



## A STUDY OF FINE NEEDLE ASPIRATION CYTOLOGY SMEARS OF UPPER AND LOWER LIMB SOFT TISSUE LESIONS.

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**ABSTRACT** **BACKGROUND:** Soft tissue tumours constitute a large and heterogeneous group of neoplasms. Most soft tissue tumors in the upper extremity are benign, and soft tissue sarcomas are rare in the hand and wrist. Superficial soft-tissue masses are among the most common indications for imaging of the extremities. A broad array of benign and malignant processes may be manifested in palpable cutaneous or subcutaneous masses or nodules. In tertiary care set up both imaging and FNAC can play a vital role in preliminary diagnosis of soft tissue lesions of the extremities by differentiating them from cutaneous vs. non cutaneous, osseous vs. non osseous tumors.

**METHODS:** A prospective study was conducted in the Department of Pathology, Government general hospital Nizamabad, Telangana ,during March 2017 to March 2019 that evaluated 50 patients with history of swelling in upper and lower limb had been evaluated . Detailed history, thorough clinical examination, Imaging, Fine needle aspiration cytology was performed in all the 50 Patients. Aspiration smears were stained with Hematoxylin and Eosin and microscopic examination done.

**RESULT:** The patients aged from 10 to 75 years, average age at presentation was 41.2 yrs. Of total 50 cases 27 were upper limb (54%) and 23(46%) were lower limb lesions. Of both upper limb and lower limb lesions, Lipoma constituted most common lesion 20 cases(40%) with 16 cases of total 27 cases in upper limb (59%) making it most common benign soft tissue lesion in the upper limb. 4 cases(8%) out of 50 cases were diagnosed as spindle cell lesion undetermined/sarcoma and advised histo-pathological evaluation.

**CONCLUSION:** A detailed evaluation of patients presenting with swelling in the upper and lower limb coupled with imaging and FNAC, in establishing the diagnosis required for further follow action was done. In most of the cases imaging coupled with FNAC gave better results but in some it required histo-pathological evaluation. FNAC was found to be a better modality for preliminary diagnosis along with radiology in decision making process for further surgical approach.

**KEYWORDS :** Fine needle aspiration cytology (FNAC), benign, malignant, spindle cell lesions, sarcoma.

### INTRODUCTION

The benign soft tissue tumours comprise of lipomas, benign fibrous proliferations (fibroma, fibroepithelial polyp, nodular fasciitis, dermatofibroma, benign fibrous histiocytoma) leiomyomas, rhabdomyomas, haemangiomas, schwannomas, neurofibromas, giant cell tumor of tendon sheath. Among the malignant soft tissue tumors, malignant fibrous histiocytoma is the most common soft tissue sarcoma of late adult life followed by liposarcoma.

Superficial soft-tissue masses are among the most common indications for imaging of the extremities. A broad array of benign and malignant processes may be manifested in palpable cutaneous or subcutaneous masses or nodules. Most such lesions are treated with surgical excision, but some may be conservatively managed.

Soft tissue tumours constitute a large and heterogeneous group of neoplasms. Although most of the soft tissue tumours are classified as either benign or malignant many are of an intermediate nature, which typically implies aggressive local behaviour with low or moderate propensity for metastasis.<sup>1</sup>

Soft tissue sarcomas account for about 0.8%- 1% of all cancers and 2% of all cancer deaths.<sup>2</sup>

Although soft tissue lesions can occur any location, about 15% occur in upper limb.<sup>3,4</sup>

Certain soft tissue tumors have a predilection for particular sites in the foot. Soft tissue tumors that are most likely to affect the foot's dorsal surface are ganglion cyst, giant cell tumor of tendon sheath, Kaposi's sarcoma, and synovial sarcoma. Epidermal "inclusion" cysts and periosteal chondromas are also commonly seen in this location.<sup>5,6</sup>

### MATERIALS AND METHODS

The present study was conducted in the Department of pathology, Government Medical College, Nizamabad on patients with swelling in upper or lower limb during the period of March 2017 to March 2019.

### STUDY DESIGN

Prospective study.

### STUDY PERIOD

The present study was conducted during March 2017 to March 2019.

### Method of collection of data

#### Source of Data

Patients presenting with swelling in upper and lower limb in the cytology section of Department of Pathology at Government General Hospital, Nizamabad.

### Sample size

50 Patients.

### Sampling procedure

Data collected from the records of Cytology section of Department of Pathology, government general Hospital Nizamabad.

### Selection criteria

#### INCLUSION CRITERIA

1. Patients with age more than or equal to 10 years and less than or equal to 75years.
2. Patients with Non traumatic swelling of upper and lower limb.
3. Patients with adequate diagnostic aspirate.

