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Case Report

Recurrent spindle cell lipoma mimicking myofibroblastic tumor with myxoid changes: Cytological diagnostic dilemma

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ABSTRACT

Spindle cell lipoma (SCL) is an uncommon subtype of benign lipomatous neoplasms with a rare probability of the local recurrence. Correct cytological diagnosis is essential for the patient management. Surgical excision is the treatment of choice. Sometimes, it gets very difficult to reach a correct cytological diagnosis without a histomorphology or immunology. We are reporting a case of recurrent SCL in an adult male and emphasise on distinguishing cytological features for a correct and accurate diagnosis on cytomorphology. The correct cytological diagnosis of recurrent SCL is essential to distinguish it from malignant lipomatous and other soft tissue tumors.

Key words: *Cytology, Histology, Immunology, Recurrence, Spindle cell lipoma*

Spindle cell lipoma (SCL) is an uncommon subtype of lipomatous neoplasms which is benign with a rare probability of local recurrence [1]. Fine-needle aspiration cytology (FNAC) of SCL shows a variety of features: Adipocytes, spindle cells, round cells, ropey collagen, and myxoid background. It can mimic malignant lipomatous, fibroblastic, myofibroblastic, neural, or myxoid tumors [2]. Therefore, sometimes it gets very difficult to reach a correct cytological diagnosis without a histomorphology or immunology. We are reporting a case of recurrent SCL in an adult male and emphasize on distinguishing cytological features for a correct and accurate diagnosis on cytomorphology. The management of SCL is local excision which is usually enough for most of the patients [3].

CASE REPORT

A 50-year-old male presented with a large swelling measuring 8 × 6 × 4.5 cm in the posterior neck region. The swelling had been gradually increasing in size for the past 3 years. There was a history of excision of the similar lesion 4 years back after which the swelling had completely disappeared. FNAC of the previous swelling done at a private laboratory was reported as a mesenchymal lesion; although, no proper documentation on histopathology was available. The swelling reappeared after a year and was growing slowly since then. The skin over the swelling had a light discoloration with the healed scar mark distinctly visible (Fig. 1). No history of trauma was present. The patient had no difficulty or pain in neck movement. On palpation, the swelling was non-tender, firm in consistency with no fluctuation, showing no transillumination or slip sign.

Local region ultrasound showed a hypoechoic soft tissue mass suggesting possibilities of lipoma neck or liposarcoma or enlarged lymph node. Lymphoma could also not be excluded radiologically. There was no increased vascularity in the region. FNAC was performed using 22G needle and both air-dried smears for giemsa stain and alcohol fixed smears for papanicolaou stain were prepared. The smears showed few cellular fragments of fibro adipose tissue, clusters of spindle cells with slender nuclei (Figs. 2 and 3), few round cells showing anisonucleosis with prominent nucleoli and coarse chromatin (Fig. 4). These cells were embedded in a fibromyxoid matrix with presence of traversing capillaries. Few acute inflammatory cells and very occasional mast cells were also seen. No floret cells or lipoblasts were seen. No mitotic activity was seen. A cytological diagnosis of benign mesenchymal tumor was suggested with a differential of SCL, myofibroblastoma, or fibrohistiocytic lesion.

The patient underwent local excision of the tumor and histopathology was received. A skin covered gray-white well-circumscribed globular tissue mass measuring 9 × 7 × 3.5 cm was received. Cut surface showed fibro-fatty areas. No variegated areas were present on serial sectioning. The microscopic examination revealed lobules of mature adipose tissue with interspersed thin fibrous septa (Fig. 5). The septa comprised of spindle cells in a myxoid background. No lipoblasts or atypical cell was seen. The diagnosis of SCL was confirmed. Immunohistochemistry for CD34, smooth muscle antigen, and S100 were also put up. The immunology was positive for CD34 in spindle cells, S100 in the fat cell nuclei, and negative for smooth muscle actin (SMA) (Fig. 6). Our patient has been followed up for the past 8 months and is disease free without any recurrence.

