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Case Report

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Role of Fine Needle Aspiration Cytology in Diagnosing Paratesticular Leiomyoma

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Abstract

Leiomyomas are benign neoplasms with smooth muscle differentiation. Paratesticular leiomyomas are extremely uncommon. Fine Needle Aspiration Cytology (FNAC) serves as a rapid, safe and conclusive diagnostic tool which prevents unnecessary surgical interventions. We report a rare case of paratesticular leiomyoma, in an asymptomatic 40-year old male diagnosed on cytomorphology. This was further confirmed on histopathological examination (HPE) and immunohistochemistry (IHC). This case emphasizes the role of FNAC in providing a definitive diagnosis.

Keywords: Fine Needle Aspiration Cytology, Histopathology, Paratesticular Leiomyoma

1. Introduction

Paratesticular tumors are a heterogeneous group of tumors with different behavioral patterns. They are rare, comprising 7-10% of total intrascrotal tumors [1,2]. Smooth muscle tumors of scrotum were first described by Forsters in 1858. Scrotal leiomyoma is an uncommon tumor that arises from the subcutaneous tissue or dartos muscle [3]. Its exact incidence is not well evaluated because many benign lesions go unreported. FNAC helps to confirm the non-neoplastic or neoplastic nature of most lesions and thus guides the clinician for further accurate management. Cytomorphology of leiomyoma has been well described in literature, but paratesticular leiomyoma has rarely been reported in India.

2. Case History

40-year old male presented to surgery OPD with chief complaint of swelling in right scrotal region for 3 months, gradually increasing in size and not associated with pain. Patient didn't have any history of trauma or any other surgery. On general physical examination, around 4 x 2 cm sized swelling was noticed in the right scrotal region, posterior to testis in relation to epididymis on the superior pole with nodular surface, with well defined margin and no skin changes or local rise of temperature. Serum markers (β-HCG, LDH, AFP) were within the normal limits. USG revealed right well defined extratesticular solid cystic nodular lesion.

FNAC was advised and done from solid part of epididymal swelling. Aspirate was blood mixed. Geimsa stained smears were cellular, revealing cohesive fascicular tissue fragments having spindle shaped cells with cigar shaped nucleus, and moderate to abundant cytoplasm. No mitosis or necrosis was noted. Interspersed were seen traversing capillaries lined by endothelial cells. Cytomorphological diagnosis of benign spindle cell neoplasm, probably of smooth muscle origin was given and was further advised for HPE for exact characterization.

Following that, right epididymal mass, was surgically excised, dipped in 10% neutral buffered formalin and was sent for histopathological examination (HPE) to our department. Grossly, it was single globular tissue mass measuring 4.5x3x2 cm. Outer surface was nodular. Cut section showed a cyst measuring 2.5 cm in diameter containing straw colored fluid; rest of the tissue was greyish white, nodular and firm in consistency. Microscopic examination from the solid part showed a well circumscribed tumor comprising of interlacing fascicles of spindle cells with cigar shaped nuclei and moderate eosinophilic cytoplasm. In addition, numerous thin and thick walled blood vessels, scattered lymphoplasmacytic infiltrate, myxoid degeneration and occasional mitosis were noted. No atypia or necrosis was seen. The adjacent cyst was lined by pseudostratified columnar epithelium with numerous spermatozoa within the lumen. Smooth Muscle Actin (SMA) immunohistochemistry showed diffuse positivity in the spindle cells. Keeping in view these features, a final diagnosis of Angioleiomyoma with spermatocele was made.

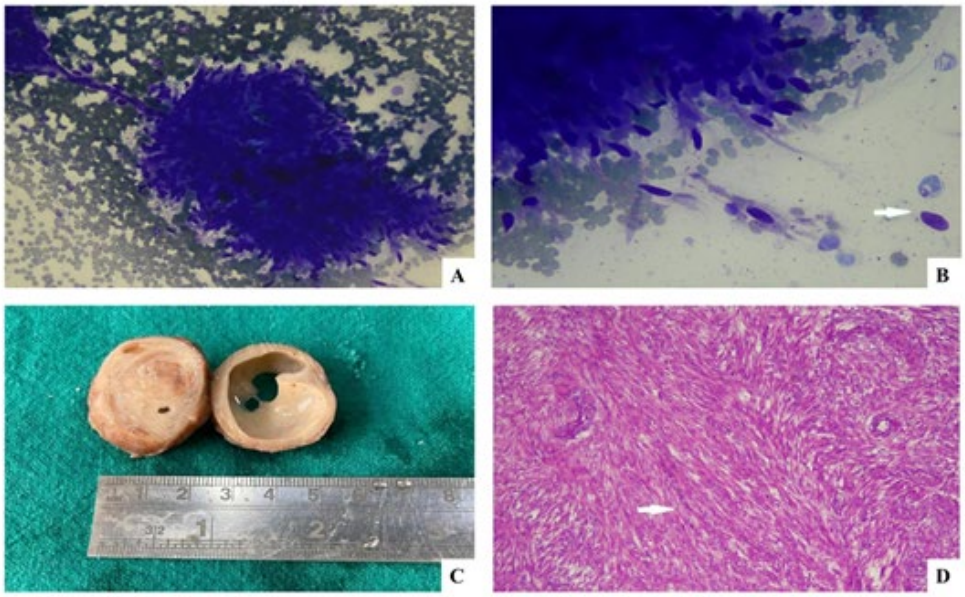

Figure 1
A: Cytology smears show cohesive fascicular tissue fragments having spindle shaped cells with cigar shaped nucleus, and moderate to abundant cytoplasm. (Geimsa – 200X)

B: High power view of spindle cells (arrow). (Geimsa – 400X)

C: Gross; cut section shows a grey white nodular, firm mass. Adjacent tissue shows a cyst.