#### EXCLUSION CRITERIA

1. Patients with age less than 10 years and more than age of 75 years.
2. Patients with documented history of trauma or fracture in recent past.
3. Patients with insufficient or Hemorrhagic aspirate.

### Procedure

The study was approved by the Ethical and Research Committee of government general Hospital, Nizamabad. During the study period, all patients presenting with and fulfilling the inclusion criterion were included in this study after obtaining informed written consent.

All patients underwent Fine needle aspiration under aseptic precautions. The Cytology smear was studied after staining with Hematoxylin and Eosin stain. Satisfactory samples of Fine needle aspirate can usually be aspirated with 21-22 gauge needles. Fixed the Aspirate spread material slides in 95% ethanol. Smears of cytology should be stained as a routine by haematoxylin and eosin.

**RESULT**

Patient's age ranged from 10 to 75 years ,average age at presentation was 41.2 yrs. Out of 50 patients, 19 patients (38%) were males and 27 patients (62%) were females. Accounting a ratio of male to female was 1:1.4 suggesting female preponderance.

Of total of 50 cases the commonest lesion is Lipoma with total of 20 cases (40%). When we compare upper limb 16cases (80%) to lower limb 4 cases (20%) it indicates upper limb lipoma occur commonly especially in the forearm region.

Of total 50 cases 4 cases are of inflammatory in origin , 1 case was fat necrosis and 3 cases were ganglion cyst making it 8 cases (16%) non neoplastic to 42 cases of neoplastic origin (84%).

After Lipoma , Epidermal inclusion cyst 8 cases (16%) was found to be next common lesion with commonly involving lower limb .

Neurofibroma /Schwannoma/peripheral nerve sheet tumor constituted 4 cases (8%) of total 50 cases.

Ganglion cyst were 3 cases (6%) of total 50 cases with common occurrence in upper limb.

Of 50 cases 1 case was (0.2%) was made suggestive diagnosis of fibrous histiocytoma, with confirmation and grading requiring histo-pathological evaluation.

Among total cases 1 case (0.2%) was giant cell tumor with history of trauma in distant past

And 1 case (0.2%) was enchondroma diagnosed with both cytological and radiological correlation.

2 cases were hemangioma constituting 0.4 % tumors of vascular origin among total 50 cases.

4 cases (8%) were given suggestive diagnosis of spindle cell lesion (undetermined nature) and were advised histo-pathological correlation.

1 case (0.2%) was given suggestive diagnosis of malignant melanoma requiring histo-pathological and immuno-histochemical evaluation.

**DISCUSSION**

In the present study out of 50 cases studied the most common soft tissue lesion was lipoma constituting 40 percent of cases coming for Fine needle aspiration cytology evaluation with complaint of upper limb or lower limb swelling.

Lipomas may be seen in persons of any age; however, they are most frequently identified after the first two decades of life, particularly in obese individuals.<sup>7</sup>

Men are affected slightly more commonly than are women.<sup>7</sup> Lipomas may arise superficially within the subcutaneous tissue or deep within the muscle or fascia.<sup>8</sup>

The most common sites of occurrence for ganglion cysts are the distal extremities, especially near the hand and dorsal wrist.<sup>9</sup> Women are involved roughly three to four times more commonly than are men.<sup>10</sup>

The epidermal inclusion cysts of the hands are usually slowly enlarging, asymptomatic, superficial localized, painless swellings over the palm, occasionally arising from deeper structures such as tendon and phalangeal bones.<sup>11</sup> In our study after lipoma the epidermal inclusion cyst was second commonest soft tissue lesion presented for cytological evaluation.

Schwannomas are benign slow-growing neoplasms that exhibit differentiation toward nerve sheath. Though such tumors may arise anywhere, there is a predilection for the head, neck, and extremities.<sup>12</sup> because schwannomas are tumors of the nerve sheath; they are often intimately associated with peripheral nerves, a feature which may precipitate neuritic symptomatology in some cases.

Spindle cell hemangioma was originally described in 1986 as a low-grade

variant of angiosarcoma.<sup>13</sup> It is now widely accepted that these unusual vascular proliferations are non-neoplastic and lack malignant potential.<sup>14,15</sup> Most examples present in the extremities as burgundy-blue papules or nodules. Cases involving the foot are particularly common.<sup>16</sup> All ages may be affected, but most arise in persons in the second or third decades of life.<sup>13</sup>

Fibrous histiocytoma along with spindle cell lesions undetermined both together 5 cases (10%) of sarcomas constituted commonest aggressive neoplastic lesions in the present study. The specific categorization of these into benign, malignant and specific grading needed histo-pathological evaluation as these usually needed limb salvage surgical approach.

