ORIGINAL ARTICLE

STUDY OF COMPARISON BETWEEN DACRYOCYSTORHINOSTOMY SURGERY WITH PAWAR'S IMPLANT AND CONVENTIONAL DACRYOCYSTORHINOSTOMY SURGERY

Akshay Chaudhari[1], Pratixa chaudhari[2], HD Ahir[3]

[1]Assistant professor, Department of Ophthalmology, Govt. Medical College, Surat; [2]Assistant professor, Department of Ob & Gy, SMIMER, Surat; [3]Associate professor, Department of Ophthalmology, Baroda medical college

Correspondence: Dr. Akshay M Chaudhari, Email: akshay_7862@yahoo.in

ABSTRACT

Introduction: Dacryocystorhinostomy (DCR) is the treatment of choice for chronic Dacryocystitis which is associated with many complications. A newer surgical technique, Pawar's Implant was developed to avoid these complications. This study was conducted to compare the result of conventional DCR with Pawar's silicone implant technique.

Methodology: Sixty patients having chronic Dacryocystitis were randomly equally divided in to two group. One group under gone Pawar's Implant (Group A) and other group received conventional DCR surgery (Group B).

Results: Time duration required for classical DCR surgery was 60 min to 2 hours, where as in Pawar implant it is 30-45 minute. Size of incision was smaller in Pawar implant compared to conventional DCR surgery. Nasal packing is not required in any case of pawar implant while in conventional DCR surgery pack required for all patients. Bleeding was minimal with Pawar implant while in conventional DCR surgery moderate to severe bleeding observed. Post operative complication rate was lower in Pawar implant (6 patients, 20%) compared to conventional DCR surgery (15 patients, 50%) Nasal bleeding, lid edema was found more in conventional DCR surgery. Out of 60 patient 6 patients had failed in Pawar surgery group while four patients had failed conventional DCR surgery

Conclusion: Pawar implant surgery is very safe, less pain full, less time consuming surgical option for DCR surgery. There were less hospital stay and comparatively equal success rate between conventional DCR and pawar implant surgery. So we recommend pawar implant surgery as a better alternative for dacryocystitis patient's treatment.

Key words: Dacryocystitis, DCR, Pawar's Implant, lacrimal sac

INTRODUCTION

Dacryocystitis, is the inflammation of lacrimal sac, is the most common cause of lacrimal passage obstruction. It may be acute or chronic. Dacryocystorhinostomy is the treatment of choice for chronic Dacryocystitis, in which lacrimal sac is anastomatised with nasal mucosal flap by bypassing Nasolacrimal Duct. In DCR surgery long surgical procedure, discomfort (pain), Intra-operative hemorrhage is common complications. To avoid these complications and make surgery simple, quick, effective, less pain full, Dr. M. D. Pawar from Nagpur modified the surgery with introduction of intracystic silicone implant between lacrimal sac and nasal cavity.[1, 2] We studied to compare the result of Pawar's silicone implant technique with conventional DCR.

MATERIAL AND METHOD

This is a prospective comparative study carried out from July 2008 to July 2010 at Ophthalmology department of Government Medical College at Surat after approval from Institutional Ethical Committee. For the study 60 cases of chronic dacryocystitis were selected after informed written consent and randomly divided in to two groups. Group A were operated by conventional DCR surgery (Dupuy-Dutemps method)[3], group B by pawar's silicone implant.[1, 2]

Detail history taken of all patients and Primary data of each patient like name age sex registration number, occupation, address for communication etc recorded. To check the patency regurgitation test and sac syringing were performed to decide site of block, nature of fluid coming out from the puncture.

Investigations like BT., C.T.X-RAY PNS, ENT check up done.

Patients of re-surgeries and canalicular block in Dacryocystitis, Nasal pathology were excluded.

During operation length of incision, time of operation, feeling of pain, amount of bleeding, medial palpabral ligament cut or not, Nasal packing required or not, size of bony window were noted.post-op complications observed. Follow up examination was done at 10 days, 1month and 3 month.

