HISTOPATHOLOGY STUDY OF HUMAN’S SOFT TISSUE TUMOURS AND TUMOUR LIKE LESIONS

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Abstract: Histopathology of soft tissue tumours and tumour like lesions of human consisting of 100 cases was carried out at Pathology Department, P.D.U. Medical College, Rajkot, between September 2006 to August 2008. The tissues were the biopsy of patients submitted to the Pathology department for investigations. The study was carried out in relation to various soft tissue lesions, mentioning histological typing of tumours with maximum of adipocytic tumours (33%), site involved with lower extremities comprising 43% cases, behavior of lesions with maximum of benign cases (86%), age incidence (with maximum of 13 cases, in 20 to 30 years of age group), sex ratio (with Male : Female ratio= 1.1:1.4) have been discussed.

Key words: Histopathology, Soft tissues, Sex ratio.

INTRODUCTION

In the present study, a diverse and fascinating group of lesions that arose from the supporting soft tissue of the body are discussed. Lesions were composed of or derived from fat, fibrous tissue, smooth muscle, skeletal muscle, blood vessels and lymphatics all of which originated from embryonic mesoderm. Tumours of peripheral nerve, the components of which are derived from the neuroectoderm, are also included for their frequent occurrence in the superficial soft tissue.

MATERIALS AND METHODS

The material selected for the present study were tissue blocks prepared during the time period. Departmental data showed 4184 number of total tissue received between September 2006 to August 2008. For this study 100 cases of tumours and tumour like lesions of soft tissue were selected. Thin sections of all the parafin blocks were recut. Selected sections of each block were stained with hematoxylin and eosin. The sections were mounted using DPX and permanent slides were prepared. The stained sections were carefully examined and the desired portion was photographed. The data were recorded and classified according to age and site of tumours.

RESULTS AND DISCUSSION

Tumour and tumour like lesions according to histopathological typing: Our record shows that out of 100 cases studied, 33 cases were of adipocytic tumours, 22 cases of vascular tumours, 19 cases of peripheral nervous tissue tumours, 9 cases of fibrous tissue tumours, 7 cases of synovial tissue tumours, 5 cases of fibro-histiocytic tumours, 1 case of skeletal muscle tumour, 1 case of smooth muscle tumour, 1 case of primitive neuro ectodermal tumour (PNET) and 2 cases of tumours of uncertain histogenesis (Fig. 1).

Age & sex wise distribution of tumour and tumour like lesions: Interestingly, most benign cases were noted in 20 to 30 years age group. While most malignant cases were recorded in age group of 60 to 70 years. The male and female ratio of the lesions was 1.1 : 1.4 (Fig. 2). However, Heerachandani et al. [1] found this ratio as 1:1.
Tumour and tumour like lesions according to behavior: In the present study 6 cases were of tumour like lesions, 86 cases of benign lesions, 2 cases of borderline malignant lesion and 6 cases of malignant lesions (Fig. 4). The ratio of benign to malignant lesions was 92:6. This was nearer to Heerachandani et al. who noted 88:4. [1].

Site wise distribution of tumour and tumour like lesions: Study shows 50% cases were located over extremities, 23% cases over head & neck region, 20% cases over trunk and 1% cases in retroperitoneum (Fig. 3). This was nearly similar to Abbas et al. study [2], in which 49% cases were located over extremities, 10% cases over head & neck region, 26% cases over trunk and 15% cases in retroperitoneum.

Distribution of fibrous tumours: Out of 100 cases, fibrous tissue comprised of 9 cases. 1. Out of these 3 cases were of fibroma as revealed in microscopic examination. Tumours were mainly composed of mature fibrocollagenous tissues in the age group of 3 to 50 years. Out of 3 cases of fibroma 2 (66%) lesions were located on upper extremities. In the study done by Allen et al. 80% cases were noted in upper extremities. [3]. 2. In another type of lesion, like keloid male to female ratio was 2.1:3.3. Histopathological study demonstrates thick, homogenous, hyalinised collagenous tissue admixed with active fibroblasts in females with age group of 18 to 50 years. 3. One case of angiofibroma (composed of both fibrous and angiomatous tissue proliferation) in a 30 year old male. 4. In another single case of fibrous hamartoma of infancy the cells had fibroblastic and smooth muscle characteristics similar to myofibroblastic proliferation which was diagnosed in a 15 days old female patient. 5. Malignant fibrous tissue tumour diagnosed was fibrosarcoma (Fig. 5) in a 40 year old patient.