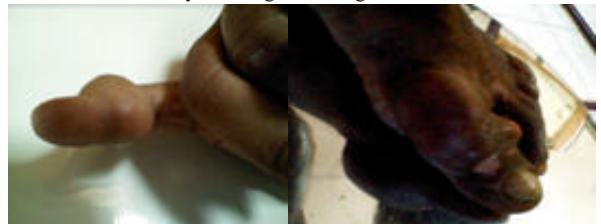
Malignant melanoma of soft parts is a high-grade sarcoma that exhibits melanocyte-like differentiation. This unusual neoplasm demonstrates a striking predilection for the distal extremities where over 90% of cases manifest. The foot and ankle are most commonly involved, particularly within the soft tissue of the posterior heel, where they may present as painful nodules.<sup>17,18</sup>

**CONCLUSION**

Non traumatic swellings of upper limb and lower limb are common daily presentation that we see in surgical and orthopedic outpatient department.

The differential diagnosis span from simple benign lipoma to highly aggressive sarcomas.

Fine needle aspiration cytology when used along with clinical features and radiological evaluation can increase the accuracy of diagnosis and help the surgeon to take a conservative approach or a limb salvage surgical approach. In our study the upper limb neoplastic lesions predominate the lower limb but most of them were lipomas which required conservative approach, lower limb lesions though lesser than upper limb lesions, lesions like fibrous histiocytoma and malignant melanoma needed further proactive histo-pathological evaluation with immunohistochemistry and surgical management.



**FIGURE:1**

**FIGURE:2**



**FIGURE:3**

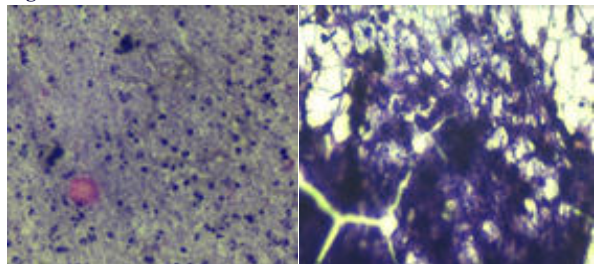
**FIGURE:4**

**Figure 1:** giant cell tumor of little finger

**Figure 2:** Epidermal inclusion cyst great toe.

**Figure 3:** X-ray Epidermal inclusion cyst great toe.

**Figure 4:** Schwannoma near elbow.



**FIGURE:5**

**FIGURE:6**

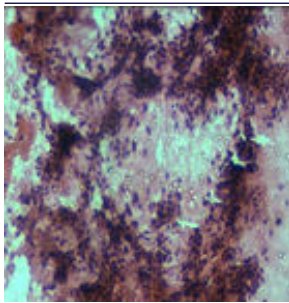


FIGURE:7

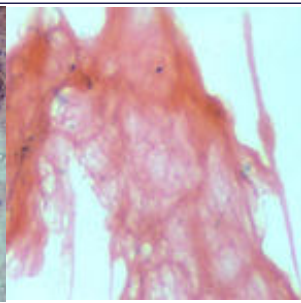


FIGURE:8

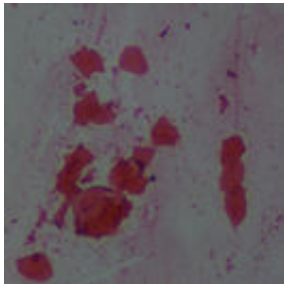


FIGURE:9

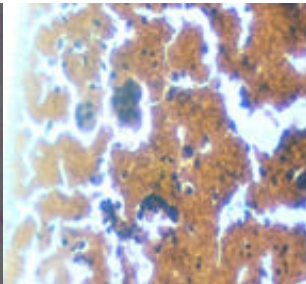


FIGURE:10

- Figure 5: fungal lesion with eosinophils and Dirty background
- Figure 6: spindle cell lesion with bizarre cells
- Figure 7: Schwannoma with hypo & hypercellular Areas.
- Figure 8: Adipocytes in lipoma.
- Figure 9: Anucleate Squams with eosinophilic material In the back ground.
- Figure 10: Giant cells in hemorrhagic background in Giant cell tumor.

TABLE – 1 Case details

cases	No.(%)
<b>Neoplastic</b>	42(84%)
Lipoma	20
Epidermal inclusion cyst	8
Schwannoma/Neurofibroma	4
Hemangioma	2
Giant cell tumor	1
enchondroma	1
Fibrous histiocytoma	1
Spindle cell lesion(undetermined)	4
Malignant melanoma	1
<b>Non-Neoplastic</b>	8(16%)
Ganglion cyst	3
Inflammatory lesions	4
Traumatic fat necrosis	1
Total	50

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