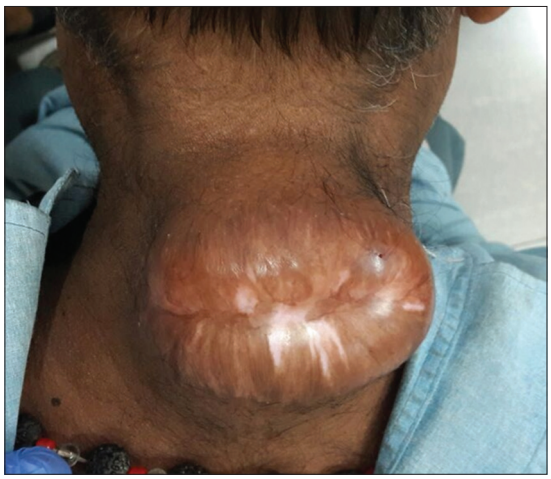

Figure 1: Neck mass showing previous scar mark

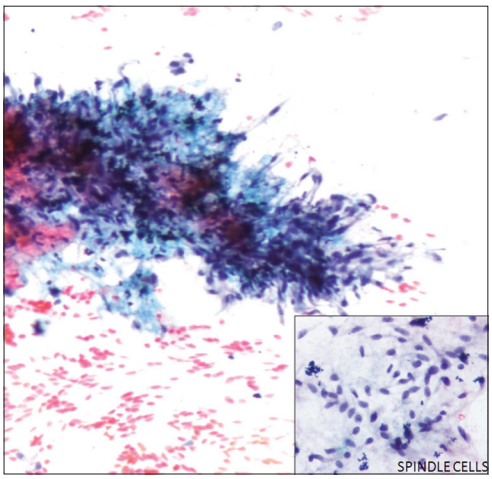

Figure 2: Cellular fragment showing spindle cells (inset - spindle cells ×400) (Papanicolau stain ×400)

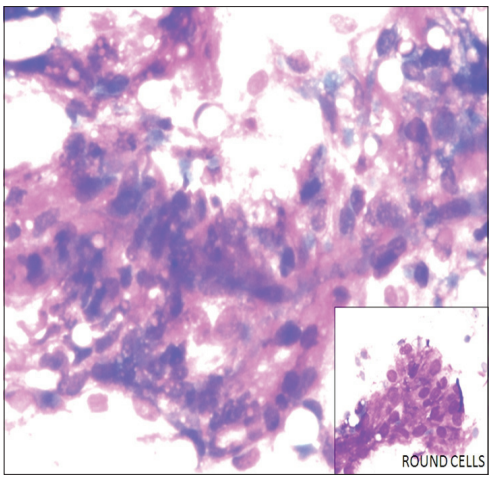

Figure 3: Myxoid background with cells spindle to ovoid cells (inset - round cells ×400) (Giemsa stain ×400)

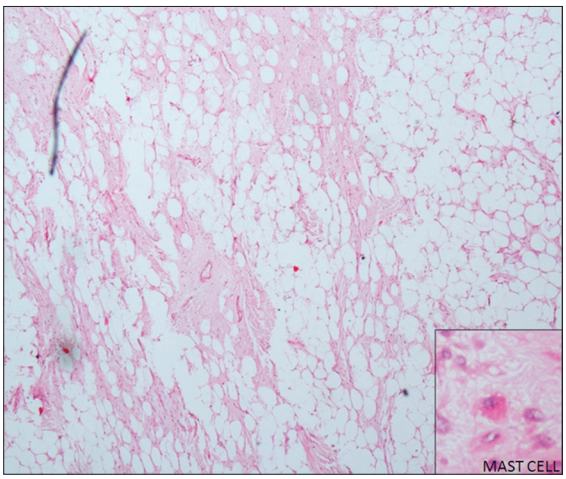

Figure 4: Histology showing adipocytes separated with septa comprising of spindle cells (inset - mast cell) (hematoxylin and eosin ×100)

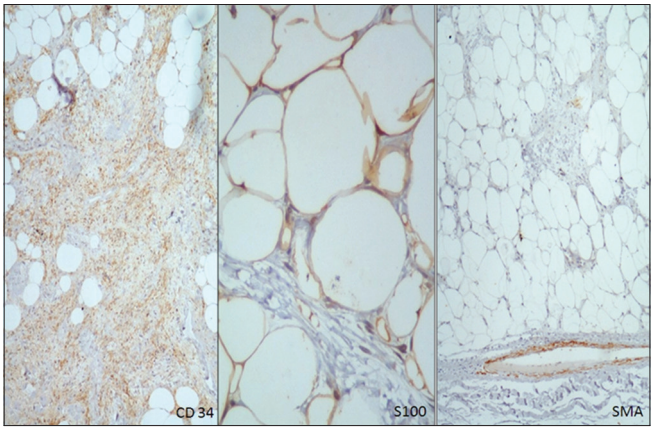

Figure 5: Immunohistochemistry for CD34, S100, and smooth muscle actin

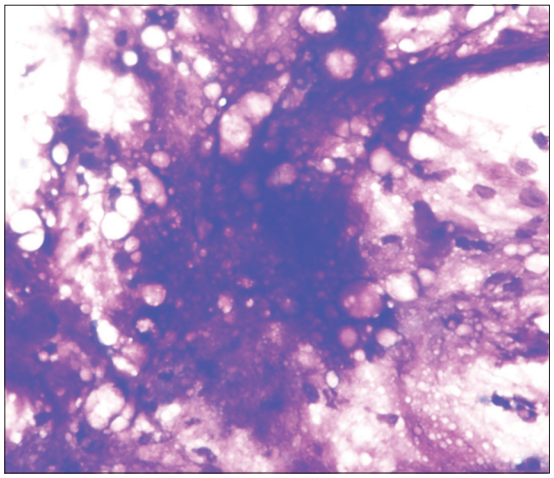

Figure 6: Adipocytic component with overlapping ovoid to spindle cells (Giemsa stain ×400)

DISCUSSION

SCLs were first described by Enzinger and Harvey [1]. Most of the SCLs vary from 3 to 4 cm but those with a larger size, altered skin texture, and history of recurrence may lead to suspicion of a malignancy. Ulceration and bleeding may compound the doubt of malignancy even more. Rare case reports of liposarcoma developing in a lipoma have also been described [4].

