A Case Report of Rare Intrascrotal Benign Lipoblastomas

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Abstract

Lipoblastomas are rare, encapsulated mesenchymal benign tumors which present in infancy and early childhood and usually under the age of three. Although considered as benign tumors, they are known to have a tendency for recurrence. They are generally detected as solitary, well circumscribed subcutaneous growths commonly in the trunks and extremities. Upon imaging, the characteristic appearance of lipoblastoma is a well defined solitary lesion composed mostly of, but not entirely, fat. Lipoblastomas have a potential for rapid growth and local invasion but have favourable prognosis when resected completely. Lipoblastomas should be considered in the differentials in the specified age group particularly when imaging reveals a predominantly fat containing well circumscribed lesion. We present a case of lipoblastoma in the scrotum of a one year old child. Lipoblastoma rarely presents as an intrascrotal mass. The specified age group, location, history, high index of suspicion and imaging findings can aid in the diagnosis of this rare condition, prior to surgery.

Keywords: Lipoblastoma; Ultrasound; Pediatric tumours; Children; Pediatric surgery; Scrotum

1. Introduction

Intrascrotal lipoblastomas are extremely unusual cases. Even though imaging findings clubbed with patient age can be suggestive of the condition, rarity of the tumor usually precludes pre-op and histopathology diagnosis. Intrascrotal lipoblastomas can be rapidly growing and locally invasive, invading the scrotal walls. There is a male preponderance for lipoblastomas in general, being three times more common in boys than girls. Lipoblastomas are usually solitary, well circumscribed lesions and located in subcutaneous region while the more aggressive condition lipoblastomatosis is described as a diffuse infiltrative neoplasm located in deeper tissues. Ultrasound is advocated as the basic imaging technique in investigation of pediatric scrotal masses. Further cross-sectional...
imaging for confirmation and characterization of the lesion can be done by CT or MRI. Though the imaging features of lipoblastoma are not known to be characteristic, lipoblastoma can be included in the differentials if the lesion shows fat as content on imaging, in the typical age group.

2. Case Report

A 1-year old male child presented with a palpable lump in the left side of scrotum. The lump was nontender and had gradually increased in size over a period of three months since it was first noticed. The child had remained afebrile in this period and there were no signs of local inflammation. The swelling was localized to the scrotum with no lump in the inguinal area or cough impulse. The lump was soft on palpation. There were no secondary changes in the overlying skin. An ultrasound of the scrotum was advised. Ultrasound revealed a well defined 28 x 22 x 18 mm focal oval solid lesion in the scrotum on left side inferior to the left testis. Though the lesion was closely abutting the inferior pole of the left testis, a well defined line of demarcation could be appreciated between the two confirming the lesion to be intrascrotal extratesticular mass (Fig. 1).

![Ultrasound image](image.png)

**Fig. 1.** Ultrasound image shows the focal mass (labeled lesion) located inferior to the left testis (labeled testicle) in longitudinal axis. Note the clear plane of demarcation between the testis and the mass.

No cysts or calcifications were noted in the lesion. The lesion showed predominant diffuse hyperechoic echotexture (more echogenic than the testis) interspersed with few small discrete focal hypoechoic nodules and linear band like areas (Fig. 2).
Fig. 2. Shows the ultrasound image of the focal mass lesion in transverse view. The lesion appears diffusely hyperechoic (can be attributed to fat content) with interspersed small focal linear and oval hypoechoic area.

Vascularity was present within the lesion on color Doppler study (Fig. 3).

Fig. 3. Shows the vascularity in the lesion on Doppler study.

There was no hernia or hydrocele. The testes were otherwise unremarkable bilaterally, appearing normal in size, shape and echotexture. The scrotal walls were normal with no invasion from the lesion at the time of examination. The hyperechogenicity of the lesion in ultrasound represents the internal fat content.

A CT scan of the abdomen including scrotum was performed. CT scan confirmed the extra-testicular mass in the scrotum which appeared profoundly hypodense. This hypodensity can be attributed to
the fat content of the lesion. There was no lymphadenopathy. No abnormality was detected in the abdomen. Upon surgical exploration, the surgeon easily managed to dissect the tumor from the lower pole of the left testis (Fig. 4).

![Fig. 4. Photograph of the tumour after excision](image)

The tumour was well demarcated from the testis and hence the testicle was spared.

On gross examination, the lesion appeared to be a well circumscribed, dumb-bell shaped soft tissue mass with partial encapsulation. Histopathological examination showed the lesion to be comprised lobules of mature and immature fat cells. At places, there was proliferation of myxoid mesenchymal tissue, also showing proliferation of capillary networks resembling crow's feet. Few vacuolated lipoblast like cells were present. No nuclear atypia or mitotic figures were seen. The histological picture was consistent with benign lipoblastoma.

3. Discussion

Lipoblastomas are uncommon pediatric tumours with intrascrotal location being extremely unusual. To the best of our knowledge, around eleven cases of intrascrotal lipoblastomas have been reported in literature till date. Although local invasion is typical of them, lipoblastomas are benign and can be completely removed surgically, salvaging the testes in most cases. Hence a pre-operative diagnosis of lipoblastoma can be crucial for the surgeon. Ultrasound with Doppler is considered the basic investigation for diagnosis and pre-operative planning of lipoblastoma and otherwise any scrotal or testicular mass in childhood (Promm et al. 2013). Complex karyotyping has been reported being associated with presence of intrascrotal lipoblastoma (Somers et al 2004). Since the tumour is rare and there are no specific pathognomic imaging finding of intrascrotal lipoblastoma, diagnosis is rarely made prior to surgery and hence total excision at surgery is recommended (Ghassan et al 2013). This held true in our case too, where the lesion was
determined as being neoplastic on ultrasound but assumed to be something more commoner like rhabdomyosarcoma; which most frequent extratesticular tumour encountered in children. Lipoblastoma was confirmed only after surgery upon histopathological examination. The imaging appearance of lipoblastoma is consistent with findings typically seen in a fat containing soft tissue lesion. Hence the lesion will appear predominantly hyperechoic on ultrasound examination. In our case the lesion was diffusely hyperechoic compared to the adjacent testicular parenchyma with few small streaks of hypoechoigenicity. Lipoblastomas appear markedly hypodense on CT scan while they appear hyperintense on T1 W MRI and with mean signal intensity on T2W MRI with fat suppression. Invasive pattern of growth is seen on all imaging modalities. Correlation with the age of patients and imaging findings is required to exclude other conditions in the differential diagnosis (Leonhardt et al (2004) Likelihood of recurrence is higher in patients with diffuse lipoblastoma and close follow up should be recommended. Recurrence is uncommon after complete resection of focal lipoblastoma. In cases of recurrence, MRI is advisable to assess extent and planning before a repeat surgery. A liposarcoma can be excluded by genetic analysis (Anthony et al (2001)).

4. Conclusion

Lipoblastoma of the scrotum or paratesticular region is a rare condition. Diagnosis is rarely made prior to histopathology evaluation. In the specified age group, lipoblastoma can be included in the preoperative differentials especially when imaging features suggest a fat containing soft tissue lesion, though the findings are not pathognomic. Imaging techniques usually involve ultrasound as the basic modality in evaluation of a scrotal mass followed by cross-sectional evaluation by CT / MRI.

Conflict of Interest

None

References