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Incidence of various soft tissue tumours among benign and malignant cases

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ABSTRACT

Soft tissue can be defined as non epithelial extraskeletal tissue of the body exclusive of the reticuloendothelial system, glia and supporting tissue of various parenchymal organs. Soft tissue sarcomas can develop from soft tissues like fat, muscle, nerves, fibrous tissues, blood vessels, or deep skin tissues. This present study is a clinicopathological study of 155 cases of soft tissue tumours recorded over a period of 2 years. Among the 155 cases, 4,045 surgical biopsy materials received for the diagnosis, where 11.2% accounted soft tumours. The benign tumours accounted for 89.7% and malignant constituted 10.3%. Both benign and malignant soft tissue tumours showed sight preponderance to female population. Benign soft tissue tumours showed predilection for head and neck region whereas malignant showed for lower extremities. Benign soft tissue tumours presented as painless mass while malignant soft tissue tumour presented with longer duration. The commonest benign tumours are lipoma, vascular, neural, fibrous, smooth muscle and fibrous histiocytic; the commonest malignant tumours are liposarcoma and malignant peripheral nerve sheath tumour, angiosarcomas, fibrosarcomas, synovial sarcoma and malignant fibrous histiocytoma. Special stains are helpful in addition to the routine haematoxylin and eosin for the proper diagnosis of soft tissue sarcomas and guide further course of management.

Keywords: Soft tissue tumous, benign, malignant, diagnosis, special staining.

INTRODUCTION

The field of soft tissue tumours (STT) is vast, and yet as cytologically, relatively undiscovered. The uncommonness of primary tumors of soft tissue and large range of different types of tumors, the diagnosis and classification of soft tissue tumors become most difficult areas in surgical pathology and absence of recognizable tissue architectural patterns in cytological preparation makes diagnosis mainly by fine needle aspiration cytology (FNAC) even more difficult [1]. STT are defined as mesenchymal proliferations that occur in the extraskeletal, nonepithelial tissues of the body, excluding the viscera, coverings of the brain, and lymphoreticular system, and benign tumors are more common than malignant counterparts (sarcomas) with a ratio of at least 100 : 1 [2,3].

Soft tissue sarcoma (STS) is a kind of unusual tumors that can transpire anywhere in the soft tissues of the body including fat, muscle, connective tissue, nerves etc. Sarcomas can initiate anywhere in the body; typically, it develop in the soft tissues that encircle, attach or bear the body's structure and organs [4]. STS are uncommon tumours that present prominent complexities of diagnosis and classification. Some soft-tissue sarcomas are benign but not cancer and others are malignant ie cancer. There are more than 30 types of sarcoma, making each extremely rare. Sarcomas

are classified into groups that have similar types of cancer cells and symptoms [5,6]. They usually are named for the type of tissue where they start. Sarcomas within a classification often are treated the same way [2,7,8].

With this background, we planned to undertake a study to report our two year experience of dealing with soft tissue tumour patients at a tertiary care hospital as data is limited from our country. Our population exhibits a very diverse behavior in terms of tumour biology, disease manifestation and outcome and we wish to find out the incidence of various soft tissue tumours and also find out the relative frequency of benign and malignant tumours.

MATERIALS AND METHODS

The study was undertaken in the Department of Pathology, Rajah Muthiah Medical College and Hospital, Annamalai Nagar, from June 2007 to May 2009. A total of 155 cases of soft tissue tumours including all 4,045 surgical biopsy specimens of both incision and excision biopsy materials of different soft tissue tumours were included in this study for histolopathological examination. A detailed clinical data including age, sex, anatomical location, clinical diagnosis, hematological profile, radiography and surgical diagnosis were collected using standard proforma. The macroscopic findings like size, shape, color, macroscopic extension and consistency of the samples were recorded. The specimens were transferred to 10% neutral formalin for 24 hours and 4mm thick sections were used for processing. Histopathological examination was done using conventional haematoxylin and eosin staining. The microscopic determination revealed the types of soft tissue tumours (Sharon and John, 2001).

