

# A Study of Different Patterns in Soft Tissue Tumors

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## Abstract:

Soft tissues range from very common lipoma to some of the rare tumours in medicine. These tumours were derived from soft tissues. The large majority of the soft tissues tumours are benign, with a high cure rate after surgical excision. The objective of present study was to study the histo-pathological patterns of soft tissue tumors and to find out different variation regarding age, sex & distribution in body. The present study was carried in Department of Pathology, from 21<sup>st</sup> December 2007 to 20<sup>th</sup> December 2008. A record of total of 2399 patients was taken. Among 111 positive samples for soft tissue tumor, 10 cases turned out to be malignant. The most common type of soft tissue tumor was Lipomatous in 58.6%, followed by fibroblastic/Myofibroblastic. Over all 56.7% of tumor were diagnosed among male, while 43.3% were diagnosed among females. The most common site that is involved is lower limb.

**Key words:** Soft tissue, Lipoma, Tumors, Benign, Malignant, Biopsy.

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also seen with syndrome as NF type-1 and Li fraumeni syndrome.

## Aims & Objectives

1. To study the histo-pathological patterns of soft tissue tumors
2. To find out different variations regarding age, sex and distribution in body.

## Introduction

Supporting tissues which are extra skeletal, in the body are known as soft tissues. In other words the tissues that connect, support, or surround other structures and organs of the body, not being bone. There are many examples of soft tissues, some are connective tissues, ex. Tendon, ligament, fascia, skin fibrous tissue, fat and some are not, ex. Nerves and blood vessels. There are many tumours which can arise from the soft tissue ranging from benign to malignant tumours.

Tumours have wide, variation which can be detected on close and careful microscopic examination. Where higher number of cases are seen with the benign tumour, as compared to malignant, this tumour also have more or less similar feature as of normal tissues. Soft tissue tumour may occur anywhere in body; most of these arise from extremities, chest wall and mediastinum. Unlike carcinoma, which occur in mostly in older age group, this can present in any age group, with slight pre-dominance among males.

There is still not well established pathogenesis for soft tissues tumour. Events like trauma, post surgical scar, and environmental factor like asbestos, chlorophenols, and radiation exposure can be some triggering factors. Other can be exposure to viruses like Epstein –bar virus etc which can cause tumours. Although soft tissue tumour has sporadic origin but it is

## Material & Methods

The present study titled “A Study of Different Patterns in Soft Tissue Tumours” was carried in Department of Pathology, under histopathology section at S.S. Medical College, Rewa. Duration of study is 1 year from 21<sup>st</sup> December 2007 to 20<sup>th</sup> December 2008. A record of total of 2399 patients was taken who were showing swelling like lesions. Sample of these entire individual were then collected at Histopathology lab at S.S. medical college, Rewa.

Materials were taken in the form of biopsy or resection, which were kept in 10% of formal saline. By using 10% formalin, each tissue was fixed for 12-24 hrs. Then it was processed, ultimately embedded in paraffin wax. Specimen was prepared with 5 micron thickness. Staining was done with haematoxylin and eosin.

A relevant data on age, sex, location of tumour, diagnosis were recorded in a separate sheath. Gross and microscopic findings were then clinically correlated. Than analysis were done.

## Results

The microscopic classification of soft tissue were done according to book “soft tissue tumors by Enzinger and Weiss.<sup>1</sup> Data such as age, sex, location of tumors, socio economic classification were taken as records and

with a combination with gross and microscopic findings, a final diagnosis was made.

A total of 2399 samples were collected during one year period. Out of which, 111 samples (4.63%) were turn out to be a soft tissues tumor.

**Table 1: Tumor according to its classification**

Soft tissue tumor	Number	Percentage
Benign	101	91
Malignant	10	09
total	111	100

Among 111 positive samples for soft tissue tumor, 10 cases turned out to be malignant and rest were benign in nature.

**Table 2: Tumor according to its histological type**

Histological type	Number(%)
Fibroblastic/Myofibroblastic	17(15.3)
Lipomatous	65(58.3)
Skeletal muscles	02(1.8)
Vascular	11(9.9)
Peripheral nerve sheath	12(10.8)
Extra skeletal osseous & Cartilaginous	02(1.8)
Miscellaneous	02(1.8)
Total	111(100)

According to histological type, the most common type of soft tissue tumor was Lipomatous that is 65 cases (58.6%), followed by fibroblastic/Myofibroblastic that is 17 cases (15.3%)

Incidences of extra skeletal osseous and cartilaginous and miscellaneous types were found to be equal and lowest in distribution, 1.8%.

