

ORIGINAL ARTICLE

HISTOPATHOLOGICAL STUDY OF 100 CASES OF VASCULAR TUMOURS

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ABSTRACT

Introduction: Vascular tumors show a broad variety of morphological appearances and clinical behavior, the lesions are ranging from benign hemangiomas to intermediate lesion, which are locally aggressive, to highly malignant angiosarcoma. There is also the grey zone between true neoplasia and hamartoma, which makes difficulty in histopathological assessment. It is also important to decide the degree of malignancy as it can strongly influence the choice of treatment and prognosis.

Methodology: Hundred cases of vascular tumors received at the department of pathology, medical college and SSG hospital, Baroda have been studied with a view to carrying out a histopathological analysis.

Results: Employing modified Enzinger's classification (2001) the break up of 100 cases was as follows : 37 – capillary hemangiomas, 26 – granuloma pyogenicum, 15 – cavernous hemangiomas, 07 – lymphangiomas, 04 – masson's hemangiomas (papillary endothelial hyperplasia), 03 – epithelioid hemangiomas, 03 – lymphangiomas circumscriptum, 01 – cystic hygroma, 01 – spindle cell hemangioendothelioma, 01 – epithelioid hemangioendothelioma, 01 – glomus tumor, 01 – angiosarcoma. Majority of vascular tumors were benign, more common in children and young adults, most common sites were head and neck, which required only local surgical excision.

Conclusion: Malignant and intermediate tumors formed as extremely small proportion of vascular tumors, which should be treated aggressively and closely followed up.

Key words: Vascular tumors, Enzinger's classification

ACRONYMS**CAP** – Capillary Hemangioma**CAV** – Cavernous Hemangioma**G.P.** – Granuloma Pyogenicum**M.H.** – Masson's Hemangioma**E.H.** – Epithelioid Hemangioma**LY** – Lymphangioma**L.C.** – Lymphangioma Circumscriptum**C.H.** – Cystic Hygroma**SCHE** – Spindle Cell Hemangioendothelioma**EHE** – Epithelioid Hemangioendothelioma**GT** – Glomus Tumor**AS** – Angiosarcoma**INTRODUCTION**

Vascular tumors includes the tumors arising from blood vessels and lymph vessels as well as perivascular tumors, are among the few groups of tumors, which can show a broad variety of morphological appearances and clinical behaviour. They constitute a spectrum from

benign hemangiomas to intermediate lesion, which are locally aggressive, to highly malignant angiosarcoma.¹

The histopathological assessment of soft tissue vascular tumors is considered difficult not only because of the grey zone between neoplasia and hamartoma but also because it is frequently difficult to distinguish between benign and malignant lesion.²

The main issue remains not only the distinction between benign and malignant lesions but also the degree of malignancy as it strongly influence the choice of treatment and prognosis.¹

The majority of soft tissue vascular tumors in children are benign.³ Unless pleomorphism and abnormal mitoses are seen, malignancy should be diagnosed with caution.

Since most vascular tumors of intermediate malignancy do not behave aggressively, complete and ideally wide local excision without adjuvant therapy should be offered to patients and close follow up is needed.¹ Over

treatment such as amputation, chemotherapy or radiation can thus be avoided.

The present study includes the vascular tumors in the modified version of classification of vascular tumors proposed by Enzinger and Weiss.¹ It is an endeavour to classify vascular tumors into benign, intermediate and malignant based on histopathology.

Objectives

1. To study the histopathological patterns of vascular tumors.
2. To study the incidence of vascular tumors in relation to age, sex and site.
3. To classify tumors into benign, borderline malignant and malignant neoplasms so as to decide mode of treatment.

MATERIAL & METHODS

A study of 100 cases of benign and malignant vascular neoplasms was carried out during the period of one year at Pathology Dept., Medical College, Baroda. The cases were classified according to modified classification of Enzinger and Weiss (2001). Detailed macroscopic examination was carried out. For histopathological examination, formalin fixed paraffin embedded representative tissue sections were stained with Hematoxylin and Eosin.⁴ Where necessary, relevant sections were stained with Reticulin stain⁴ and final confirmation of the diagnosis was done. The details of clinical history and relevant investigations were obtained in every case and analyzed.

OBSERVATIONS

Table 1: Proportion of benign and malignant vascular tumors with relation to sex

	Male	Female	Total
Benign (n=97)	52 %	45 %	97 %
Intermediate	01 %	01 %	02 %
Malignant (n=2)			
Malignant (n=1)	00 %	01 %	01 %
Total (n =100)	53 %	47 %	100

Table 2: Site distribution of vascular tumors

Site	Percentage
Head and Neck	67 %
Trunk	04 %
Extremities	29 %
Total (n=100)	100 %

Table 3: Relationship between Age and Sex distribution

Age (In years)	Male	Female
0-10	09 %	09 %
11-20	15 %	18 %
21-30	15 %	06 %
31-40	05 %	06 %
41-50	05 %	06 %
51-	03 %	03 %
Total(n=100)	52 %	48 %

Table 4: Relationship between age and histological type of tumors(n=100)

Age (In years)	CAP	CAV	G.P.	M.H.	E.H.	LY	L.C.	C.H	SCHE	EHE	GT	AS
0-10	07	03	02	01		05						
11-20	12	06	05	02	02	01	03	01	01			
21-30	10	03	08									
31-40	04	02	04			01						
41-50	03	01	06	01								
>51-	01	00	01		01					01	01	01
Total	37	15	26	04	03	07	03	01	01	01	01	01

RESULTS

In the present study, majority of the vascular tumors were benign (Table No. 1). The commonest sites were head and neck followed by extremities and trunk.(Table No. 2) and the tumors were found predominantly in males (Table No.1).