The Pawar implant is made up of silicone elastomer having great tissue compatibility and minimal thrombogenicity, lengh-13-15 mm with external diameter 2.5 to 3.5mm and having holes at proximal and distal end for extra drainage channel. Implant is supplied with gamma rays sterilized pack.

Method for Pawar's implant surgery: A straight incision was put at 3 to 4mm away from medial canthus, depened and anterior sac wall identified; and then incision is put over it, with perforator pointing posterior, medial and lower down, a hole was made through lacrimal fossa and nasal mucosa. Now silicone Pawar implant was introduced in to this hole with an introducer in such a way that wide portion lies on the sac cavity and distal small end in the nasal cavity. Sac syringing was done on table to check patency of opening.sac and muscle was closed with vicryl 6-0 and skin incision with 6-0 mersilk. Sac syringe was done at every visit to check patency.

OBSERVATIONS

Among all 60 patients, majority fell in to 25 to 65 years of age, youngest patient was 20 years old and oldest was 76 years.

Table 1: Profile of cases selected for the study

Characteristics	Cases (%) (n=60)
Age	
20-40	17 (28.33)
41-60	33 (45.00)
61-80	10 (16.66)
Sex	
Male	48 (80.00)
Female	12 (20.00)
Laterality	
Right	25 (41.66)
left	21 (35.00)
Bilateral	14 (23.33)
Clinical presentation	
Watering	60 (100.0)
Swelling over sac area	26 (43.33)
Regurgitation test +ve	28 (46.66)
Purulent Discharge	4 (6.66)
Time of presentation	
<6 Month	7 (11.66)
6m-1 Year	33 (55.00)
>1 Year	12 (20.00)

Forty eight patient (80%) were female and 12 (20%) were male with male female ratio of 1:4. In majority, 25 patients (41.66%) right side of was involved; in 21 patients (35%) left side was involved, while there was bilateral involvement in 14 patients (23%) of patients.

All patient of chronic Dacryocystitis presented with watering, while second most common presentation was regurgitation of mucoid fluid on pressure over sac area, followed by swelling over sac area while complaint of purulent discharge only in four patients. Majority of patient (40 patients, 66%) came for treatment within one year of starting symptoms. Out of which 7 (11%) came within 6 month nad only 12 patients (12%) later than two months.

Table 2: Intra-op difficulties in both groups

	Pawar implant	Conventional DCR surgery
Nasal packing	Not Required	Required in all
Size of incision	Smaller	Larger
Bleeding	Minimum	Moderate to sever
Medial palpabral ligament cutting	Not Required	Required
Average duration of surgery	30-45 min	60-2hrs

Table-3: Comparison of post op complications in both groups

Complication	Pawar implant (%)	Conventional DCR surgery (%)
Suture Abscess	2 (6.67)	5 (16.67)
Nasal Bleeding	0	0
Lid Edema	1 (3.33)	3 (10.00)
Incisional edema	2 (6.67)	1 (3.33)
Wound gap	1 (3.33)	1 (3.33)

Time duration required for classical DCR surgery was 60 min to 2 hours, where as in Pawar implant it is 30-45 minute. Size of incision was smaller in Pawar implant compared to classical DCR surgery. Nasal packing is not required in any case of pawar implant while in conventional DCR surgery we pack all the patients. Bleeding was minimal with Pawar implant while in classical DCR surgery moderate to severe bleeding observed. Post operative complication rate was lower in Pawar implant (6 patients, 20%) compared to conventional DCR surgery (15 patients, 50%) Nasal bleeding, lid edema was found more in conventional DCR surgery.

Out of 60 patient 6 patients had failed in Pawar surgery group, in which three were because of closer of ostium because of mucus plaque formation, 2 were failed because of granulation tissue formation and 1 because of unknown reason. Four patients had failed conventional DCR surgery, out of which two because of closer of ostium by granulation tissue, two because of infection after third visit.

