnormalities was evaluated to be predominantly central, peribronchovascular or peripheral and focal, multifocal or diffuse. The distribution was also assessed in different lung zones by dividing into predominantly upper, middle or lower lung zone involvement. This was done in the frontal view with each lung divided into one thirds from the apex to the hemi diaphragm. The extent of lung zone involvement was compared in patients of different category and compared according the duration of the stay of patients.

RESULT

It was seen from the study that Seropositive patients had predominant lower zone involvement; Critically ill patients shows multizonal involvement; Patients with unizonal involvement had lower mortality and has better outcome.

Five patients who were seropositive had normal chest x-ray. Seven seropositive patients had coexisting tuberculous lesion in chest xray. Patients having co-existing tuberculous lesion had a more serious initial course but a better final outcome as these patients responded very well to anti tuberculous therapy.

Out of total seropositive patients, 112 were alive and 18 were died.

### Table 1: Zonal involvement in Swine flu positive patients (n=130)

<table>
<thead>
<tr>
<th>Zonal involvement</th>
<th>Sero positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower zone</td>
<td>46</td>
</tr>
<tr>
<td>Bilateral lower zone</td>
<td>23</td>
</tr>
<tr>
<td>Mid zone</td>
<td>18</td>
</tr>
<tr>
<td>Mid+lower zone</td>
<td>18</td>
</tr>
<tr>
<td>Upper zone</td>
<td>13</td>
</tr>
<tr>
<td>Normal chest xray</td>
<td>5</td>
</tr>
<tr>
<td>TB+Consolidation</td>
<td>7</td>
</tr>
</tbody>
</table>

### Fig 1: Swine flu positive patient with mid and lower zone involvement

### Fig 2: Swine flu positive patient with left lower zone involvement

### Table 2: Survival of seropositive patients according to severity of disease

<table>
<thead>
<tr>
<th>Indoor</th>
<th>Seropositive</th>
<th>Death</th>
<th>Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critically ill patients (viz. patients on ventilator support)</td>
<td>58</td>
<td>13</td>
<td>45</td>
</tr>
<tr>
<td>Ambulatory patients</td>
<td>72</td>
<td>5</td>
<td>67</td>
</tr>
</tbody>
</table>
Table 3: Critically ill patients with ventilator support

<table>
<thead>
<tr>
<th>Zonal involvement</th>
<th>Seropositive</th>
<th>Death</th>
<th>Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower zones</td>
<td>11</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Bilateral lower zones</td>
<td>11</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Mid zone</td>
<td>8</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Mid lower zone</td>
<td>15</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Upper zone</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>TB + Consolidation</td>
<td>7</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Normal chest xray</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4: Ambulatory Patients

<table>
<thead>
<tr>
<th>Zonal involvement</th>
<th>Seropositive</th>
<th>Death</th>
<th>Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower zones</td>
<td>35</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>Bilateral lower zones</td>
<td>12</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Mid zone</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Mid lower zone</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Upper zone</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>TB + Consolidation</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Normal chest xray</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

DISCUSSION

By the end of April 2009, two cases of confirmed novel H1N1 were detected in the United States. These patients were resistant to rimantadine and amantadine and had no contact with swine. Further cases of the new swine flu were identified in Mexico and other countries. By June 2009, several confirmed cases were reported from 74 countries and the virus was known to have human to human transmission and by that time WHO raised the alert level to phase 6 which is the pandemic level. The H1N1 influenza is a negative-sense RNA virus of the orthomyxoviridae family. The center for disease control and prevention (CDC) recognizes it with influenza like syndrome presenting with high fever, cough or sore throat.

H1N1 seropositive patients come under following categories:

- **Cat A** – Mild fever, cough, sore throat with or without headache, bodyache, diarrhea, vomiting.
- **Cat B1** – Symptoms of category A plus high grade fever + severe sore throat
- **Cat B2** – Symptoms of category A plus High Risk Group women, patients >65 yrs., patients with underlying lung disease heart disease, kidney disease, cancer, HIV/AIDS
- **Cat C** – Symptoms of category A and B plus following
  - Breathlessness, Chest pain, Drowsiness, Low BP, Sputum with blood

Bluish discoloration of nail, irritable child, worsening of underlying medical disease. Its diagnosis is confirmed by real-time reverse transcription polymerase chain reaction PCR or viral culture. Its incubation period is between 1 and 7 days. The patients are thought to be contagious from one day before to 7-10 days after the onset of the disease. Patients with a background disease including respiratory tract and heart disease are more likely to require hospitalization. The clinical presentations have been reported as fever, headache, sore throat, dyspnea, diarrhea and rhinorrhea. Laboratory findings are high CPK, high LDH and lymphopenia.

The new swine flu influenza S-OIV is known to be susceptible to neuramidase inhibitors and there is recommendation to give oseltamivir as prophylaxis to the high risk group. Different radiologic manifestations have been reported in several studies of the new swine flu influenza virus. Perez Pallida reported the radiologic manifestations of 18 patients with documented H1N1 infection as bilateral alveolar opacities which are predominantly basal and other observations being interstitial opacities (including linear and reticular). In a study on 66 patients, the most common abnormal pattern was consolidation most commonly observed in the lower and central lung zones and patients admitted to the ICU were more likely to have three or more lung zones involved. This result was consistent with our study. The patients were more Imaging Findings in H1N1 Influenza A Infection Bakhshayeshkaram M et al likely to have consolidations in the lower lung fields and those admitted to the ICU having two or more lung fields involved; however, in another study by Aviram et al performed on 97 patients who underwent chest radiography at admission, the most frequent abnormal pattern on radiography was ground glass opacities in the central and middle lung zones, which was followed by consolidation with slightly less frequency. This is in contrast with our findings which showed predominant involvement of the lower lung zones and consolidation as the most common manifestation. In their study, patients with bilateral and peripheral involvement or four or more lung zone involvement were more likely to have severe outcome, which is in consistence with our findings in critically ill patients. It should be noted that our study population included subjects suspected as having H1N1 virus infection on the basis of clinical examination findings and clinical history of the subject.
India reported its first case of Novel 2009 influenza A (H1N1) virus in May 2009 and subsequently, it was diagnosed all over the country within a short period of time. First case in Pune (Maharashtra) was reported in August 2009 and since then Novel 2009 influenza A (H1N1) infection had significantly affected the population. Many patients needed ICU management or critical ambulatory support and close monitoring in Swine flu Isolation ward.

REFERENCE

ORIGINAL ARTICLE

X-RAY AND MRI CORRELATION OF BONE TUMOURS

Mitesh D. Ghadiali¹, Mahesh. K. Vadel², Purvi Desai³, Bhagwati V Ukani³, Yash N Jardosh¹

Author’s Affiliations: ¹Resident; ²Professor & Head; ³Associate Professor, Department of Radiodiagnosis and Imaging, New Civil Hospital, Surat, Gujarat
Correspondence: Dr. Mitesh D. Ghadiali E mail: miteshghadiali@yahoo.co.in

ABSTRACT

Introduction: The evaluation of all skeletal lesions should begin with plain radiographic imaging. These images give basic information about its site, its location, its morphology, its aggressiveness. After the initial plain radiographic evaluation, the next imaging modality of choice is MRI. Its clinical applications in the form of diagnostic and therapeutic monitoring has reached a new height in musculoskeletal imaging¹.

Method: Correlating x-ray findings with mri findings to know the sensitivity and specificity of each diagnostic modality and to know role of each in planning management 30 patients were studied, The plain film included at least 2 projection depending on location and then patients underwent MRI.

Result: MRI is useful for information regarding soft tissue component, periosteal reaction where as XRAY is useful for information regarding bone and tumour calcification.

Keywords: Bone tumor, X-ray, MRI

INTRODUCTION

XRAY is basic investigation for any bony lesion which can be useful as a screening test. Ever since the first report of Magnetic Resonance Imaging (MRI) of the wrist by Hinshaw and colleagues in 1979, its clinical applications in the form of diagnostic and therapeutic monitoring has reached a new height in musculoskeletal imaging¹.² In the past two decades, MRI has evolved to become the modality of choice for the diagnosis, evaluation and post-therapy monitoring of primary bone tumors. This is because MRI is non-invasive, provides excellent soft tissue contrast with high sensitivity for soft tissues and bone marrow and its multiplanar imaging capabilities without use of harmful ionising radiation.³⁴

However, MRI evaluation of bone tumors can be challenging, because it not only requires knowledge of the various tumors along with their histopathology, age incidence and locations; but also because certain types of tumors are easily diagnosed by MRI while a substantial number of musculoskeletal tumors have no specific MR imaging characteristics.⁵⁶

Another confounding factor is that some tumors that appear aggressive by MRI criteria are actually benign appearing lesions on plain radiography; and vice versa. In evaluation of bone tumors, Plain radiography, MRI, and if need be, computed axial tomography (CT) and nuclear medicine all work hand in hand and, each to different degrees, aid in the staging and treatment planning.