**Table 3: Tumor according to gender distribution**

Lesion	Male	Female
Lipoma	35	29
Fibroma	05	05
Neurofibroma	08	03
Capillary hemangioma	05	04
Giant cell tumor	01	00
Liposarcoma	01	00
Malignant fibrous histocytoma	02	01
Rhabdomyosarcoma	02	00
Alveolar soft part sarcoma	00	01

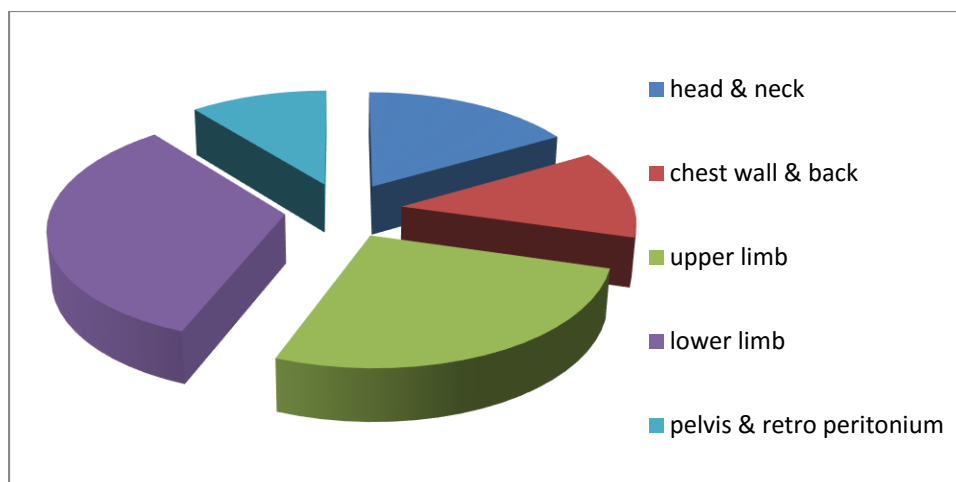
Out of the entire tumor, distribution of some types of lesions was tabulated. But overall 56.7% of tumor was diagnosed among male, while 43.3% tumor were diagnosed among females.

Lipoma was the most common type which was seen among both genders. In males second most common soft tissue tumor was Neurofibroma, followed by Fibroma. In females second most common type of soft tissue tumor was Fibroma, followed by capillary hemangioma.

**Table 4: Tumors according locations**

	Head & Neck	Chest wall & Back	Upper Limb	Lower Limb	Pelvis & Retro peritoneum	Total
Lipoma	10	12	18	19	05	64
Fibroma	01	01	03	04	01	10
Neurofibroma	02	-	02	03	04	11
Capillary Hemangioma	04	-	03	02	-	09
Giant cell tumor	-	-	-	01	-	01
Liposarcoma	-	-	-	-	01	01
Malignant fibrous histocytoma	-	-	01	02	-	03
Rhabdomyosarcoma	-	-	-	02	-	02
Alveolar soft part sarcoma	-	-	-	01	-	01

As depicted in study tumors of soft tissue are largely situated in extremities of the body. The most common site that is involved is lower limb. Then comes the upper limb which is the second most common site. Other sites which are involved are in declining order as head & neck, back, chest wall and pelvic region.



**Fig. 1: Soft tissue tumor according to location**

## Discussion

Tumors which are soft tissue origin vary right from commonly seen Lipoma to some rare tumors. The occurrence of benign tumor is seen much more common than malignant in cases of soft tissue. Malignant tumor accounts for less than 1% of human burden.

Biopsy is necessary and appropriate method to diagnose the cases of soft tissue tumor. It gives nearly a accurate prognostic and therapeutic importance to any given clinical case. This also added to find out histological type of tumor and thus the grading can be given according to that. Most of the limb masses are best sampled via longitudinal oriented incision, so that the entire biopsy tract can be completely excised at resection time. Excision biopsy should be avoided, especially with the lesion more than 2cm in size, since such an approach will make definitive re-excision more extensive due to the contamination of surrounding tissue plane. The present study was done in 111 cases of soft tissue tumor. Maximum numbers of tumor were benign. The ratio of benign to malignant tumor was 9:1, which was similar as previous studies. Among benign tumors, almost half of the tumors were Lipoma, which is actually one of the most common types. Lipomas are usually asymptomatic, painless and are very common in lower limb, upper limb, neck and shoulder. Cases are more seen among males than females.

Linn JJ and Lin F<sup>76(2)</sup> had studied 459 cases of Lipoma. In their study also simple Lipoma outnumbered other type by a wide margin. The 2<sup>nd</sup> common type in their study was fibro-lipoma. In the present study the second most common type of tumor was Neurofibroma, which is a tumor of peripheral nerve sheath. It shows 3 growth patterns as localized, diffuse and plexiform. According to **GESchickter**<sup>33(3)</sup> 90% of Neurofibroma are solitary and sporadic type. The same were seen in our present study.

The 3<sup>rd</sup> most common tumor was Fibroma. There were four variant present of this tumor which were

tendon sheath, fibromyxomatous, calcifying Fibroma and non-ossifying Fibroma. Present study shows out of 10 fibromas, four were present in lower limb and three in upper limb, which were nearly synonymous with study done by **Chung and Enziger**<sup>74(4)</sup> & **Pulitzer DR et al**<sup>75(5)</sup>.

## Summary

The present collected samples comprised only a small percentage (4.6%) of all surgical pathological material. Out of which majority of the samples were benign with the ratio of 9:1 in soft tissue tumor cases. Histological the Lipomatous were most commonly seen among all the samples and among the malignant, histiocytoma accounted for the commonest type.

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