Table 4: Follow –up after surgery

F/UP	Patency	Pawar implant (%)	Conventional DCR surgery (%)
First (10 days)	Patent	27 (90.00)	30 (93.33)
	Partial Block	3 (10.00)	0
	Complete Block	0	0
Second (1 month)	Patent	23 (76.67)	27 (93.33)
	Partial Block	2 (6.67)	3 (6.67)
	Complete Block	5 (16.70)	0
Third (3 months)	Patent	23 (76.70)	24 (83.33%)
	Partial Block	1 (3.33)	2 (3.33%)
	Complete Block	6 (20.00)	4 (13.33%)

Table -5: Failed surgery in both groups

Reasons	Pawar implant	Conventional DCR surgery
Mucous plug formation	3	0
Granulation tissue formation	2	2
Infection	0	2
Unknown	1	0

DISCUSSION

The oldest treatment of Dacryocystitis was excision of sac, but now a day's dupuy dutemps is most popular surgical option. In which the anterior and posterior flaps of mucosa are mobilized by short horizontal incisions at each end of vertical incision in the sac and nasal mucosa, so that suturing of flaps is facilitated. Because of inherent problems and high incidence of complications of conventional DCR surgery, like long duration of surgery, high rates of bleeding, large size of incision and high chances of closure of ostium[4, 5], a newer method of introduction of pawar implant to maintain the patency between the lacrimal sac and the middle meatus of nose, it prevents stricture by prolonged dilatation and to encourage epithelial canalization at its site. Various types of implant tried by different workers, like polyethylene rubure, stainless steel, acrylic and silicone tubes[6], so many workers did intubation through naso lacrimal duct and the overall success rate was between 60-70%.[2, 7] Some worker used sleever[8] and aneurysm clips[9]. We used pawar intracystic silicone implant, as material is silicone, it remains inert and stays there without Epithelisation along the whole tract.

In our study we found that incidence of incidence chronic Dacryocystitis was more in the age group 50-60 years. could be due to more active life and demanding better health and prompt relief at this age, Females are more affected more than male, because of narrow bony Nasolacrimal passage and post menopausal hyperplasia of nasal mucosa, in pawar surgery success rate after10 days, 1 month and 3month follow up.

In pawar surgery size of incision, amount of bleeding and required time for operation statistically significantly less, compared to conventional DCR surgery, our result of pawar surgery were comparable to Rosen N et al[10] study, where they found the success rate with silicone tubes was 91.3%and Beigi B et al[11] where success rate with DCR with silicone tube was 80%.in our study conventional DCR surgery has 86% comparable with the Ibrahim HA et al[12] study with success rate 82%. As a result of normal wound healing process, decrease in the size of intranasal ostium occurs after surgery. The scarring the rhinostomy site was one of the reasons for failed DCR surgery[5, 6], closure of ostium occurs at around 12 weeks.[13] According to woof et al[14] average onset of failure was 7.5 weeks postoperatively and usually no ostium after 15 weeks, so critical period for success of surgery was around 3-4 month post operatively.

As in pawar surgery compared to conventional DCR surgery group size of bony ostium very less still success rate was comparable, which is comparable to study of Linberg et al[15] where he suggested that small bony ostium 2mm was enough for successful external DCR surgery and this was basis for small bony opening and high success rate in pawar surgery group.

CONCLUSION

By our comparative study of DCR with pawar implant and conventional DCR surgery, we come to know that pawar implant surgery is very safe, less pain full, less time consuming surgical option for DCR surgery.

In our surgery pawar implant requires small incision, small bony ostium and No necessity of making sac flaps, (which is very time consuming and more stress full) and less tissue handling so less post-operative edema over sac area. Now a day Endonasal rout[16, 17] is favored for DCR surgery just because of cosmetic purpose but results are not good as conventional DCR surgery.

There were less hospital stay and comparatively equal success rate between conventional DCR and pawar implant surgery. So we recommend pawar implant surgery as a better alternative for dacryocystitis patient's treatment.

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