METHODOLOGY

Total 30 patients (either suspected or proven cases of bone tumors) were studied during the period of May 2015 to November 2015. All patients were evaluated with plain film examination. The plain film included at least 2 projections (Antero-posterior and Lateral projection) and depending on location and extent of pathological process, patients underwent MRI with body, head and surface coils on MAGNETOM Essenza 1.5 Tesla MRI Scanner from SIEMENS at AatmaJyoti MRI Centre, New Civil Hospital, Surat.

The MRI centre is of public-private partnership type. MRI examinations were performed using 1.5 Tesla MRI machine from Siemens.

1) Coronal oblique T1W/ proton density weighted (PDW) fast spin echo (FSE) sequence.
2) Coronal oblique fat suppressed (FS) PDW FSE / T2 – W FSE sequence.
3) Sagittal oblique T2 W FSE sequence (with / without fat suppression).
4) Axial T2 – W gradient echo (GRE) sequence.
5) Axial PDW FSE (with / without fat suppression)

Field of view 14-16 cm, slice thickness 2-3 mm and matrix 512 x 512

RESULT

Of the total 30 patients in the study, maximum (36.67%) belonged to the age group 10-20 yrs and the least no of patients (3.33%) belonged to the age group above 60 yrs. Out of the 30 patients in the study, the most common symptom was pain (70%) followed by swelling which was present in 50% patients. Systemic symptoms like loss of weight were present in 26.67 % of patients. Restriction of movement was present in 3.3% patients, more commonly among patients with adjacent joint involvement as demonstrated on the MRI scan. Fever was present in 16.67% patients. Most of the patients with Ewing’s sarcoma had systemic symptoms.

Table 1: Type of lesion (n=30)

<table>
<thead>
<tr>
<th>Type of Lesion</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lytic</td>
<td>14 (46.7)</td>
</tr>
<tr>
<td>Sclerotic</td>
<td>3 (10.0)</td>
</tr>
<tr>
<td>Mixed</td>
<td>13 (43.3)</td>
</tr>
</tbody>
</table>

Out of the 30 patients in the study, the most common type of lesion was Lytic present in 46.7 % of patients followed by mixed type which was present in 43.3% of patients.

Table 2: Site of Lesion (n=30)

<table>
<thead>
<tr>
<th>Site of Lesion</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphysis</td>
<td>8 (26.7)</td>
</tr>
<tr>
<td>Metaphysis</td>
<td>8 (26.7)</td>
</tr>
<tr>
<td>Meta-Diaphysis</td>
<td>4 (13.3)</td>
</tr>
<tr>
<td>Meta-Epiphysis</td>
<td>9 (30.0)</td>
</tr>
<tr>
<td>Others (Vertebra/Skull)</td>
<td>1 (3.3)</td>
</tr>
</tbody>
</table>

Of the 30 patients studied in the group, the most common site of the lesion in long bone was Metaphysyeal region (30 %) followed by equal distribution in Diaphysis (26.7 %) and Metaphysis (26.7 %).

MRI is 100% sensitive and 100% specific for diagnosing periosteal reaction. In the study group of 30 patients with primary bone tumors, 53.33% shows soft tissue component. Positive predictive value of MRI as a diagnostic test for soft tissue component in our study group is 100 % In the study group of 30 patients with primary bone tumors, 56.67% shows soft tissue component.

DISCUSSION

The long bones and spine are the frequent sites of primary malignant bone tumors and multiple myeloma respectively. This study is aimed at highlighting the role of plain radiography and the benefits of MRI imaging in diagnosis, local staging and its impact on the management. Plain radiograph is indispensable in the imaging of any bone neoplasm and usually the first investigation performed. In malignant bone tumor of the long bones like osteogenic sarcoma/PNET, the patients are treated with chemotherapy and surgical excision. An adequate understanding of the nature of the lesion, its extent, its relationships with the surrounding soft tissues, muscles and the neurovascular bundles and detection of skip lesion is vital in planning the line of treatment. Similarly, adequate extent and site of number of lesions in multiple myeloma is mandatory for symptomatic treatment like vertebroplasty, radiotherapy etc.

The first step in the management of the bony lesion is establishment of a diagnosis. This makes biopsy essential. Planning of the biopsy approach is vital, as it has to be in a region where the incision for excision of the lesion is planned. Also it has to be placed such that it avoids any vital structures and other compartments. MRI with its brilliant anatomical details regarding the extent of the lesion and delineation of surrounding important structures is invaluable in biopsy planning. Another important aspect regarding biopsy is the identification of viable areas in a tumor as on histopathological examination, well vascularized viable tumor will be of greater value for determining the tumor type and grade than a biopsy specimen containing a mixture of poorly vascularized tumor tissue, edema or necrotic material. Blood flow through malignant tumors is not uniform and most tumors contain both highly perfused and sluggishly perfused areas. During the first-pass of the contrast agent in a tumor, the most richly vascularized areas will appear brighter than other tumor components as a result of a faster enhancement. After a few minutes differences in enhancement will be more difficult to identify, because as a result of a very short distribution halflife, useful advantage of MRI is the detection of skip or metastatic lesions which are not so easily picked on conventional imaging. This is extremely useful in planning the
surgical intervention, as areas of skip lesions have to be included in the surgical resection.  

However, X-ray still remains better than MRI in detecting tumor calcification. In our study, 7 patients showed calcification in plain radiographs. But still modality of choice is CT scan. In last decade, in addition to role of MRI in local staging, the recent advances of dynamic contrast enhanced MRI (DCE-MRI) is used for therapeutic monitoring of preoperative chemotherapy response and used to predict the percentage of tumor necrosis in order to differentiate responders from non responders.

REFERENCE

ORIGINAL ARTICLE

A COMPARATIVE STUDY BETWEEN INTRAMUSCULAR MIDAZOLAM AND ORAL CLONIDINE AS A PREMEDICATION FOR GENERAL ANESTHESIA

Jignasa J Patel1, Kalpana A Desai2

Author’s Affiliations: 1Assistant Professor, Dept. of Anesthesia, Government Medical College, Surat; 2Prof. & Dean, SMIMER, Surat, Gujarat.

Correspondence: Dr Jignasa J. Patel Email: jignasa2@gmail.com

ABSTRACT

Background: Most anesthesiologists agree on the need for efficient pre-medication. The pattern of desired effects of a pre-medication is however, complex and includes relief of anxiety, sedation and relaxation of the patient. The present study was undertaken to compare the effects of Midazolam and clonidine as premedication.

Methodology: A comparative study between midazolam and clonidine as a premedication for general anesthesia was conducted. Patients were divided in two groups: Group I: Inj. Midazolam 0.07 mg/kg i.m. before surgery; Group II Tab.Clonidine 4µg/kg oral, 2 hours before surgery. Pulse rate, blood pressure, state of excitement, apprehension and sedation were noted at the time of giving premedication.

Results: Majority of cases in both the groups were in the age group of 16-30 years (56%). Gender wise distribution shows 40% cases were males and 60% were females. The sedation score, apprehension score and excitement score in both the groups before and after induction was statistically significant. There is no significant difference in dose requirement of pentothal for induction between midazolam and clonidine group. The amnesia score shows that midazolam produces more potent and perfect amnesia as compared to clonidine. Amnesia score in both the groups was statistically significant

Conclusion: It was concluded from the present study that midazolam was superior to clonidine in its sedative and anxiolytic effects, had a potent amnesia and does not attenuate hemodynamic response to laryngoscopy and intubation and does not prolong recovery time.

Keywords: Premedication, Midazolam, Clonidine, Sedative

INTRODUCTION

The use of pre-operative medication to facilitate induction, maintenance and recovery after anesthesia has been debated over years. Most anesthesiologists agree on the need for efficient pre-medication. The pattern of desired effects of a pre-medication is however, complex and includes relief of anxiety, sedation and relaxation of the patient.

Midazolam is a benzodiazepine with a rapid and near complete absorption pattern after intramuscular (i.m.) injection, and a short elimination half-life. Although one study reported anxiolysis without side effects after midazolam premedication, other studies indicated that an effective dose of oral midazolam prolonged recovery times.

Midazolam has property to produce amnesia. Benzodiazepine is used frequently as premedication before general anesthesia, because of their anxiolytic, sedative and hypnotic properties.

Clonidine attenuates sympathoadrenal responses to painful (tracheal intubation or surgery) and other stimuli (e.g., sodium-nitroprusside induced hypotension4). α2- Adrenoceptor agonists activate presynaptic α2-adrenoceptors, thus inhibiting release of norepinephrine from sympathetic nerve endings. The exact mechanism of the reduction of the anesthetic requirements is unknown but it is presumed that the decrease is caused by actions on both pre- and postsynaptic α2-adrenoceptors in the central nervous system.
The present study was undertaken to compare the effects of Midazolam and clonidine as premedication.