RESULTS AND DISCUSSION

Among the 4,045 surgical biopsy materials, 454 (11.2%) were malignant and 3,591 (88.8%) were benign (Figure 1). The soft tissue tumours were encountered with 155 (3.8%) specimens; out of them 139 (89.7%) were benign and 16 (10.3%) were malignant (Figure 2).

Figure 1: Incidence of benign and malignant tumours

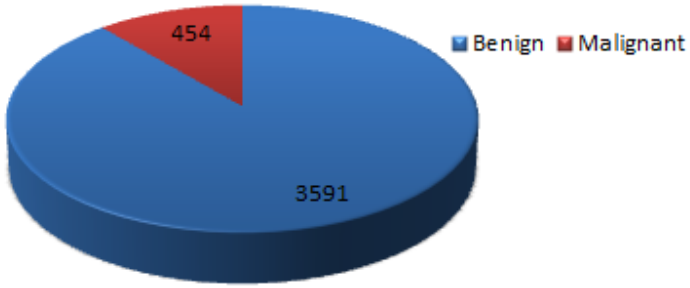
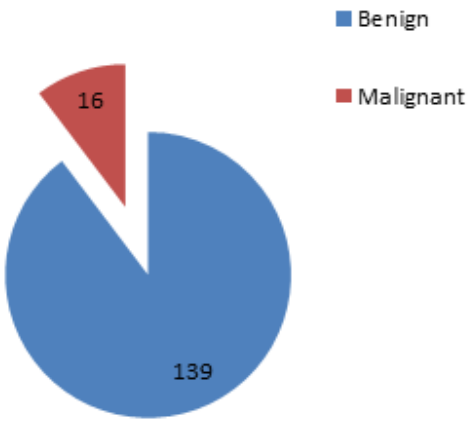


Figure 2: Incidence of benign and malignant types among soft tissue tumours



Benign soft tissue tumours were encountered more in female than male, while malignant tumours were more among male population than females. Peak age incidence of benign and malignant soft tissue tumours was observed in 21-

30 and 31-40 respectively. The agewise distribution of benign and malignant soft tissue tumours are depicted in figure 3. The sexwise distributions of benign and malignant tumours are impregnated in figure 4.

Figure 3: Agewise distribution of benign and malignant tumours

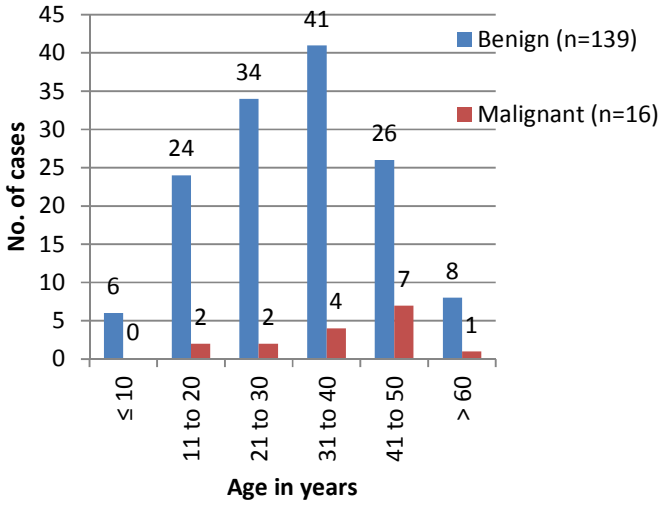
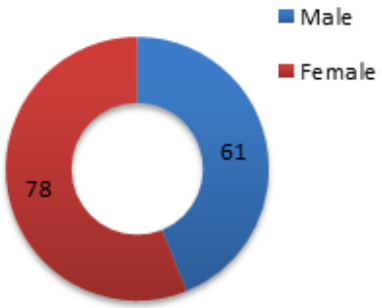
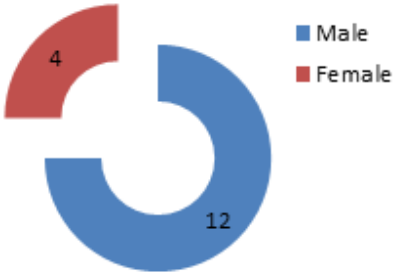