Distribution of adipocytic tumours: Out of 100 cases, 33 cases were of lipoma. Among these 29 cases were of lipoma (Fig. 6) and 3 were variants of lipoma (2 angiolipoma (Fig. 7), 1 fibrolipoma) and 1 was of pleomorphic liposarcoma (Fig. 8). Age range of lipoma was 7 to 80 years age group with female preponderance.

As compared to 29% cases of lipoma out of 100, studied in present study, Rawalpindi et al. [4] noted 23% cases of lipoma out of similar number of patients, examined in Armed Forces Institute of Pathology. In the present study, 2 cases of angiolipoma were noted in 2 patients of 35 years of age with male to female ratio of 1:1. Similar study was done by Marshal et al. [5], in which incidence of angiolipoma in patients between 21-60 years age group with male to female ratio was 1:1.

Distribution of vascular tumours: Out of 100 cases, 22 cases were of vascular origin (18 of blood vessel origin and 4 of lymph vessels origin). Out of these 8 cases were of cavernous hemangioma, 5 of capillary hemangioma (Fig. 9), 1 of intramuscular hemangioma, 1 of hemangioma of hobnail type, 4 of lymphangioma, 1 of pyogenic granuloma, 1 of intravascular papillary endothelial hyperplasia and 1 of hemangioendothelioma of hobnail type (Fig. 10). Histopathological study revealed all hemangiomas showing vascular and endothelial proliferation and lymphangioma showing lymphatic channel proliferation containing lymph.

In the present investigation, hemangiomas accounted for 15% of the total cases. Contrary to this, in a study done by Kransdorf et al. [6], hemangiomas were 8% of the total cases. In the present study, 42% cases of hemangiomas were from head and neck region and 32% were from upper extremities. Almost similar trend was noticed by Keasbey et al., during the period of 1980-1984, where the relative percentage was recorded as 35% and 29% respectively [7].

Distribution of peripheral nerve tissue tumours: In the present study, 19% cases were of peripheral nerve tissue origin. A similar study done by Heerachandani et al. [1] who found incidence rate of peripheral nerve tissue tumour was 20.4%. Out of 19 cases of peripheral nerve tissue tumours, 10 cases were of neurofibroma (Fig. 16), 8 cases of schwannoma (Fig. 11) and 1 case of malignant peripheral nerve sheath tumour (Fig. 12). 10 cases were from extremities, 4 from head & neck, 3 from back and 3 were from other sites. The ratio of schwannoma to neurofibroma was 4:5 in the present study which is again almost similar to Kransdorf et al. [6] data 5:5.

Distribution of synovial tissue tumours: Out of 100 cases, 7 cases were of synovial tissue origin. All of them were benign.Histological typing was giant cell tumour (GCT) of tendon sheath (Fig. 13). All the cases were from hand and wrist joint. In the present
Histological Typing of Tumours (Tu.)

Type of Tumour

- Adipocytic Tu.
- Vascular Tu.
- Peripheral nervous tissue Tu.
- Fibrous tissue Tu.
- Synovial tissue Tu.
- Fibro histiocytic Tu.
- Skeletal muscle Tu.
- Smooth muscle Tu.
- Tu. of uncertain histogenesis
- PNET

Fig. 1:

Age- Sex Wise Distribution of Total Lesions

Fig. 2:

Histological Behaviour of Lesions

Fig. 3:

Site of Origin of Lesion

Fig. 4:
Figures 5 to 16 are thin sections of various malignant tissues stained with haematoxlyn and eosin.