**MATERIALS AND METHODS**

A comparative study between midazolam and clonidine as a premedication for general anesthesia was conducted on 50 patients of either cases at New Civil Hospital, Surat. All the patients belong to ASA I or II. The age of patients ranged from 15-65 years. On the day before the operation preoperative assessment was carried out. A complete systemic examination was done, to rule out any major systemic dysfunction. Routine investigations like hemoglobin estimation, urine analysis for albumin and sugar and X-ray chest were done in all cases. No sedation was given the night before operation. Informed consent was taken up for anesthesia and surgery. Patients were divided in two groups: Group I: Inj. Midazolam 0.07 mg/kg i.m. before surgery; Group II Tab.Clonidine 4µg/kg oral, 2 hours before surgery. Pulse rate, blood pressure, state of excitement, apprehension and sedation were noted at the time of giving premedication.

**Technique:** After 15 minutes of premedication intravenous line was taken. Pulse rate, blood pressure, state of excitement, apprehension and sedation were noted before induction of anesthesia. Patients were given Inj. Glycopyrrolate 0.004 mg/kg intravenously before induction. All patients were given general anesthesia with Inj. Thiopentone sodium (2.5%) intravenous and inj. Suxamethonium 2 mg/kg intravenous. Inj. Thiopentone sodium was given up to the loss of eyelid reflex and given dose was noted. Anesthesia was maintained on O₂ + N₂O+isoflurane+ nondepolarizing muscle relaxant (Pancuronium bromide). At the end of surgery, anesthesia was reversed with inj. Neostigmine 0.05 mg/kg intravenous and inj. Glycopyrrolate 0.008mg/kg intravenous.

Pulse rate and blood pressure were measured during laryngoscopy and intubation and 5 min., 10 min. and 15 min. after intubation. Post-operatively, recovery score was noted just after reversal and upto 2 hours according to recovery score mentioned in proforma. Post operative sedation and amnesia were also noted.

**RESULTS**

Majority of cases in both the groups were in the age group of 16-30 years (56%). Gender wise distribution shows 40% cases were males and 60% were females. Majority of cases in both groups were between 41-50 kg (56%) (Table 1).

| Table 1: Age and gender wise distribution of cases |
|---------------------------------|--------|--------|----------|--------|--------|----------|
| Age group (years)              | Midazolam |        |          | Clonidine |        |          |
|                                | Male (%) | Female (%) | Total (%) | Male (%) | Female (%) | Total (%) |
| 16-30                          | 8 (32)   | 6 (24) | 14 (56)  | 7 (28)   | 7 (28) | 14 (56)  |
| 31-45                          | 2 (8)    | 5 (20) | 7 (28)   | 1 (4)    | 7 (28) | 8 (32)   |
| 46-60                          | 2 (8)    | 2 (8)  | 4 (16)   | 2 (8)    | 1 (4)  | 3 (12)   |

| Table 2: Sedation, apprehension and excitement score in both groups |
|-----------------|--------------|--------------|-----------|
| Variables       | Midazolam    | Clonidine    | p value   |
| Sedation score  | Before Premedication | 0 | 0 | <0.001 |
|                 | Before Induction | 1.80 ± 0.80 | 1.12 ± 0.71 |  
| Apprehension score | Before Premedication | -0.52 ± 0.299 | -0.52 ± 0.223 | p<0.005 |
|                 | Before Induction | -0.12 ± 0.256 | -0.3 ± 0.288 |  
| Excitement score | Before Premedication | -0.5 ± 0.283 | -0.52 ± 0.223 | p<0.001 |
|                 | Before Induction | -0.12 ± 0.256 | -0.34 ± 0.278 |  

| Table 3: Pentothal dose reduction in both groups |
|---------------------------------|--------|--------|----------|--------|--------|----------|
| Group                          | Required dose of Pentothal | Given dose of Pentothal | % reduction | P value |
| Midazolam                      | 336.88 ± 46.89 | 280.0 ± 40.62 | 17.76 ± 3.09 | <0.001 |
| Clonidine                      | 345.48 ± 38.36 | 278.8 ± 35.16 | 19.76 ± 4.33 | <0.001 |
The sedation score, apprehension score and excitement score in both the groups before and after induction was statistically significant (p<0.001) (Table 2).

Midazolam and clonidine both caused significant reduction in thiopentone dose required to induce anesthesia. There is no significant difference in dose requirement of pentorhal for induction between midazolam and clonidine group (Table 3). There is statistically significant difference in systolic blood pressure and heart rate between before pre-medication and induction but no statistically significant difference between before induction and during laryngoscopy in clonidine group while in Midazolam group there is no statistically significant difference between before pre-medication and induction, but significant difference in blood pressure and heart rate between before induction and during laryngoscopy.

Table 4: Amnesia score in Midazolam and Clonidine group

<table>
<thead>
<tr>
<th>Group</th>
<th>Venous puncture</th>
<th>Application of mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam</td>
<td>1.76 ± 0.709</td>
<td>1.2 ± 0.489</td>
</tr>
<tr>
<td>Clonidine</td>
<td>-2.52 ± 0.499</td>
<td>-2.24 ± 0.427</td>
</tr>
<tr>
<td>p value</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

It was observed that there is a complete recovery from anesthesia in both groups. But there is significant difference in post-operative sedation between two groups. The amnesia score shows that midazolam produces more potent and perfect amnesia as compared to clonidine. Amnesia score in both the groups was statistically significant (Table 4).

**DISCUSSION**

In the present study we observed that midazolam produced rapid and better sedation as compared to clonidine and it was maintained in post-operative period. In the study conducted by H.Ronald et al, midazolam produced significantly better sedation than placebo and hydroxyzine given intramuscularly 60-90 min. before anesthesia. McAteer et al also observed the similar results in their study that midazolam compared to papaverretum produced similar degree of sedation. T.G. Short and his colleagues and J.Hargreaves at al in 1989 observed that midazolam and temazepam, both the drugs of benzodiazepem group provided similar degree of sedation.

We studied the anxiolytic effect of midazolam and clonidine and we observed that midazolam had better anxiolytic effect as compared to clonidine. McAteer and Dixon J. et al observed that midazolam was satisfactory agent for pre-medication producing adequate anxiolysis. J. Hargreaves and T.G.Short and his co-workers also observed that midazolam as well as temazepam were potent anxiolytic agents, but midazolam was superior to temazepam and produced significant degree of anxiolysis. P.M.Wright et al observed that in clonidine group, there was significantly more anxiolysis compared to inert group.

In the present study, we observed that there was 17.76% reduction in induction dose of thiopentone in Midazolam group and 19.76% reduction in clonidine group. P.M. Wright and his co-workers noted that clonidine reduced dose of induction agent (methohexiton) by 14.3%. The study conducted by Riku Aantaa et al observed that Dexmedetomidine caused 37% reduction in thiopen-tone requirement. J. Hargreaves supports our study with his result that midazolam received patients required significantly smaller doses of thiopentone than placebo or temazepam.

In the present study, we observed the post-operative recovery score as well as post-operative sedation in both the groups. Our observations correlated with F. Bonnet et al who observed that clonidine does not delay recovery from anesthesia. R. Aantaa et al observed that Dexmedetomidine caused dose dependent decrease in recovery time after anesthesia. In contrast to our study R. Aantaa et al concluded that time needed to regain consciousness was increased significantly after midazolam 0.08mg/kg and not after Dexmedetomidine.

**CONCLUSION**

It was concluded from the present study that midazolam was superior to clonidine in its sedative and anxiolytic effects, had a potent amnesia and does not attenuate hemodynamic response to laryngoscopy and intubation and does not prolong recovery time.

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ORIGINAL ARTICLE

SONOMAMMOGRAPHIC EVALUATION AND CHARACTERIZATION OF BREAST LUMPS

Umesh Shah¹, Mukesh Kothari²

Author’s Affiliations: ¹Assistant Professor, Dept. of Radiology; ²Associate Professor, Dept. of Surgery, GMERS Medical College, Dharpur, Patan, Gujarat

Correspondence: Dr Mukesh Kothari Email: drmukeshkothari@yahoo.com

ABSTRACT

Introduction: Modern breast USG is an established, ideal and accurate tool for the investigation and characterization of breast lumps. It also compliments X-ray mammography in further evaluation and diagnosis of breast masses and thus avoids unnecessary breast surgeries in benign conditions. We present a case series of 64 patients with ultrasound findings in various breast lumps and pathologies.

Aims & Objective: In this study we planned to evaluate and characterize breast lumps with USG examination.

Material & Method: The present study was conducted in the Department of Radio-diagnosis, GMERS, Patan. Patients under study were referred from the department of Surgery, medicine and gynaecology & obstetrics. Patients included for study were evaluated by Clinical and Ultrasound examination. Histopathological confirmation was done in all the cases by FNAC/ excision biopsy.

