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HISTO-PATHOLOGICAL STUDY OF SOFT TISSUE TUMORS (A STUDY OF 120 CASES) IN A RURAL TERTIARY CARE HOSPITAL.

Pathology

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ABSTRACT

Introduction-Soft tissue tumors (STTs) are uncommon, diverse group of neoplasms, accounting for 2% of surgical pathology material. Benign STTs are more common than malignant.

Material and methods-The present study was conducted from January 2018- June 2019 in the department of pathology of a tertiary care hospital. A total number of 120 STTs were studied during this period.

Results-Out of total 120 cases, most of the STTs were on extremities (70%). There was preponderance of benign STTs (87%) than malignant STTs (13%).

Conclusion- The clinico-morphological evaluation with IHC studies is the gold standard for the proper diagnosis of STTs.

KEYWORDS

Soft Tissue Tumors (STT), histopathology, immunohistochemistry

INTRODUCTION

"Soft tissue is non-epithelial extra skeletal tissues of the body, inclusive of peripheral nervous system and exclusive of reticulo-endothelial system, glial and supportive tissue of various organs".[1] Soft tissue tumors (STTs) are relatively uncommon, diverse group of neoplasms, comprising 2% of surgical pathology material. However, benign STTs are more common than malignant.[2]

STTs are diagnosed by ultrasonography, Magnetic resonance imaging (MRI) and Fine needle aspiration cytology (FNAC). STTs are confirmed by biopsy and further confirmation and subtyping is done by Immunohistochemistry (IHC). In case of STTs, clinical, radiological and pathological correlation is important. Surgical management depends on histological diagnosis and anatomical extent of the tumors. Histological grading of STTs is the key prognostic factor and it strongly associates with patient's survival.[3] Various modes of treatment of STTs are surgery, radiotherapy and chemotherapy. The diversity of STTs and ever changing classification is challenging in the field of diagnostic pathology.[3]

MATERIAL AND METHOD

The present study was conducted from January 2018- June 2019 in the department of pathology of a tertiary care hospital. A total number of 120 STTs were studied in this duration. Clinical history and examination findings were studied from hospital record section. Information regarding the clinical data, age, sex and site of the tumor was recorded.

The specimens were received in surgical pathology unit of the department. After proper fixation, representative sections were given and processed. Haematoxylin and eosin (H&E) stained slides were examined by two experienced histopathologists and diagnosis was given. The tumors were classified according to WHO classification. Benign and malignant STTs were included. Intermediate category of STTs are not included. Out-sourced Immunohistochemical (IHC) studies were outsourced.

RESULTS

Out of total 120 cases, most of the STTs were on extremities (70%) and also on other sites like head & neck, back and abdomen. There was preponderance of benign STTs (87%) than malignant STTs (13%). STTs were present more in male patients (63%) than in female patients (37%). In this study, the most common tumor found was Lipoma (58%) **(Table no.1).** Among the malignant STTs, Liposarcoma was most frequently encountered **(Table no.2)**. Most common age group was between 40-60 years.

Table no.1: Incidence of benign STTs (n=104)

S. No	Tumors	No of cases	Percentage (%)
1	Lipoma	60	58%
2	Schwannoma	20	18%
3	Neurofibroma	5	5%
4	Lymphangioma	5	5%
5	Tenosynovial giant cell tumor/ Pigmented villonodular synovitis	5	5%
6	Hemangioma	5	5%
7	Fibromatosis/ desmoid tumor	4	4%

Table no.2: Incidence of malignant STTs (n=16)

S. No	Tumors	No. of cases	Percentage (%)
1	Liposarcoma	5	32%
2	Leiomyosarcoma (LMS)	2	13%
3	Malignant peripheral nerve sheath tumor (MPNST)	3	19%
4	Neuroblastoma	2	12%
5	Extra-skeletal Ewing's sarcoma	1	6%
6	Rhabdomyosarcoma (RMS)	1	6%
7	Synovial sarcoma	1	6%
8	Malignant mesothelioma	1	6%

DISCUSSIONS

Male population (63%) was more affected than female in present study which is concordant with other studies done before- Anitha S et al[5]-53%, Baste BD et al[4]-64%, Harpal Singh et al[6]-53%. Most common tumors observed in present study (87%), observed in other studies as –Anitha S et al[5]-80%, Baste BD et al[4]- 95%.