Radiologically, SCL have 25-75% of adipose tissue traversed by thin and thick fibrous septa [5]. Cytologically,

SCL shows presence of varying amounts of adipocytes, spindle cells, myxoid matrix, and collagen fibers. The spindle cells are cytologically bland with indistinct cell borders, eosinophilic cytoplasm, and elongated nuclei with no nucleoli. Few round cells can also be seen which show moderate anisonucleosis. Mast cells are seen in more than 50% of the cases with myxoid matrix. All these features were seen in the present case with presence of comparatively less amount of adipocytic component in the FNAC smears. Scarcity of adipocytic component was a cause of dilemma.

Gross appearance shows a well-circumscribed mass with the presence of few fatty and gray-white gelatinous areas which represent increased cellularity. Histology shows a mixture of adipose and spindle cells. Spindle cells are seen as parallel bundles in a hyaluronic acid matrix. Dense ropey collagen and usually mast cells are conspicuous features. Rarely, mitoses are seen. CD34 stains the spindle cell component strongly while S100 is positive in adipocytic nuclei. There are a lot of entities which can mimic SCL cytologically. Tables 1 and 2 discuss the differential diagnosis and their cytological characteristics which help us differentiating them from each other.

Dermatofibrosarcoma protuberans (DFSP) and solitary fibrous tumor (SFT) needs to be differentiated from SCL cases having less adipocytic component. Young age, infiltrative borders, and absence of ropey collagen favor DFSP more than SCL [2]. SFT comprises tightly cohesive spindle cell clusters with collagenous matrix and occasional mitoses. Both of them can show increased mast cells and inflammatory cells with myxoid matrix. DFSP and SFT also show CD34 positivity and S100 is negative in them [6]. Schwannoma and neurofibroma are also tough to differentiate when SCL show palisading and in those cases buckling of nuclei with neurofibrillary background needs to be appreciated with presence of scarce to absent adipocytes. They stain positive for S100, vimentin, and CD57 with focal Ki67 in tumor cells nuclei [7]. Evaluation of mitotic figures is important as it might indicate transformation to malignant peripheral nerve sheath tumor [2].

Myofibroblastoma is one of the closest differentials, occurs in relatively younger age, and one should look for a higher intensity of inflammatory infiltrate, more prominent vasculature, and cells with deeper eosinophilic cytoplasm and blunt ended nuclei. Stain for SMA and desmin is usually positive [8]. Those SCL with presence of myxoid matrix are difficult to diagnose from other myxoid lipomatous lesions. Atypical lipomatous tumor/myxoid liposarcoma are deep seated and should also be kept into consideration when the tumor size is large or has a myxoid background and plexiform vasculature is seen, respectively, though they lack ropey collagen. A careful and extensive search for lipoblasts is essential. Liposarcoma and myxoid liposarcoma also do not show a strong CD34 expression [9].

Surgical excision is usually sufficient for management and is the gold standard modality [10]. This is a case report of SCL occurring in a recurrent lesion where the precise FNAC diagnosis could not be reached. Our case report has certain limitations as FNAC has its own pitfalls and is dependent upon the amount of material aspirated and the exact site where the needle has passed. Second, the follow-up period of 8 months is too small to comment on the possibility of recurrence.

Table 1: Differential diagnosis of Spindle cell Lipoma

Differential diagnosis	Morphological difference	IHC
DFSP/SFT	Young age, infiltrative border and absence of ropy collagen	CD 34(+), S100(-)
Schwannoma Neurofibroma	Painful aspirate, Neurofibrillary background, buckling of nuclei	CD 34(-), S 100(+)
Myofibroblastoma	Higher inflammatory infiltrate	SMA(+) , Desmin (+), CD34(-)
Myxoid liposarcoma	Presence of lipoblasts	S 100(+), CD 34(-)

CONCLUSION

This report highlights the need of FNAC in subcutaneous lesions. Although recurrence and metastasis from SCL is rare, opinion of radiologists and pathologists should be sought early in a case of doubtful lesion to recognize the lesion type and risk of metastasis from the malignant lesions such as liposarcoma. Our patient has been followed up for the past 8 months and is disease free without any recurrence.

Table 2: Cytological characteristics of differentials of Spindle Cell Lipoma

	Cellularity	Spindle cells	Adipocytes	Mast cells	Inflammatory cells	Collagen fibres	Blood vessels	Myxoid matrix
SCL	++	++	++	++	+/-	++	+	++
DFSP	+++	+++	-/+	-/+	+/-	+	+	+/-
SFT	+++	+++	-	-/+	+	++	+	++
Schwannoma/neurofibroma	+	++	-	+/-	+	-	+	+
Myofibroblastoma	+++	+++	-	+/-	++	+	+	+
Myxofibrosarcoma	+	++	++	+	+/-	+/-	++	+++

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