Result: On examination distribution of lesions was found to be Fibroadenoma (31.1%), Breast cyst (20.7%), Intraductal papilloma (5.2%), Lipoma (3.4%), Breast abscess (3.4%), Galactocele (3.4%), Cystosarcoma phyllodes (3.4%), Hamartoma/ Fibroadenlipoma (3.4%) & Fat necrosis (3.4%), Invasive ductal carcinoma (17.4%), Invasive lobular carcinoma (5.2%).

Conclusion: Sonomammography is a very dynamic and powerful tool for the evaluation of lumps. It considerably improves the visualization and evaluation of tumors in radiodense breasts as well it improves the specificity of mammography when used to complement X-ray mammography.

Keywords: Breast, Ultrasound, Sonomammography, X-Ray mammography

INTRODUCTION

As there is increased awareness and incidence of breast cancer in women, a breast lump may alarm both the patient and clinicians. Breast sonography is appropriate modality in the initial evaluation of a woman younger than 30 years with a palpable lump and also helpful in the evaluation of mammographic masses, focal asymmetric densities, and palpable abnormalities not seen mammographically.3 Although the cause may be benign, additional evaluation and histopathological confirmation might be needed.

Sonographic feature analysis of breast masses continues to improve4, though inter observer variability continues to be a problem, in avoiding biopsy.3,4 An illustrated Breast Imaging Reporting and Data System (BI-RADS) ultrasonographic lexicon5 may be helpful in improving observer performance.

MATERIAL & METHOD

The present study was conducted in the Department of Radio-diagnosis, GMERS, Patan. Patients under study were referred from the evaluated by Clinical and Ultrasound examination.

Patient Evaluation

Patients were evaluated along the following lines.

A. Clinical examination

A detailed clinical history was taken from all cases, general physical and local examination were carried out.

B. Radiological evaluation

Ultrasoundography

High-resolution real time sonography of the breast lumps was done in all patients. Scanning done with
7-10 MHz transducers on Medison Diagnostic ultrasound system installed in Department of Radio-diagnosis, TMCC & RC, Teerthanker Mahaveer University, Moradabad. The sonographic examination for inner part of breast was performed in supine position and for the outer part of breast; patient was placed in contralateral posterior oblique position with the ipsilateral arm raised. Scanning was performed in transverse and sagittal planes. Color Doppler (CD) & Power Doppler (PD) also used for assessment of vascularity of the lesion. Histopathological confirmation done in all the cases by FNAC/ excision biopsy.

RESULTS

Table 1: Lesion detection on breast USG examination (n=64)

<table>
<thead>
<tr>
<th>Nature of Lesion</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesions</td>
<td>58</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>2</td>
</tr>
<tr>
<td>Normal</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2: Ultrasonic characterization of breast lesions (n=58)

<table>
<thead>
<tr>
<th>Nature of Lesion</th>
<th>Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibroadenoma</td>
<td>18 (31.1)</td>
</tr>
<tr>
<td>Breast cyst</td>
<td>12 (20.7)</td>
</tr>
<tr>
<td>Intraductal Papilloma</td>
<td>3 (5.2)</td>
</tr>
<tr>
<td>Lipoma</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Breast Abscess</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Galactocele</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Cystosarcoma Phylloides</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Hamartoma/Fibroadenlipoma</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Fat Necrosis</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Invasive Ductal Carcinoma</td>
<td>10 (17.4)</td>
</tr>
<tr>
<td>Invasive Lobular Carcinoma</td>
<td>3 (5.2)</td>
</tr>
</tbody>
</table>

Table 3: Histopathological Categorization of lesion detected on breast USG examination (n=56)

<table>
<thead>
<tr>
<th>Nature of Lesion</th>
<th>Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign</td>
<td>41 (73.2)</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>2 (3.5)</td>
</tr>
<tr>
<td>Malignant</td>
<td>13 (23.3)</td>
</tr>
</tbody>
</table>

DISCUSSION

In our series, 64 patients with complaints of breast lumps were assessed. Mostly patients presented with clinical features of lumps/swelling, pain, nipple discharge and combination of these complaints. Out of 64 patients, lesions were detected in 58 patients on ultrasound examination, while 4 patients were normal on clinical & ultrasound examination and two patients were with indeterminate lesions on USG. Fibroadenoma were the largest group, representing 31.1% (18 out of 58) of lesions. It is usually seen in young women. On ultrasound it is usually homogenous, well defined, hypoechoic, ellipsoid, wider than tall, and may even show posterior enhancement. It may also present with foci of calcifications within. The calcifications within a fibroadenoma are coarse and may show posterior acoustic shadowing. Complex fibroadenomas have a higher incidence of transformation into breast cancer. On CD & PD, mostly lesions presented with mild/absent vascularity.

Breast cysts comprised 20.7% (12 out of 58) of lesions. It shows either simple or complex cystic features on USG. A significant number of complex cysts, especially those with a solid intracystic component, may turn out to be malignant on histopathology. On USG simple cysts presented as completely anechoic lesion, with a thin echogenic capsule, posterior acoustic enhancement, and thin clear edge shadow. Complex cysts showed internal echoes, septations or thick irregular walls. Sometimes it may appear as hypoechoic or solid echogenic lesion, depends on its contents. On CD & PD mostly lesions present with increased peripheral vascularity. Air shadowing was also noted along with inflammatory changes in adjacent breast parenchyma. Intraductal papillomas comprised of 5.2% (3 out of 58) of all lesions. Papillomas in the breast may be intracystic (Figure) or intraductal. They are difficult to differentiate from papillary carcinomas only on sonography and a FNAC/biopsy is required for confirmation. In our study, most of the patients with clinical complaint of bloody nipple discharge were turned out to be Intraductal and Intraductal Papillomas/papillary carcinoma. On USG it presented as a complex cystic lesion with an intracystic, solid, polypoidal echogenic mass of varying sizes. On CD & PD, lesions presented with increased vascularity within solid echogenic component. 2 out of 58 lesions (3.4%) were turned out to be lipoma. These are fatty tumors in the breast parenchyma and may vary in appearance on USG, ranging from uniformly echogenic to heterogeneous or completely anechoic lesions. In our study, breast USG showed well-defined, oval, echogenic mass lesion partially compressible on probe pressure, without any significant vascularity on Doppler. 2 out of 58 (3.4%) lesions turned out to be breast abscess. Acute breast abscesses may occur during lactation and are clinically present with high-grade fever, painful.
lump, skin erythema and oedema. On USG, it showed a large complex heterogeneous cystic lesion with mobile internal echoes and adjacent inflammatory breast tissue with increased peripheral vascularity on CD & PD.

2 out of 58 (3.4%) lesions turned out to be galactocele, which usually occur during lactation or shortly after breastfeeding is stopped, are mostly caused by an obstructed milk duct. In our study, both patients presented with complaint of breast lump during lactation. On USG, it showed a complex mass lesion filled with uniform dense echoes. On aspiration, this yielded a milky substance 2 out of 58 lesions (3.4%) were turned out to be cystosarcoma phyllodes. These are rapidly growing, benign-looking lesions with internal cleft and cystic spaces and moderately vascular on Doppler. They are fibroepithelial stromal tumors that may be benign or malignant. Recurrence rate is high and may rarely metastasize. In our study, both patients presented with complaint of rapidly growing breast lump. On USG, it showed a well-defined, lobulated, hypoechoic, encapsulated, with multiple, linear, anechoic internal “clefts” and cystic spaces. On CD & PD, lesions presented with increased vascularity 2 out of 58 (3.4%) lesions turned out to be hamartomas. These are fat-containing, benign tumors in the breast, with varying amount of fibrous and fatty components. On USG, it showed heterogeneous nature with mixed hypoechoic, echogenic areas and focal calcifications within. 2 out of 58 (3.4%) lesions turned out to be of fat necrosis.

Fat necrosis is a common entity. However, may pose difficulty to clinicians and sonologist. Fat necrosis may result from accidental trauma, after surgery or radiation therapy. The sonographic features of fat necrosis are varied and depend on the degree of fibrosis. In our study, on USG, it showed complex mass with echogenic bands that shift in orientation with changes in patient position, and an echogenic mass with posterior acoustic enhancement in other patient. 10 out of 58 (17.2%) lesions showed malignant features on USG and turned out to be invasive ductal carcinoma on histopathology. On USG, it presented with irregular, ill-defined, microlobulated, heterogeneously hypoechoic lesions with infi ltrative indistinct margins. These lesions were taller than wide in dimension.

3 out of 58 (5.2%) lesions showed malignant features on USG and turned out to be invasive lobular carcinoma on histopathology. This is the second most common breast malignancy and may be seen in elderly women. It is often missed on X-ray mammography. On sonography, its appearances are variable, ranging from lesions similar to ductal carcinomas to barely visualized areas of architectural distortion with picket-fence shadowing. Some of these tumors may even not visualized on USG. In our study, it showed large, ill-defined, heterogeneous, hypoechoic lesions with area of architectural distortion on USG. On histopathological confirmation out of 58 lesions, 41 lesions turned out to be benign, malignancy were detected in 13 lesions and 2 lesion were remain of indeterminate category.