In this study, the most common tumor found was Lipoma, involving mostly extremities like most other studies.[7] However, 3 cases were noted at rare sites as, one case of 44 years old male complaining of pain

in abdomen and after radiological evaluation diagnosed as a case of intestinal obstruction. On gross examination of the resected intestinal segment, a well-circumscribed fatty tissue mass was noted in jejunum **(figure-1A).** Other case was of 40 years female complaining of swelling of parotid gland region and on histopathology revealed well-circumscribed mass comprised of fibro-adipose tissue in parotid gland-Sialolipoma **(Figure-1B).**

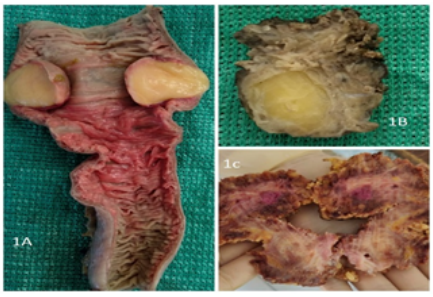

Figure 1: Gross images of: 1A-Lipoma in jejunum, 1B-Sialolipoma, 1C-Desmoid tumor.

20 cases of Schwannoma were present on extremities like in other studies.[6]On microscopy, characteristic Antoni A&B areas and occasional verrocay bodies were seen.

4 cases of Fibromatosis were also encountered, 3 of them were present on abdominal wall i.e. Extra-abdominal Desmoid **(Figure 1C)** and one on palm i.e. Palmar Desmoid. On microscopy, it showed cells with elongated nuclei arranged in short and long interlacing bundles and collagen rich ropy fibres are seen. All 5 cases of Teno-synovial Giant cell tumor were present on tendons of extremities. These are benign intra-articular soft tissue tumors.[10]

Among the malignant tumors, the most common STT was Liposarcoma. Out of total 5 cases, a 24 year male came with huge lobulated swelling on eyelid which was diagnosed as Myxoid Liposarcoma on fine needle aspiration cytology and histopathology as well. On histology, chicken wire appearance of capillary network and lipoblasts were embedded in myxoid stroma. Eyelid is rare site for Liposarcoma as described in literature.[8]One case showed features of Pleomorphic Liposarcoma (**Figure2)**.

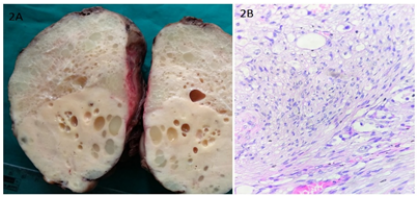

Figure 2: Gross image of Pleomorphic Liposarcoma with myxoid change (2A). On microscopy, it shows hyperchromatic cells with nuclear indentation & vacuolated cytoplasm & focal myxoid change (2B).

2 cases of LMS were presented as retroperitoneal masses like in other series.5, 6 On IHC, LMS showed strong positivity for Desmin, SMA, Vimentin (Figure 3).

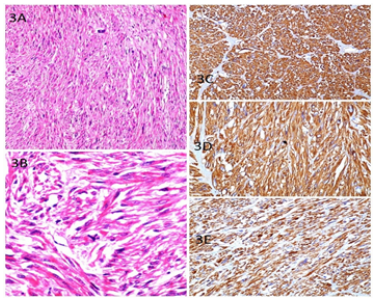

Figure3: LMS on microscopy shows spindle shaped cells in fascicular growth pattern (low power image- 3A) with cigar shaped, blunt nuclei & cytoplasmic vacuoles at both ends (high power image- 3B). IHC: SMA+++(3C), Vimentin++(3D), Desmin++(3E).

A 40 years old male presented with thigh swelling, gradually progressive in size, on histopathology diagnosed as Synovial Sarcoma and confirmed on IHC(**Figure4)**. Synovial Sarcoma is an aggressive STT, not related to synovium, occurring in median age, most commonly on extremities.[5]

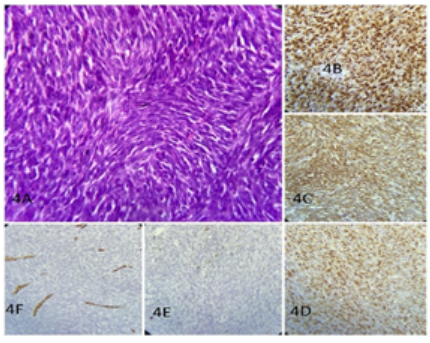

Figure4: Synovial sarcoma on microscopy shows spindle shaped cells in fascicles & nuclear palisading is also seen(4A). IHC: Tle1+++(4B), CK++(4C), Bcl2+(4D), EMA-focal +(4E), CD34-(4F).