Figure 4: Sex wise distribution of benign (4a) and malignant tumours (4b)

4a – Distribution among Benign tumour patients (n=139)



4b – Distribution among Malignant tumour patients (n=16)



Among benign soft tissue tumours, maximum incidence was observed in lipomatous tumours followed by vascular, neural tissue, fibrous and smooth muscle; whereas among malignant cases more or less the incidence like benign was observed with some deviations but lesser incidence observed in synovial and skeletal muscle tumours (Figure 5).

On cytology, the above said sarcomas are determined using haematoxylin and eosin staining and the description were impregnated in the figure 6. Here Angiosarcoma, malignant peripheral nerve sheath tumour, liposarcoma and synovial sarcoma histopathological slides were highlighted.

Figure 5: Spectrum of soft tissue tumours by histology

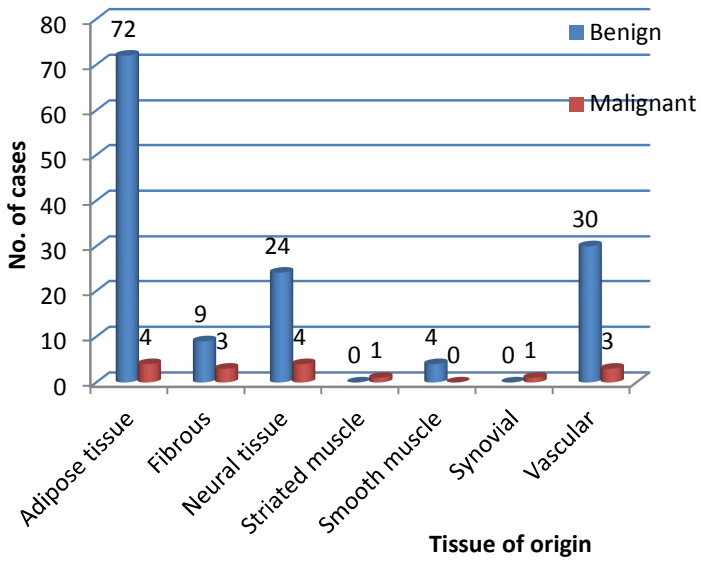
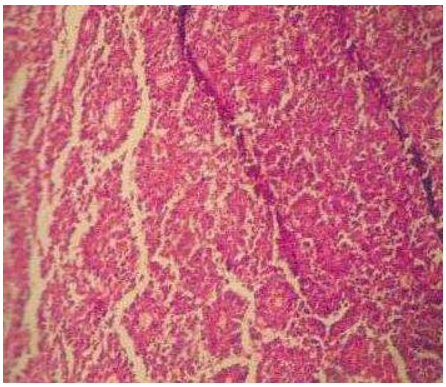
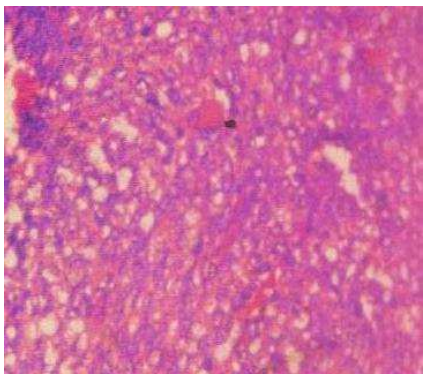