CONCLUSION

Sonomammography is a very dynamic and powerful tool for the evaluation of breast lumps. The advantages of USG include good availability, cheaper, fast, with no ionizing radiation. As well as it helps in the assessment of vascularity of the lesion. USG should be used as the primary investigation or in conjunction with X-ray mammography for the evaluation and characterization of the breast lumps.

REFERENCES

ORIGINAL ARTICLE

INTUSSUSCEPTION IN CHILDREN: COMPARISON BETWEEN ULTRASOUND DIAGNOSIS AND OPERATION FINDINGS

Umesh Shah¹, Mukesh Kothari²

Author's Affiliations: ¹Assistant Professor, Dept. of Radiology; ²Associate Professor, Dept. of Surgery, GMERS Medical College, Dharpur, Patan, Gujarat
Correspondence: Dr Mukesh Kothari Email: drmukeshkothari@yahoo.com

ABSTRACT

Background: Intussusception is one of the more common causes of intestinal obstruction in children. The diagnosis may be based mainly on clinical features; however, there are no classic signs and symptoms that are common to all cases. This study reports our experience of diagnosis and operation findings of children with intussusceptions.

Materials and Methods: This was a retrospective review of intussusceptions in children in a tertiary health facility in a tropical developing country from January to December 2011.

Results: Twenty-five out of 41 children (M:F = 2.2:1) admitted with intussusceptions within the period were studied. The median age was 6.0 ± 5.57 months (range 3 months-7 years). Ultrasonography positively diagnosed intussusceptions in 20 (80%) cases.

Conclusion: Ultrasonography can increase diagnostic confidence in intussusceptions.

Keywords: Children, intussusception, operation findings, tropical developing country, ultrasonography

INTRODUCTION

Intussusception is one of the more common causes of intestinal obstruction in children. Recognising and treating this condition rapidly is important to prevent potentially fatal complications.¹,²

The diagnosis may be based mainly on clinical features,³ which could be quite challenging. This is, because, there are no classic signs and symptoms that are common to all cases of intussusception, a situation that often leads to delay in diagnosis. The classic triad of vomiting, abdominal pain and passage of blood per rectum occurs only in a third of cases.⁴-⁷

It implies that this classic triad cannot be wholly relied upon in making a diagnosis. Furthermore, atypical presentation of cases of intussusception is seen in up to 16% of children.⁸,⁹ Therefore, ultrasound scan (US) of the abdomen has been used to aid diagnosis and is said to be very reliable in experienced hands.¹⁰,¹¹

We sought to evaluate the value of Ultrasonography in increasing the diagnostic confidence in patients with suspected intussusceptions by determining the accuracy of Ultrasonography diagnosis and operation findings in cases of suspected intussusception in children in our centre. These findings may be useful to paediatric and other surgeons involved in the care of children with intussusception in similar settings as ours where late presentation is frequent and non-operative reduction is infrequently performed.

MATERIALS AND METHODS

The medical records of children aged 0-15 years consecutively admitted with intussusception to GMERS, Patan from January to December 2011 were retrospectively studied. The data extracted from the case notes included patient’s age, sex, symptoms and signs on presentation in hospital, clinical, Ultrasonography and barium enema diagnoses, status of sonographer and operation findings. Data analysis was carried out with descriptive statistics using SPSS version 14 for windows. Children with clinical diagnosis of intussusception without Ultrasonography diagnosis as well as those who had prolapsed intussusceptions were excluded.
from the study. Institutional consent was obtained from the Ethics committee. The sensitivity, specificity, positive and negative predictive values of the Ultrasonography scan were determined.

RESULTS

Forty-one patients with intussusception were seen during the 8 years period. Ten of them did not have US diagnosis while six children had prolapsed intussusceptions and hence were excluded from the study. The age range at presentation was 3 months to 7 years with a median age of 6.0 ± 5.57 months. There were 21 (84%) infants and 4 (16%) older children made up of 17 (68%) males and 8 (32%) females (M:F = 2.13:1) [Table 1]. The peak incidence of intussusception was in the 3-7 months age group.

Table 2 summarises the sources of the Ultrasonography results. More than half (n = 14; 56%) of them were generated by private Ultrasonography outfits whose experiences in diagnostic Ultrasonography could not be ascertained. The remaining scans were carried out in the Radiology Department by resident medical officer in 8 (32%) and consultant radiologists in 3 (12%) patients respectively. The Ultrasonography reports produced by the resident doctors were also reviewed by their consultants who countersigned them. All the 11 (100%) reports generated from the Teaching Hospital became truly positive at the end, one, which also had double contrast barium enema, which diagnosed intestinal polyp as cause of the intussusception. Of the 14 (56%) results from the private outfits, 9 (64.3%) were truly positive for intussusception. None in this patient group had barium enema study. In all, there were 21 (84%) positive Ultrasonography results and 4 (16%) negative Ultrasonography results.

Out of the 21 positive results, 20 (80%) of them were truly positive for intussusception at operation while 1 (4%) was falsely positive [Table 3]. Here, an obstructed and dilated segment of bowel caused by an adhesive band produced Ultrasonography features of intussusception leading to misdiagnosis of the actual condition. Of the four negative results, 3 (12%) of them were falsely negative meaning that there was intussusception at operation while the remaining 1 (4%) was truly negative, meaning that there was no intussusception at operation. The total accuracy of Ultrasonography was 84% while the sensitivity and specificity were 87% and 50% respectively. The low specificity was probably due to inability to identify all of the patients who were referred and subsequently were proven not to have an intussusception. Similarly, the positive and negative predictive values were 95.2% and 25% respectively.

Table 1: Age and sex distribution of children with intussusception

<table>
<thead>
<tr>
<th>Age</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 months</td>
<td>3 (12)</td>
<td>0 (0)</td>
<td>3 (12)</td>
</tr>
<tr>
<td>4-7 months</td>
<td>8 (32)</td>
<td>6 (24)</td>
<td>14(56)</td>
</tr>
<tr>
<td>8-11 months</td>
<td>2 (8)</td>
<td>2 (8)</td>
<td>4 (16)</td>
</tr>
<tr>
<td>1-2 years</td>
<td>2 (8)</td>
<td>0 (0)</td>
<td>2 (8)</td>
</tr>
<tr>
<td>3-7 years</td>
<td>2 (8)</td>
<td>0 (0)</td>
<td>2 (8)</td>
</tr>
</tbody>
</table>

*Age as at last birthday

Table 2: Distribution of the sources of US results

<table>
<thead>
<tr>
<th>Source</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Ultrasound Outfits</td>
<td>14 (56)</td>
</tr>
<tr>
<td>Resident Doctors</td>
<td>8 (32)</td>
</tr>
<tr>
<td>Consultant Radiologist</td>
<td>3 (12)</td>
</tr>
</tbody>
</table>

Table 3: Ultrasound diagnosis of intussusception compared with operation findings

<table>
<thead>
<tr>
<th>US Result</th>
<th>Intra operative diagnosis of intussusception</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td></td>
<td>Ileo Caecal</td>
<td>Ileo Colic</td>
</tr>
<tr>
<td>Positive(a)</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Negative(c)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Ileocolic (n = 17; 68%) and ileocaecal (n = 5; 20%) intussusceptions were more commonly encountered at operation. There was no entry of cases of intussusceptions that had spontaneously reduced in the case notes. The causes of the intussusceptions were unknown in 23 (92%) patients as no specific lead points were found at operation. However, in 2 (8%) other older patients a sessile polyp and an enlarged hypertrophied ileal lymphoid patch were documented as causes of the intussusceptions leading to resection of the bowel segments.
DISCUSSION

The results of this study showed that infants were those commonly diagnosed with intussusception. This finding was in agreement with those of other studies. It differed with earlier reports that associated childhood intussusception with the above 5 years age group. This underscores the challenge in diagnosis that may be experienced.

While the older child can appreciate his symptoms to some extent, the preverbal children cannot give any clue about their problem. Therefore, total reliance must be placed on the parents’ history and the objective assessment of the surgeon. However, there are no classic signs and symptoms that are common to all cases of intussusception. Even the classic triad of vomiting, abdominal pain and passage of blood per rectum is said to occur only in a third of cases. Recent studies have it that about 30%-68% of children with clinical findings suggestive of intussusceptions end-up with the condition.

This underscores the need for an additional diagnostic tool such as Ultrasonography scan, which has been said to be very reliable in experienced hands. The finding of the study showed that majority of the patients had their Ultrasonography investigations performed by private Ultrasonography outfits. The importance of this fact is that, the eventual result will depend on the experience of the sonographer. This is likely to influence the accuracy of the investigation. Presumably, there may also be patients referred to the centre who had not been identified to be included in the study.

On the other hand, the scans performed by the Resident doctors were again reviewed by the consultants who were more experienced. This led to a 100% positive predictive value of the children with intussusception. On the contrary, higher frequency Ultrasonography imaging with better resolution were more likely to be available for use in specialist Teaching Hospital setting than on private outfits.