D: Microscopically shows a tumor comprising of interlacing fascicles of spindle cells with cigar shaped nuclei (arrow). (H&E – 400X)

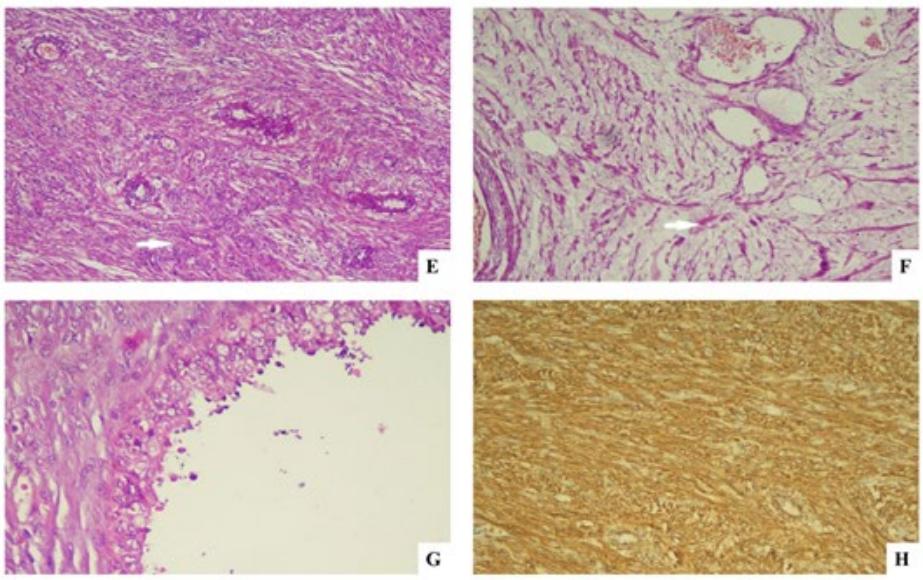

Figure 2
Microscopically, E: show numerous thin and thick walled blood vessels (arrow) in between the interlacing fascicles of tumor cells (H&E – 400X)

F: areas of myxoid degeneration noted. (H&E – 400X)

G: High power view of the cyst lined by pseudostratified columnar epithelium with numerous spermatozoa within the lumen. (H&E – 400X)

H: diffuse SMA positivity noted in the spindle cells. (SMA – 400X)

3. Discussion

FNAC of mesenchymal lesions is challenging. It plays a crucial role in preoperative diagnosis of various neoplastic conditions, benign or malignant. Leiomyomas are benign neoplasms with smooth muscle differentiation. Genital leiomyomas are quite rare and are usually asymptomatic. They generally present as single, deep nodules that may be pedunculated. Angioleiomyoma is usually found in the subcutaneous tissue but may occur in the dermis. They are sharply demarcated and encapsulated [4]. A solid scrotal mass, concerns for malignancy and, therefore it requires further evaluation.

Paratesticular leiomyomas are extremely uncommon. Clinically, epididymal nodules are easily accessible to FNAC. It has several advantages; being less invasive, has a low rate of significant complications, gives a rapid result, and is cost-effective. Many authors have demonstrated the safety as well as efficacy of FNAC in diagnosis of scrotal masses [5,6]. When a benign lesion is encountered, testis sparing surgery should be performed. So, FNAC serves as a conclusive diagnostic tool which prevents unnecessary surgical interventions.

FNAC proved to be useful in the management of patients with epididymal nodules in a study done by Shah VB et al. They evaluated 40 cases, over a span of eight years, who have undergone FNAC. They concluded that FNAC provides sufficient information for the initiation of treatment without need for an open biopsy [7].

Commonly encountered paratesticular lesions in India are infections; granulomatous inflammation including tuberculous epididymitis, microfilarial infection, sperm granulomas. This is followed by neoplastic lesions [7]. Histogenetically, the paratesticular area is composed of a variety of epithelial, mesothelial and mesenchymal elements. Around 70% of paratesticular tumors are benign and 30% are malignant [1]. Benign entities are Adenomatoid tumor, Lipoma Leiomyoma, Fibroma, Haemangioma, Neurofibroma, Papillary mesothelioma, Cystadenoma, Schwannoma, Perineurioma and Paraganglioma [1,2].

Keeping in view the differentials, the cytologic features in our case were those of a spindle cell tumor, having elongated nuclei with blunt ends in contrast to pointed end nuclei as seen in tumors of neural origin, like schwannoma and neurofibroma. Absence of Verocay's bodies, palisading of nuclei and fibrillary background excluded it, as described in the tumors of soft tissues [8,9].

Angioleiomyoma contain numerous blood vessels but little collagen. Arising from the muscular walls of these vessels are concentric layers of smooth muscle fibers which merge into the surrounding muscular stroma, as noted in our case [4]. In addition, diffuse positivity of a mesenchymal marker (SMA) in the tumor cells confirmed our diagnosis.

4. Conclusion

Paratesticular tumors are extremely rare benign tumors. FNAC of such lesions have rarely been documented. FNAC confirms to be a key tool in the preoperative screening and diagnosis of such lesions. We report a rare case of paratesticular leiomyoma diagnosed on cytomorphology. This emphasizes the role of FNAC in providing a rapid and definitive diagnosis, thus helping the surgeons for following the right intervention.

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