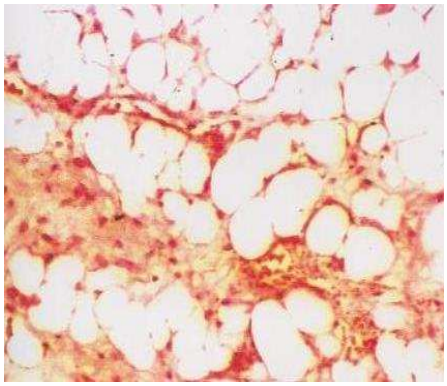
Figure 6: Histopathological spectrum of soft tissue tumours



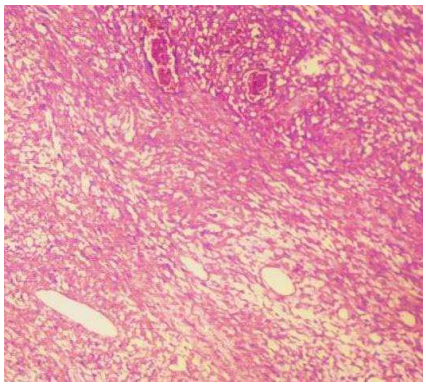
6a. Angiosarcoma



6b. Malignant peripheral nerve sheath tumour



6c. Liposarcoma



6d. Synovial sarcoma

Amongst the innumerable neoplasms ailing the human body, STSs present as a clinical dilemma, a stiff challenge for the oncologist and the surgeon. The diversity of cell of origin in the body, rapid growth in any anatomical site

and the aggressive tumour biology makes it difficult to assess and treat [9]. The high recurrence rate makes long-term follow up and repeated interventions mandatory. In the era of multimodality treatment, where the surgeon, who is the team leader is aided by pathologist, radiologist, medical and radiation oncologist in diagnosing and instituting appropriate, effective, available and affordable therapy at the earliest to achieve maximum disease-free survival [10,11,12]. Genetic syndromes, exposure to ionizing radiations and lymph oedema are well established but uncommon antecedents to the development of STS; were obvious by their absence in the patients presenting in this study.

Of the 4045 biopsy specimens of tumour suspicion presenting in the study, 155 patients with soft tissue tumours constituted 3.83% of the most common being liposarcoma. Our data was consistent with liposarcoma being most prevalent extremity sarcoma, in retroperitoneal space lipoma and liposarcoma were commonest [9,10]. We infer that these patients either presented late or were diagnosed late.

Majority of patients presenting to our institution in advanced stage of the disease, indicating ignorance, fear and reluctance for surgery; as well as economic constraints, that delay early detection and initiation of proper treatment. The incidence appears to be increasing, targeting the younger population [1,3,5,6,12]. This signifies the lack of awareness among the people and health care workers about cancers. It is also disturbing to know that although literate, patients do not understand the disease process and the need to come early in case of illness. Limited availability of diagnostic aids and its high cost are other reasons for delay in diagnosis [2,3]. At rural level the lack of specialists and limited therapeutic options are further deterrent to early diagnosis and institution of appropriate therapy to the patient. Another problem faced is the poor compliance to chemotherapy and/or radiotherapy and many of the rural patients are lost to follow up. This study indicates the involvement of younger patients with soft tissue tumours which is an alarming and disturbing fact [2,4,9,12]. The need of the hour is early detection and multidisciplinary team approach towards its treatment. It is important to set up specialist centres at rural level; most importantly, the incorporation of drug trials in government referral centres where majority of these patients present, so that they can be benefited by newer modalities of treatment at minimal cost to their families.

CONCLUSION

Multidisciplinary involvement is essential for appropriate and successful management of individual cases. The median recurrence free survival was comparable in our study to the reported literature but with significant lost to follow rate. Further large scale, multicentre prospective studies are needed to have a more comprehensive understanding of the behavior and outcome of this heterogeneous disease in our population. Also, there is a need for increasing awareness among general public for meticulous follow up.

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