

ORIGINAL RESEARCH

Histopathology of tumor and tumor like lesions of blood vessels- An experience in a tertiary care centre

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ABSTRACT

Introduction: According to WHO classification, vascular neoplasms are **classified into** benign, intermediate, and malignant. Vascular tumors are typically benign in origin. The purpose of this study is to examine the histological pattern of tumor and tumor like lesions of blood vessels. **Material & methods:** Retrospective study was done over a period of one year from January 1, 2019 to December 12, 2019 at the histopathology section of Department of Pathology, Government Medical college, Jammu which is a tertiary care hospital. There were 50 histopathological cases of vascular tumors & tumor like lesions. **Results:** The majority of cases were males and belonged to the age group of 21-30 years. Out of 50 cases, 5 were arteriovenous (AV) malformations, 2 were malignant, and 43 were benign cases. The Head & Neck area (n=35) had the highest number of malignancies. Capillary hemangioma was the most common kind, followed by pyogenic granuloma and cavernous hemangioma. **Conclusion:** The majority of malignancies and tumor-like disorders in blood arteries were benign lesions. Granuloma Pyogenicum and capillary hemangiomas were the two most prevalent benign vascular tumours. The correct management of the problem is aided by the histological identification of AV malformation.

Keywords: AV malformations, benign, blood vessel, malignant, tumors, vascular lesion

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INTRODUCTION

Vascular lesions are frequently seen in clinical settings, with vascular tumors being the most frequent tumor type in children. Since intra-osseous hemangiomas were found in dinosaur vertebrae, therefore vascular lesions have been referred to be the "Oldest tumors"[1].

According to their level of malignancy, vascular tumors and tumor-like lesions are categorized into three groups: benign vascular lesions, intermediately malignant lesions, and malignant vascular tumors. The benign group includes the majority of the lesions. They may affect the deep soft tissues as well as the skin and subcutis. These lesions are classified based on their clinical features, pathology, embryology, and endothelial cell development characteristics, all of which are still debated [2]. Vascular tumors are

categorized using two main systems. The one by Enzinger et al. [3] is based on pathologic criteria and, when appropriate, incorporates clinical and radiologic features. On the other hand, Mulliken and Glowacki's [4] categorization separates hemangiomas from vascular malformations based on endothelial growth features. The clinical picture and the imaging results are well correlated with the latter classification.

Treatment with inhibitors of angiogenesis is a sensible therapy that is being investigated since the growth pattern of vascular neoplasms appears to depend on the same signaling pathways that regulate angiogenesis.[5]

Hence the aim of the current research is to evaluate the histopathological patterns of tumor and tumor like conditions of blood vessels as well as to explore the prevalence in relation to age, gender and location.

MATERIAL & METHODS

The retrospective study was conducted over a period of one year from January 1, 2019 to December 12, 2019 at the Postgraduate Department of Pathology, Government Medical College, Jammu which is a tertiary care hospital. There were 50 histopathological cases of vascular tumors and tumorlike conditions. Inclusion criteria includes skin biopsies and specimens of all patients with suspected vascular lesions whereas exclusion criteria includes inadequate and autolysed specimens.

The details of all clinically suspected vascular lesions received for histopathological examinations were collected. A detailed gross examination of

specimen was carried out. For histopathological examination, formalin fixed and paraffin embedded representative tissue sections were stained with hematoxylin and eosin. The vascular lesions were classified as per WHO classification [6]. The details of clinical history, relevant investigations and radiological findings were obtained and correlated.

The Statistical Package for the Social Sciences (SPSS) statistics version 23.0 (IBM, Armonk, NY, USA) was used to conduct the statistical study. The mean & standard deviation were used to summarize continuous variables. Depending on the situation, the Student's t-test, Chi-square test, & ANOVA were applied.

RESULTS

Vascular lesions were seen more commonly in males (62%) than in females (38%), with maximum subjects seen in the age group of 21-30 years as seen in table 1.