The results of the study showed that Ultrasonography was highly accurate in the diagnosis of intussusception in experienced hands with a sensitivity of 87%. This is in line with earlier series in the developed economies. However, the observed specificity of 50% appeared low and at variance with 88%-100% normally quoted in literatures. Presumably this low value may be due to patients referred to our centre who were not identified to be included in the study. It could also be accounted for by the inexperience of the private sonographers who diagnosed a child with adhesive bands as having intussusception, leading to one false positive result. This agrees with the observation that thickened bowel wall in some acute gastrointestinal conditions in children may produce Ultrasonography features of intussusceptions. This therefore calls for experience in Ultrasonography interpretation and a high index of suspicion on the part of the clinician. Where still in doubt, radiography with barium continued into non-operative management of the condition is performed except in late presentation with advanced symptoms, such as peritonitis indicating the presence of gangrenous intestine.

To perform barium enema reduction, the patient must be adequately prepared and theatre booked and ready for operative treatment should the procedure fail. A column of barium is retained at a level of 30 cm above the buttocks of the patient. A higher level may result in an increased intraluminal pressure with risk of perforation due to impaired viability of the intestine. Reduction is considered complete when barium refluxes freely into the small intestine for more than 5-10 cm. If this fails or if perforation occurs, immediate surgery is performed.

The realized accuracy rate of 84% was much lower than 94.4% reported by other series. While relatively high positive predictive value comparable to those in published series was achieved, the negative predictive value was rather low and not in keeping with those of other studies. The types of intussusceptions found at operation also agreed with those commonly reported in children in our environment and world-wide. Similarly, the causes of intussusceptions documented in the study were in keeping with those of other series.

In conclusion, the accuracy of Ultrasonography diagnosis in experienced hands was high and could increase the diagnostic confidence in patients with suspected intussusceptions. Thickened bowel wall in other gastrointestinal conditions could produce Ultrasonography features of intussusceptions. Therefore, a high index of suspicion is recommended. If still in doubt after Ultrasonography diagnosis, we recommend a contrast enema, which can be continued into non-operative management. However, in the tropical developing countries, operative treatment may sometimes be expedient in averting grave consequences of the condition, which could be occasioned by poverty or non-availability of the required non-operative modality of treatment.
REFERENCES


CASE REPORT

CASE REPORT OF ATYPICAL PRESENTATION OF SSPE WITH ADEM

Nirali J Mehta¹, Binita M Surti², Deepak B Gamit²

Author's Affiliations: ¹Asst. Professor; ²Resident, Dept. of Paediatrics, SMIMER, Surat, Gujarat
Correspondence: Dr. Nirali J Mehta, E-mail: drniralim@gmail.com

ABSTRACT

Sub-acute sclerosing panencephalitis (SSPE) is chronic encephalitis of childhood and young adolescents due to persistent measles virus infection of the central nervous system. In majority of cases, onset occurs from 5-15yrs of age. In a non-immunised population, the average onset is 8yrs. SSPE generally occurs 5-10years after measles infection. In the early stage of the disease, behaviour and personality changes is followed by myoclonic jerks and convulsion. In late stages dementia, stupor and coma develops. Diagnosis is achieved by typical clinical finding, increase measles antibody titre in cerebrospinal fluid and serum, high amplitude slow sharp waves in EEG. Prognosis is poor and death ensues in about 3 yrs. after the diagnosis. Atypical form of SSPE occurs in about 10% of patients and a high index of suspicion is needed to detect these atypical cases. We report a patient of SSPE who presented to us as ADEM. Effective immunisation against measles is the only solution presently available to the problem of this dreaded disease.

CASE REPORT

A 10 year old boy admitted in our hospital with complaints of involuntary jerky movements of right upper limb, with drop attacks while walking, convulsion, followed by stupor. In past, patient was admitted in private hospital in 2009 for fever & convulsion, diagnosed as febrile convulsion & no anticonvulsants were started. Thereafter, in 2014, patient was having involuntary movement of right upper limb starting from thumb gradually involving the right upper limb lasted for a month and had convulsion two episodes in 15 days with altered consciousness.

CT Brain was done at first which showed S/o enhancement of leptomeningitis. Then after 1 month, MRI Brain was done which showed S/o acute demyelinated encephalomyelitis and patient was advised pulse therapy of steroid but they didn't took the treatment. This time on admission in our hospital, we had a 30kg boy, 140cm in height, vitals normal. CNS examination revealed Babinski positive, with hypertonia in right half of the body with all reflexes absent. CBC, electrolytes, renal function test, Liver function test were within normal range. Chest X Ray was also normal. MRI was done at our hospital showed S/o ADEM. Hence pulse therapy with methyl prednisolone was given but no improvement in jerks, so, Tab Clobazam and Tab Oxcarbamepine were started.

We also gave immunoglobulin for 5 days, but there was no improvement in condition of the patient. During the stay in hospital patient was given supportive treatment. He was given sodium valproate and clonazepam for myoclonic jerks. After 10 days, seizures persisted though the frequency of seizures decreased somewhat, patient’s relatives left the hospital against medical advice.

In CSF examination total cells were 05, all lymphocytes, sugar 122, protein 5, culture showed no growth. CSF antimeasles antibody IgG and serum IgG level showed s/o sub-acute sclerosing panencephalomyelitis.

In CSF, Serum IgG Measles- 9227.5 U/ml; CSF IgG Measles- 15151.6 U/ml; Serum total IgG – 2460 mg/dl; CSF total IgG – 8.49 mg/dl; CSF/Serum quotient reference – POSITIVE (2.35)
From this report the diagnosis of SSPE was confirmed.

In EEG, the wave pattern revealed periodic generalized complexes consisting of bilaterally symmetrical, high voltage bursts of sharp waves and delta waves which repeated at an interval of 3 to 20 seconds with a slow background (Fig. 1) s/o SSPE.
progressive myoclonia with cognitive decline in accounting to 4% of under 5 dea
die each year due to measles and its complication,
cent studies estimated that 80,000 Indianchildren
of childhood morbidity and mortality in India. Re-
prognosis.
As it is the sequel of measles, SSPE is difficult to
diagnose & stamp. In our case, patient presented
rare complication of measles, SSPE is difficult to
subacute sclerosing panencephalitis in the differential diagnosis of en-
cerebral dysfunction in the form of cognitive im-
and deterioration of consciousness (sometimes
culing in coma). Atypical form of SSPE occurs in about 10% of all patients. Unlike classical
SSPE, in atypical form there are no defined stages in clinical presentation due to rapid course. Atyp-
ical features also include unusual age of onset, visual
loss, seizures and other focal symptoms as ini-
itial presentations, a lack of SSPE-specific EEG pattern, and atypical fast progression of disease. As rare complication of measles, SSPE is difficult to
diagnose & stamp. In our case, patient presented
with convulsion, abnormal involuntary myoclonic
jerky movements, confusion, stupor, with MRI
brain s/o changes of ADEM.

There was a past history of measles infection and patient was unimmunised. Initially pt didn’t re-
spond to all treatment given as for ADEM. After
the CSF antimeasles antibody report, we can make out the diagnosis of SSPE as atypical rare presenta-
tion with ADEM.

As it is the sequel of measles infection, carries poor
prognosis. Measles continues to be a major cause of childhood morbidity and mortality in India. Re-
cent studies estimated that 80,000 Indian children
die each year due to measles and its complication,
accounting to 4% of under 5 death. Hence, SSPE continues to be one of the commonset cause of progressive myoclonia with cognitive decline in
developing countries with incomplete measles im-
umination coverage. Measles is still an important medical problem in the developing countries, so SSPE should be considered when a patient with
history of measles presents with atypical clinical features like loss of consciousness, acute partial-
generalized convulsion, acute encephalitis, visual
loss, ataxia, and hemiparesis. EEG of these pa-
tients should be evaluated carefully and serum and
CSF measles antibodies should be examined.

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CASE REPORT

TRACHEOBRONCHOMEGALY: A RARE CAUSE OF BILATERAL BRONCHIECTASIS

Babaji Ghewade¹, Saood Ali², Swapnil Chaudhari², Smaran Cladius²

Author's Affiliations: ¹Prof & Head; ²PG Student, Dept of Respiratory Medicine, Jawaharlal Nehru Medical College, Wardha, India.
Correspondence: Dr. Babaji Dnyaneshwar Ghewade Email: bgewade@rediffmail.com

ABSTRACT

Mounier-Kuhn syndrome, also called tracheobronchomegaly, is a very rare congenital disorder of the lung primarily characterized by an abnormal widening of the upper airways. The abnormally widened trachea and mainstem bronchi are associated with recurrent lower respiratory tract infection and copious purulent sputum production, eventually leading to bronchiectasis and other respiratory complications. Here we report a rare case of 55 year old nonsmoker male who presented with recurrent lower respiratory tract infection and bronchiectasis on chest xray, ultimately diagnosed to have bilateral bronchiectasis due to tracheobronchomegaly.