2 cases of Neuroblastoma presented as retroperitoneal masses and one was subtyped on histopathology as Ganglioneuroblastoma (Figure5). Both the cases were found in girls below 15 years old.

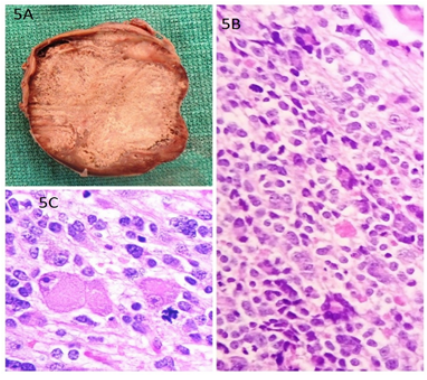

Figure5: Ganglioneuroblastoma: Gross image(5A) shows well circumscribed tumor mass showing extensive areas of necrosis. Microscopic images shows- encapsulated tumor showing round-oval cells with hyperchromatic nuclei, at places forming Homer-Wright Rossetts (5B), scattered ganglion cells(5C).

A 30 years female presented with a progressively growing painless thigh swelling which was diagnosed on fine needle aspiration cytology and histopathology as Pleomorphic RMS. It was further comfirmed by IHC, which showed strong positivity for Desmin and Myogenin as shown in **Figure6**. RMS is commonly present in head and neck region and in first decade of life but the pleomorphic variant is seen more often in adults. Extremity is the least major site for RMS and RMS on this site has highest relapsing and lowest survival rate.[9]

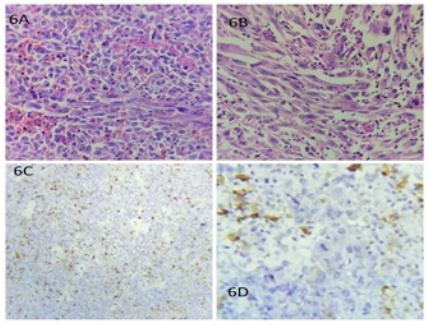

Figure6: Pleomorphic RMS shows hyperchromatic, pleomorphic rhabdoid cells in fascicles and storiform pattern(low power-6A, high power 6B). IHC: Desmin++(6C), Myogenin++(6D).

All MPNSTs showed palisading serpentine tumor cells, geographic necrosis & perivascular tumor cells. They were present on extremities like in other case series.[4]

A case of 60 years old male came with severe abdominal pain after radiological workup patient was taken for emergency laparotomy, plastered abdominal cavity was found. Mesentery was resected and given for histopathology. The diagnosis of Malignant Mesothelioma was done on microscopic examination showed sheets of hyperchromatic pleomorphic tumor cells with abundant eosinophilic cytoplasm, vesicular nuclei & prominent nucleoli and confirmed on IHC studies: Calretinin++, CK5+, WT1+, EMA+.

One 15 year girl came with swelling over shoulder region, after radiological workup it was diagnosed as soft tissue swelling and excisional biopsy was taken and diagnosed as Extra Skeletal Ewing's Sarcoma (ES-ES, a rare STT[3]) on histopathology (**Figure7).**

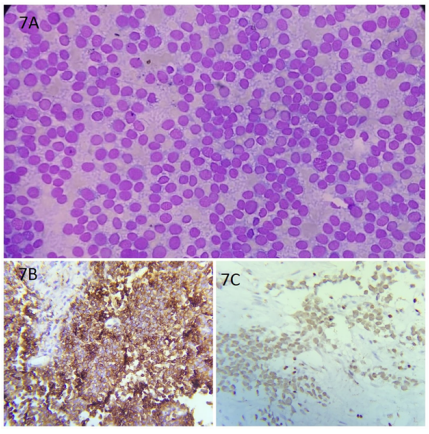

Figure7: Ewing's sarcoma microscopy shows sheets of round uniform cells with scant cytoplasm& indistinct cell membrane. Few rossetts are also seen(7A). IHC: CD99++(7B), Desmin+(7C).

CONCLUSION

The diagnosis and management of STNs require a team perspective and efforts. Even though soft tissue sarcomas are rare and usually present as painless mass, the clinician must be able to diagnose it early for better management.

The clinico-morphological evaluation with IHC studies is the gold standard for the proper diagnosis of STTs.

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