Fig. 5: Photograph of Fibrosarcoma showing malignant fibrous tissue cells arranged in typical Herring Bone pattern infascicles. x 10.

Fig. 6: Photomicrograph of Lipoma showing plenty of mature lobulated fat cells along with fibrous & vascular tissue proliferation. x 10.

Fig. 7: Photograph of Angiolipoma showing proliferated blood vessels & fat cells. x 40.

Fig. 8: Photograph of Pleomorphic Liposarcoma showing pleomorphic malignant cells as well as tumour giant cells. x 40.

Fig. 9: Photograph of Capillary Hemangioma showing dilated vascular channels lodged with RBCs. x 40.

Fig. 10: Photograph of Hobnail Heman giendothelioma showing vascular channels lined by Hobnailed pattern endothelial cells. x 40.

Fig. 11: Photograph of Schwannoma showing neural tissue cells arranged in fascicles forming cellular (Antony-A) & acellular (Antony-B area) areas. x 40.

Fig. 12: Photograph of Malignant Peripheral Nerve Sheath Tumour showing spindly malignant cells with hyperchromasia & atypical mitoses. x 40.

Fig. 13: Photomicrograph of Giant Cell Tumour showing osteoclastic giant cells & mononuclear tumour cells. (H & E, x 40).

Fig. 14: Photograph of Benign Fibrous Histiocytoma showing spindly cells arranged in fascicles formed by fibrous tissue cells as well as plump histiocytic cells. x 10.

Fig. 15: Photograph of Desmoplastic Small Round Cell Tumour showing homogeneous round malignant tumour cells separated by fibrous tissue. x 40.

Fig. 16: Photograph of Neurofibroma showing wavy neural tissue & spindly fibrous tissue component. x 40.
study age range of tenosynovial GCT was 11-58 years age group with mean age was 32.4 year while it was 4-80 years age group with mean age of 38 years in the study done by Mashiro et al. [8].

**Distribution of fibrohistiocytic tumours:** Out of 100 cases, 5 cases were of fibrohistiocytic origin. All of them were benign fibrohistiocytoma (Fig. 14) with age range of 10 days to 53 years and of them 3 cases were located on upper extremities.

In the present study, one case of desmoplastic small round cell tumour (Fig. 15) was observed in a 8 year old female patient. In the study in China during the period of 1998 to 2006, intra abdominal location of desmoplastic small round cell tumour was 14 out of 18 cases [9].

One case of embryonal rhabdomyosarcoma showed primitive small round shape malignant cells. The spindly shaped striated muscle cells, arranged in fascicles or bands with atypical mitoses, were observed in a 8 year old male patient. The median age of embryonal rhabdomyosarcoma was 8 years noted in the study done in AFIP, Rawalpindi et al. [6] and 7.2 years noted in the study by Newton et al. [10].

**CONCLUSION**

In present study 100 cases of tumours & tumour like lesions of soft tissue are studied. Soft tissue tumours are highly heterogenous group of tumours. They are classified on histological bases according to the adult tissue they resemble. Benign tumours more closely resemble the normal tissue of origin. Benign soft tissue tumours outnumbered the malignant tumours by a marginal difference of 14:1. In the present study, 86 cases were diagnosed as benign tumours, 6 cases as malignant tumours, 2 cases as borderline malignant tumours and 6 cases were diagnosed as tumour like lesions. Male to female ratio was almost equal but they did show some variation among different histopathological types. Benign tumours like lipoma, hemangioma, schwannoma and neurofibroma showed predominance. Fifty cases were observed from extremities as the most common site and the second most common site was head and neck region. Most of the benign soft tissue tumours occur commonly during the second, third and fourth decade of life. Malignant lesions were more commonly noted in elderly patients except embryonal rhabdomyosarcoma that was observed in a younger age group patient. Overall the results are almost in accordance with the figures recorded in the various studied literatures.

**REFERENCES**