Keywords: Tracheobronchomegaly, Mounier Kuhn syndrome, Bronchiectasis

INTRODUCTION

Mounier-Kuhn syndrome, or tracheobronchomegaly, is a rare clinical and radiological condition. It is characterized by distinct dilatation of the trachea and bronchi and by recurrent lower respiratory tract infections (LRTIs).1-4 The syndrome was first described by Mounier-Kuhn in 1932, and fewer than 100 cases had been reported in the medical literature upto 1994.4 Recently more cases are being reported because of the wide availability of the CT scans. The cause of the condition is not clearly understood; however, in biopsy studies, congenital atrophy has been observed in the smooth muscle and elastic tissue of the trachea and main bronchi. Bronchial and tracheal diverticula can also accompany tracheobronchomegaly.1-4 Normal tracheal inner diameter is approximately 25mm in males and 21mm in females. A diameter of more than 30mm is diagnostic of tracheobronchomegaly which is usually measured 2cm above the aortic arch.

CASE REPORT

A 55 years old male presented with complaints of recurrent cough with mucoid expectoration and breathlessness (MMRC GRADE 2) since 15-20 years which used to get aggravated on exertion and with environmental changes and was non progressive in nature.

Patient was taking inhaled formoterol fumarate and fluticasone propionate in DPI form since 3 years. There was no history of orthopnea, paroxysmal nocturnal dyspnoea, hemoptysis, tuberculosis or ATT intake in past. Patient was chronic alcoholic for 20 years but had stopped alcohol consumption for last 10 years.

On examination, patient was overweight with a BMI of 25.1 kg/m². Patient was afebrile and there was no pallor, icterus, cyanosis, lymphadenopathy, pedal oedema. Grade I clubbing was present. His pulse was 94/min, regular, normovolumic & peripheral pulses were felt bilaterally. Respiratory rate was 26/min, thoracoabdominal, blood pressure was 110/74 mm Hg in right arm in supine position and oxygen saturation was 98% on room air.

On respiratory system examination upper respiratory tract showed a congested throat with deviated nasal septum to right side and inferior turbinate hypertrophy. In lower respiratory tract examination, normal vesicular breath sounds were heard in all lung fields along with bilateral extensive crepitations and occasional polyphonic rhonchi.

Chest xray PA view (Fig 1) was suggestive of bilateral cystic changes more in the right mid and lower zone with patchy areas of consolidation in right mid zone.
Figure 1: Chest x-ray showing bilateral bronchiectasis more in right mid and lower zone.

Figure 2a and 2b: HRCT image showing cystic bronchiectasis with tracheobronchomegaly.

Figure 3: Bronchoscopy image showing increased tracheal diameter.

His lab investigations showed Haemoglobin 11.2gm%, WBC 17100/cmm with 78% neutrophils, normal platelet counts & ESR 67mm/hr. Liver & kidney function tests were normal along with normal blood sugar & ELISA test for HIV was nonreactive. Absolute eosinophils count was 171/cmm. Arterial blood gas level was also normal with PH 7.38, HCO3 24meq/l, PAO2 92 mmhg, PACO2 42 mmhg. Pulmonary function testing revealed a forced expiratory volume in 1 sec (FEV1) of 2.03 L (58%), a forced vital capacity (FVC) of 2.39 L (55%), and FEV1/FVC of 68%.

HRCT THORAX (Fig 2a & 2b) showed multiple well defined cystic lesions with air fluid levels noted in few of the cysts, bronchial wall thickening, multiple ill defined opacities with surrounding ground glass opacities s/o cystic bronchiectasis with infective infiltration. The tracheal diameter measured was 36.9 mm on CT scan. Further investigations showed serum ANA negative, Mantoux test non reactive, thyroid stimulating hormone 1.20, C Reactive Protein 59.1, normal USG abdomen & pelvis and bone marrow studies.

Sputum cytology showed inflammatory smear with polymorphonuclear cells, macrophages and cell debris. No malignant cells seen. Sputum for AFB bacilli was negative Sputum culture and sensitivity showed no growth. Flexible fiberoptic bronchoscopy showed (Fig 3) mobile vocal cords, oedematous and hyperemic tracheal mucosa. There was increase in transverse diameter and reduction in anteroposterior diameter of trachea. The posterior membranous wall was excessively bulging into the tracheal lumen. The carina was sharp and there was no other obvious abnormality. Thick secretions present in bilateral lower lobe bronchi were aspirated into the mucous trap which showed
growth of Pseudomonas aeruginosa species on culture.

Final diagnosis of Tracheobronchomegaly causing bilateral bronchiectasis was made.

DISCUSSION

Mounier-Kuhn syndrome (also called Tracheobronchomegaly) is a very rare congenital disorder of the lung primarily characterized by an abnormal widening of the upper airways. The abnormally widened trachea and mainstem bronchi are associated with recurrent lower respiratory tract infection and copious purulent sputum production, eventually leading to bronchiectasis and other respiratory complications.

The underlying abnormality is an absence or marked atrophy of the elastic fibres and smooth muscle within the wall of the trachea and main bronchi, leading to sacculations and the formation of diverticulae between the cartilaginous rings. Although this is thought to be congenital, there is no universal agreement. Most cases present in the third or later decades with recurrent respiratory tract infections. Most cases, however, are sporadic and show no evidence of associated connective tissue disease, as was the case in our patient also.

As a result of the flaccidity of the wall of the respiratory tree there is significant change in airway size during the different phases of respiration. During inspiration negative intra-thoracic pressure develops leading to marked enlargement of the trachea. However, as expiration commences, the reversed intra-thoracic pressure causes collapse of trachea. In addition to this dynamic change, bronchial or tracheal diverticulosis are common, as is bronchiectasis. There is also an absence of the myenteric plexus of the bronchial tree.

The most sensitive imaging test is a biphasic CT with images of the trachea obtained during inspiration and expiration. Two-phase chest radiographs will also demonstrate the enlargement of the trachea on inspiration and collapse during expiration, but they are clearly less sensitive.

To consider the diagnosis, the diameter of the trachea should be greater than 30 mm: this is usually measured 20 mm above the aortic arch. Other measurements that have been used to make the diagnosis include bronchial diameters of 20 or 24 mm (right) and 15 or 23 mm (left) have also been used. Posteriorly projecting tracheal diverticulae may also be seen.

Treatment is usually conservative with physiotherapy and postural drainage. Acute exacerbations are treated with antibiotics.

With the advent of HRCT and bronchoscopy, reporting of such cases is on increase. Singh m et al recently reported a similar case with a tracheal diameter of 45.5 mm. Krustins E did a systematic analysis of 128 cases published from year 1987 to 2013. 8.1 male predominance was found in 89 identified reports (128 cases). Mean age was 53.9 years, and average tracheal diameter was 36.1 mm. No correlation between increasing age and increasing tracheal diameter was found. Bronchiectasis, tracheal diverticulosis and tracheobronchial dyskinesia were common (49.2%, 33.6% and 28.9%, respectively). Cough, dyspnea and recurrent respiratory infections (71.1%, 51.6% and 50.8%, respectively) were the most common complaints.

CONCLUSION

It is recommended that when no other etiologies are identified in bronchiectasis, we should carefully look for tracheal diameter in HRCT and bronchoscopy as Tracheobronchomegaly can be the cause of bilateral bronchiectasis.

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CASE REPORT

BILATERAL PLEURAL EFFUSION AFTER CENTRAL VENOUS CATHETERIZATION - A RARE COMPLICATION

Reyaz Ahmed Para¹, Aabid Hussain Mir², Amit Kumar², Zaka Sameen², Toufeeq Ahmad Mir¹

Author’s Affiliations: ¹Senior Resident, Dept of Critical Care Medicine; ²Postgraduate, Dept of Anaesthesiology and Critical care, Sheri Kashmir Institute of Medical Sciences, Srinagar, India.

Correspondence: Dr. Reyaz Ahmed Para Email: drparareyaz@gmail.com

ABSTRACT

Central venous Catherization (CVC) is rarely complicated by pleural effusion. It is usually due to malpositioned catheter. Our patient was a 35-year-old man admitted with Meningoencephalitis. A cervical central vein catheter was placed into his right jugular vein after induction of anaesthesia in Emergency Room. In chest x ray we encountered bilateral pleural effusion and drained it with a chest tube. During following days the patient has daily drainage of almost 1.7 liter of clear yellowish fluid from chest tube. Fluid analysis was not diagnostic. We removed the central vein catheter and plural drainage was stopped.

Keywords: Central venous Catheterization , Pleural effusion

INTRODUCTION

Central venous catheterization (CVC) can cause various complications. The use of a central venous catheter may occasionally be associated with complications like sepsis, effusions and thrombosis. Migration of the central catheter is an unusual complication that often goes unrecognized. Our case report, however, describes a complication occurring after internal jugular venous catheterization, which is difficult to explain with our current knowledge of anatomy. This case report is of a adult male who developed bilateral pleural effusion resulting from a migrating central line and highlights the need for a high level of clinical suspicion in diagnosing catheter related problems.