The incidence of benign was higher in males as compared to females. But the incidence of malignant tumors was higher in female as compared to males (Table No.1).

The incidence of vascular tumors was more in females as compared to males upto the age of 20 years. The

males showed higher incidence from 20-40 years of age and again after the age of 51 years. (Table No.3).

Benign tumors were more common than malignant tumors.

Capillary hemangiomas were the commonest vascular tumors followed by granuloma pyogenicum and cavernous hemangiomas (Table No.4).

Capillary and cavernous hemangiomas were commonest tumors before 30 year of age.

Lymphangiomas were most commonly found in first 10 years of life. (Table No.4).

Most of the patients with benign lesions presented with complaints of disfigurement and came for cosmetic reasons particularly where lymphangiomas and hemangiomas were concerned.

Follow up of patients was attempted in borderline and malignant cases but the patients were untraceable and lost to follow up study.

DISCUSSION

Capillary Hemangioma

Most common of all vascular tumors.^{5,6} Fletcher reports its proportion to be 32-42 % of all vascular tumors.² The tumors are most common in infancy and childhood.¹ All the cases in the present study were located in head and neck region. We have not come across any case of deep haemangioma in our study. Gross and microscopic findings are in conformity with those described by Fletcher & Enzinger.^{1,2}

Pyogenic Granulomas

These form the second largest group of vascular tumors found in all decades of life which agrees with Enzinger's¹ observations. In the present study most of the lesions (15 out of 26) were located in head and neck region including gingiva, buccal mucosa, scalp and chin, remaining lesions were located in distal extremities including fingers and toes. Histopathological findings agree with those described by Enzinger, Fletcher and Rosai & Ackerman.^{1,2,3}

Cavernous Hemangiomas

These form the third largest group of vascular tumors commonest in the first three decades of life. (Table No. 5 & 6). The commonest site were head and neck followed by extremities. The above findings are in conformity with the observations of Enzinger and Weiss.¹ The histological findings are in conformity with those described by Enzinger, Fletcher, Rosai & Ackerman and lever.^{1,2,3,6}

Epithelioid Hemangioma

Also known as Angiolymphoid Hyperplasia with Eosinophilia.^{1,2}

Ocurs in early to mid adult life commonly in females in head and neck region.¹

Masson's Hemangioma

Papillary endothelial hyperplasia, it is an unusual form of organizing thrombus. Most commonly located in veins of head, neck, fingers and trunk.¹

Lymphangiomas

In the present study the lesions were commoner in males and the maximum incidence was in the age group of 0 – 10 years. The histological features agree with those described by Enzinger, Fletcher, Ackerman and lever.^{1,2,3,6}

Lymphangioma Circumscriptum

There were three cases of lymphangioma circumscriptum. All presented with multiple vesicles over skin. Microscopical features agree with the description given by Enzinger and Ackerman.

Cystic Hygroma

In the present study one case of cystic hygroma was found in 13 year old female who presented with swelling on neck.

Spindle Cell Hemangioendothelioma

Present as solitary or multiple nodules in distal extremities usually in second or third decades of life.^{1,2} Clinical course is intermediate between hemangiomas and angiosarcoma.¹ In the present series there was one case in a 20 year old female who presented with a mass over right index finger. Excision biopsy was done and sent as a skin covered soft tissue mass of about 3x2x1 cm in size. Histological findings are in conformity with the observations made by Enzinger and Ackerman.^{1,3}

Epithelioid Hemangioendothelioma

It is found to be most common in extremities followed by head and neck and trunk.⁷ Age range is wide but it is most common in middle age.^{1,7} In the present study a 65 year old male patient presented with gradually increasing swelling on right great toe with discharging sinuses for two years. On X – ray examination soft tissue opacity with areas of calcification and underlying bone destruction was found. The above features are in conformity with the description given by Enzinger and Fletcher.^{1,2}

Angiosarcoma

Is a rare malignant vascular tumor.^{8,9} They are aggressive with poor prognosis. 60 % occur in skin and superficial soft tissue.⁸ 50 % cutaneous angiosarcoma occur in head and neck.⁸ The lesions are most common in elderly males. There was one case of angiosarcoma in the present study. The patient was a 55 years old female presenting with a growth in buccal mucosa as mucosal tag. The tumor was differentiated from benign vascular tumor by the presence of nuclear atypia and the anastomosing nature of blood vessels. The above features were in conformity with observation made by Enzinger and Fletcher.^{1,2}

Glomus Tumor

Glomus tumor was the one case of parivascular tumor in this study. It formed 1 % of total vascular tumors. Glomus tumors are uncommon tumors with as estimated incidence of 1.6 % in the 500 consecutive soft tissue tumors reported from Mayo clinic.¹ The most common site was subungual region followed by palm, wrist, forearm and foot. Sex incidence was equal. In the present study the patient was a 70 year male patient who presented with swelling and pain on forearm. Reticulin stain was done to demonstrate extravascular location of tumor cells and an individual pericellular reticulin network. The tumor was diagnosed on the basis of clinical presentation and histology. It was differentiated from eccrine spiradenoma on the basis of absence of focal ductal differentiation and two population of cells. Intradermal naevus was ruled out

by absence of nesting and evidence of maturation. The above features are in conformity with observation made by Enzinger and Fletcher.^{1,2}

CONCLUSIONS

The present study concludes that Majority of tumors were benign vascular tumors which require only local surgical excision. Malignant and intermediate malignant tumors formed as extremely small proportion of vascular tumors, should be treated aggressively with regular follow up. Capillary hemangiomas were the commonest vascular tumors. Vascular tumors were more common in males. The tumors were more common in children and young adults. The most common sites of vascular tumors were head and neck.

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