Table 1: Shows distribution of subjects according to age and gender

Age (in years)	Male N (%)	Female N (%)
0-10	7 (14)	3 (6)
11-20	5 (10)	4 (8)
21-30	12 (24)	5 (10)
41-50	2 (4)	3 (6)
>51	5 (10)	4 (8)
Total	31 (62)	19 (38)

Distribution of vascular lesions according to site was done and it was found that 35 samples were from head and neck region, 7 were from trunk and 8 were from extremities. (Table 2)

Table 2: Shows distribution of vascular lesions according to site

Head & neck	Trunk	Extremities	Total
35	7	8	50

In the current study, majority of lesions of blood vessels were benign (86%) in origin & malignant lesions were 4% and 10% were AV malformation. (Table 3)

Table 3: Shows distribution of lesions according to site

Lesion	N (%)
Benign	43 (86)
Malignant	2 (4)
AV malformation	5 (10)
Total	50 (100)

Capillary hemangioma was the most common benign vascular tumor followed by Granuloma pyogenicum, AV malformation and cavernous hemangioma. Capillary hemangioma and AV malformation were commonly seen before 30 years of age. Granuloma pyogenicum was seen in all age groups but was more common in age group of 11-40 years. (Table 4)

Table 4: Shows relationship between age and histological findings

Age (in years)	0-10	11-20	21-30	31-40	41-50	>51	Total
Capillary Hemangioma	1	5	6	1	1	2	16
Granuloma Pyogenicum	1	3	3	1	2	4	14
Cavernous Hemangioma	2	1	2	1	0	1	7
Epithelioid Hemangioma	0	0	0	1	0	0	1
Cystic Hygroma	1	1	0	0	1	0	3
Angiosarcoma	0	1	1	0	1	0	3
AV malformation	2	0	1	0	1	0	4

DISCUSSION

The current study was done among 50 samples of patients received in the Department of Pathology, Government Medical College, Jammu. The maximum subjects were males and were in the age group of 21-30 years which represent that tumors related to blood vessels are more common in men related to women and is more prone in people of younger age group.

Out of total 50 cases, 35 cases were from head and neck region including gingival, buccal mucosa, chest, face & scalp which was similar to research done by Enzinger et al & Kapuria et al in which 152 out of 289 cases and 15 out of 26 cases were from head and neck region. [7,8]

Forty three cases were benign and only two were malignant which was similar to study done by Chakrabarti B et al where 63 out of 75 cases were benign and 2 were malignant showing that a very small percentage of benign tumors show malignant transformation. [9]

Capillary hemangioma, was the most common vascular tumor present in 16 cases in the current study. The findings in our study were comparable to those of Kapuria et al and D. Kalyani et al in which capillary hemangiomas were seen in 26 and 47 cases. [8,10] Hemangiomas fall into a murky area between genuine neoplasms and hamartomatous malformations. Because of their limited character and mass effect, they are commonly labelled and viewed as tumors. [11] Thin-walled capillaries with little stroma make up capillary hemangiomas. Large, dilated vascular channels make up cavernous hemangiomas. Cavernous hemangiomas usually include deep structures and are more infiltrative. In the current study, pyogenic granuloma made up the second-largest group seen in 14 cases which was comparable to the findings of Kapuria et al (37%) and D. Kalyani et al (8%). [8,10]

A rare lesion is an arteriovenous hemangioma (AV malformation). They are tangles of malformed artery afferents and draining veins without a capillary bed in between. Based on the level of involvement, it is split into two separate forms. The deep form can be accompanied by significant levels of arteriovenous shunting and soft tissue hypertrophy and typically manifests in the head, neck, or limbs of teenagers and young adults. [11] In this study, the presence of intralésional nerve served as a valuable discriminator that histopathologists could use to correctly classify and diagnose hemangiomas and AVMs. The lack or presence of arteriovenous structures served as the histological basis for differentiating hemangiomas from AVMs [12]. It is crucial that these lesions are appropriately diagnosed due to the variations in the pathobiology and natural history of these lesions, as

well as the therapeutic and prognosis consequences of correctly differentiating between hemangiomas and AVMs. We reported 4 cases of AV malformations, which was comparable to study done by D. Kalyani et al who reported 6 out of 98 cases of AV malformation. [10]

CONCLUSION

The majority of the vascular tumors in our investigation were benign in nature. Children and young adults were more likely to develop vascular tumors as compared to adults. The most typical benign vascular tumor was a capillary hemangioma, which was followed by pyogenic granuloma. The majority of the patients were men. The most frequent location of the vascular tumors was the head and neck region. Veins, arteries, and nerve fibers were used to diagnose AVMs.

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