CASE STUDY

A 35-yr-old man with a 3-day history of severe headache, fever vomiting and altered sensorium was admitted in Emergency. Initial clinical and laboratory evaluation revealed the diagnosis of acute pyogenic meningoencephalitis. On examination patient was in shock with Blood Pressure of 80/50 mm Hg on arrival, with GCS of E3 V3 M5. Chest radiograph on arrival was normal (fig. 1). In emergency room a 15cm 7F central venous catheter (certofix® TrioB Braun Melsungen AG) was inserted in internal jugular vein on right side. Central venous catheterization was done by a senior postgraduate under the supervision of a senior resident and all the ports were checked for blood aspirate. Eventually patient dropped his GCS and got intubated and was shifted to intensive care unit. On day 2 of admission patient showed increased requirement of ventilatory settings, was able to maintain saturation only on fio2 of more than 0.8 along with increased doses of sedatives paralytics were required, and chest examination revealed signs of right sided pleural effusion. Chest X-ray was repeated that was suggestive of right sided pleural effusion. (fig 2). Pleural fluid analysis was done that was insignificant. A repeat X-ray on 2nd day of ICU admission showed increased pleural effusion on right side as well as left sided effusion, (Fig 3) and patient used to remain hypoxemic on maximum ventilatory support. Bilateral intercostal chest drain was placed and around 1200 ml of serous fluid was drained gradually from right pleural cavity and 500ml from left side. Suspicion of central line malpositioning was made aspirate was checked from all the ports that was serous. Central venous catheter was immediately removed after establishing a peripheral access. Gradually the intercostal drain output decreased and chest X-ray was repeated after two days that showed markedly decreased effusion,(fig 4) ventilatory settings also decreased .Patient was managed in ICU for one week with mechanical ventilation , antibiotics ( ceftriaxone and vancomycin) and other supportive measures.
Figure 1: Chest X-ray on admission to emergency.

Figure 2: Chest X-ray on 2nd day of ICU showing right sided pleural effusion.

Intercostals tube drain was removed on fifth day. Patient was discharged after two weeks from the parent department ward in a stable condition.

DISCUSSION

Insertion of a CVC has been associated with both immediate and long term complications. Catheter malposition, pneumonia and hemothorax are immediate complications usually secondary to the insertion procedure. Late complications are occlusion, thrombosis, sepsis and catheter tip migration. There have been many case reports of CVC tip migration leading to pericardial effusion and cardiac tamponade. Various explanations have
been given for the extravascular exudation of fluid. Some authors have hypothesized that hyperosmolar parenteral infusate, high acidity or alkalinity may have contributed to the erosion, e.g., total parenteral nutrition, antibiotics infusion (vancomycin) and sodium bicarbonate, could cause endothelial damage and subsequent increase in vascular permeability leading to an effusion. Phlebitis as a result of the infection could have been postulated to weaken the vessel wall and led to the perforation. Migration of the catheter tip may occur because of movement of the head and extremities. It is also generally accepted that flushing of the CVC by nursing staff could aid in line migration. The ideal position of the catheter tip is at the SVC-right atrial junction or in the inferior vena cava at the level of the diaphragm.

Catheterization via the internal jugular vein may result in fewer malpositions than catheterization via the subclavian vein. Generally, catheterization via the left internal jugular vein results in more malposition and vascular perforation than a catheter placed from the right internal jugular vein. This is because the right internal jugular vein runs into the right brachiocephalic vein in a fairly straight course whereas the left internal jugular vein forms a greater bend when it becomes the left brachiocephalic vein. Catheter tip migration is a recognized phenomenon following central venous catheterization, occurring to some degree in approximately 17% of all percutaneously introduced catheters. Poor position or aberrant location from catheter tip migration has been shown to occur in up to 6% of catheters.

In many instances, as in the present case, the infusion pump does not usually signal an occlusion in cases of tip migration leading to effusions. Thus, the present case report reinforces the need for a high level of clinical suspicion of a catheter related problem in patients with cardio-respiratory insufficiency. The need for serial X-rays, especially contrast-aided radiographs, is also clearly demonstrated in this case. This is a rare complication that is yet to be satisfactorily explained.

REFERENCES
CASE REPORT

RARE CASE OF FIBROTHECOMA OF OVARY

Sunil Somnath Patil¹, Ruchi Nityanand Thakur², Pradip Wamanrao Sambarey³, Ashwini Ashish Kale¹

Author’s Affiliations: ¹Assistant Professor; ²Assoicate Professor; ³Professor and Head, Department of Obstetrics and Gynaecology, B.J. Govt. Medical College and Sassoon Hospital, Pune, Maharashtra, India.

Correspondence: Dr. Sunil Somnath Patil, E-mail: sunilpatil0332@gmail.com

ABSTRACT

Ovarian fibrothecomas are uncommon tumors of gonadal stromal cell origin. They account for 3 to 4% of all ovarian tumors and in 90% of cases are unilateral. Here we present case of 19 yrs old nulligravida with right sided adnexal mass with chronic abdominal pain.

Keywords: fibrothecoma, ovarian tumors

INTRODUCTION

A nineteen year old nulligravida presented with dull aching pain in right iliac fossa since six months. She also reported that the pain increased during menses and she had menorrhagia during that three cycle. She also complained of polymenorrhoea. General physical and systemic examination was normal. Local examination of abdomen was not significant. Pelvic examination revealed a small adnexal mass on right side of around 4cmx4cm, freely mobile, non-tender, cystic to firm in consistency was present.

Complete hemogram and routine blood biochemistry of patient were within normal limit. CA-125 was 16.5mIU/ml. Pelvisonography revealed a round to oval well defined, lobulated mass of mixed echogenicity measuring 5.1x4.1x4cm. Right ovary was not seen separately from this mass. There was increased vascularity. The finding suggestive of fibrothecoma. MRI showed the findings of a solid ovarian mass arising out of right adnexa which was not separated from right ovary. Size of mass was 4x4.4x4.2cm with well defined margins and few necrotic areas. These findings corresponded with fibroma or dysgerminoma of ovary.

Patient underwent laparoscopic tumorectomy. 4x4x4cm right adnexal mass arising from ovary was present. The cyst wall was dissected and mass was retrieved along with capsule. The mass was lobulated, irregular and yellowish in apperence. The left sided ovary was normal and no any ascites. Post-operative course of patient was uneventful. On histopathological examination, the tumour tissue was composed of rest of oval to polyhedral cells with uniform round nuclei and clear to eosinophilic cytoplasm. These nests were surrounded by fibroblastic proliferation without any atypia. Thus diagnosis of fibrothecoma was confirmed.

Postoperative ultrasonography was normal.

Figure 1: Laparoscopic Cystectomy

Figure 2: Gross Appearance
DISCUSSION

The fibrothecomas are mesenchymal tumors deriving from ovarian stroma and consisting of theca like elements and fibrous tissue. The term fibrothecoma has been used for neoplasms which are intermediate between theca cell tumour and fibroma. The vast majority of fibrothecoma behave in a benign fashion and malignant variants are exceedingly rare. These tumours occur generally in postmenopausal women. However, these are two peaks of frequency the first peak of onset is in between 20 and 40 yrs and second peak is after menopause. The occurrence of tumour before age of 20yrs is extremely rare. The tumour is unilateral in 90% cases with average diameter of 6cm. In 4-5% of cases it may be more than 20cm. The clinical presentation of ovarian fibrothecoma is relatively non specific such as pelvic and abdominal pain. Some ovarian thecomas are associated with estrogenic manifestations such as irregular bleeding, menorrhagia, endometrial hyperplasia. Grossly, fibrothecomas are usually solid, spherical or slightly lobulated, encapsulated hard gray white masses covered by glistening and intact ovarian serosa. Histologically, these tumors are characterized by presence of spindle, oval or round cells forming various amount of collagen and a smaller population of theca cells. Differential diagnosis of fibrothecoma includes other solid ovarian masses such as Brenner tumours, granulosa cell tumour and dysgerminomas. In presence of extensive cystic degeneration fibrothecoma can be easily mistaken for malignant ovarian tumour. In our case, diagnosis of MRI favoured a benign fibrothecoma. Absence of ascites and normal CA-125 levels further strengthened the diagnosis. In case of young patients, laparoscopic tumorectomy is recommended over laparotomy. Whereas in postmenopausal women radical surgery in terms of bilateral salpingo-oophorectomy is indicated.

CONCLUSION

Ovarian fibrothecomas represent an ovarian stromal tumor developing in a wide spectrum of clinical settings. Stress should be laid on diagnosing the tumour based on imaging studies either as benign or malignant. In cases of benign tumours in young women fertility conserving surgeries should be choice of treatment rather than overtreatment with radical surgery. Close follow up is indicated in all cases.

REFERENCES

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