

## FINE-NEEDLE ASPIRATION CYTOLOGY OF EPIDIDYMAL LESIONS- AN AUDIT FROM TERTIARY CARE TEACHING HOSPITAL OF EASTERN NEPAL

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### ABSTRACT

#### BACKGROUND

Fine-Needle Aspiration Cytology (FNAC) is a rapid, easily available technique for evaluation of nodular lesions of the epididymis and plays a prime role in the diagnosis of tubercular epididymitis and epididymo-orchitis.

The aim of the study is to study the cytological findings of epididymal lesions to distinguish the inflammatory and neoplastic lesion, so that specific medical or surgical treatment can be early instituted.

#### MATERIALS AND METHODS

Fine-Needle Aspiration (FNA) was performed by 23G needle with 10 mL disposable plastic syringe. Both Papanicolaou and May-Grunwald-Giemsa stained smears were available in all cases and acid-fast stain were done in suspicious cases of tuberculosis and other granulomatous lesions.

#### RESULTS

A total of 234 cases attended for FNAC. Out of which, smears of 23 cases were found unsatisfactory and smears of 211 cases were studied for cytological findings. Epididymal cyst, acute epididymitis, chronic nonspecific epididymitis, tubercular epididymitis, filarial epididymitis, spermatocele, spermatic granuloma and adenomatoid tumour were found in 51(24.17%), 8(3.79%), 31(14.69%), 43(20.38%), 13(6.16%), 37(17.54%), 18(8.53%) and 10(4.74%) cases respectively.

#### CONCLUSION

FNAC is easier, cost effective, timesaving, minimally invasive, minimally traumatic and reliable first step outdoor or indoor procedure for the diagnosis of epididymal lesions, which guide the clinician for early institution of medical and surgical therapy.

#### KEYWORDS

Fine-Needle Aspiration Cytology, Epididymal Lesions, Tubercular Epididymitis, Adenomatoid Tumour.

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#### BACKGROUND

FNAC is a rapid, easily available technique for evaluation of nodular lesions of the epididymis and it greatly helps in diagnosis and management.<sup>1</sup> It is a minimally-invasive technique and plays a prime role in the diagnosis of tubercular epididymitis and epididymo-orchitis.<sup>2</sup> Additionally, it provides adequate material for cytological and microbiological examination and helps to avoid unnecessary orchidectomy.<sup>2</sup>

**Aims and Objectives-** The purpose of the present article is to study the cytological findings of epididymal lesions to distinguish the inflammatory and neoplastic lesions, so that specific medical or surgical treatment can be early instituted.

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#### MATERIALS AND METHODS

Retrospective study regarding FNAC of epididymal lesions were done between January 1997 to February 2009 at tertiary care teaching hospital of eastern Nepal. Small and cystic lesions of epididymis were aspirated under guidance of ultrasonogram. FNA was performed by 23G needle with 10 mL disposable plastic syringe after aseptic precaution. Both Papanicolaou and May-Grunwald-Giemsa stained smears were available in all cases and acid-fast stain were done in suspicious cases of tuberculosis and other granulomatous lesions.

#### RESULTS

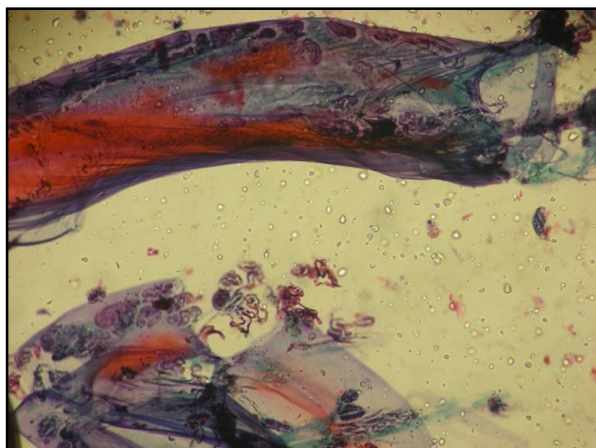
The age ranged from 10-82 years. Duration of swelling varied from 3 days to 2 years. Commonest site was right epididymis. The details of the lesions are shown in Table 1.

Epididymis (n=211)	Lesions	Number of cases	% of cases
	Epididymal cyst	51	24.17
	Acute epididymitis (including abscess)	08	03.79
	Chr nonspecific epididymitis	31	14.69
	Tubercular epididymitis	43	20.38
	Filarial epididymitis	13	06.16
	Spermatocele	37	17.54
	Spermatic granuloma	18	08.53
	Adenomatoid tumor	10	04.74
	<b>Total - 211</b>		

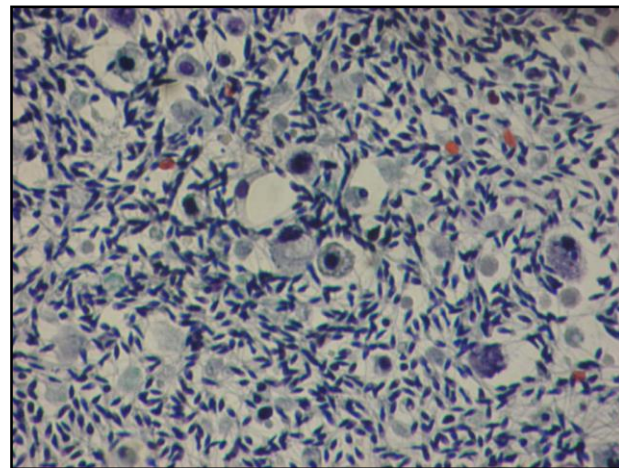
**Table 1. Number and Percentage of Different Types of Epididymal Lesions**

### Cytological Findings

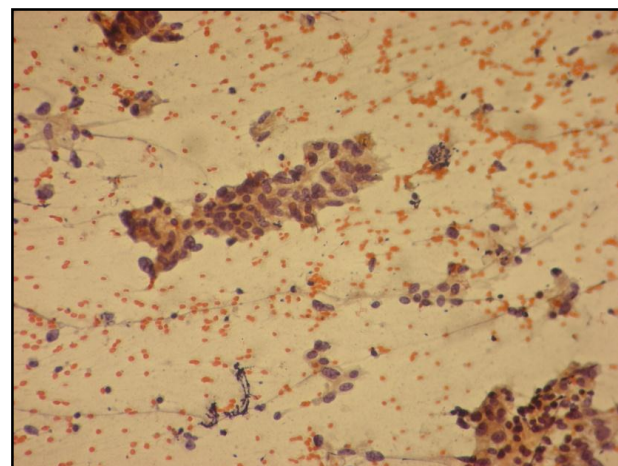
Epididymal cyst diagnosed by aspirating clear or straw-coloured fluid showing macrophages and few epididymal epithelial cells. Acute epididymitis showed large number of intact degenerated neutrophils and epididymal cells. Chronic nonspecific epididymitis showed epididymal epithelial cells, scattered macrophages, lymphocytes and plasma cells. Tubercular epididymitis yielded caseous material on FNA and showed clusters of epithelioid histiocytes, macrophages, lymphocytes and some multinucleated Langhans giant cells against the necrotic background in the smear. Demonstration of Acid Fast Bacilli by Zeihl-Neelsen stain confirmed the diagnosis in 30 out of 43 cases. Filarial epididymitis showed gravid female worm (Figure 1), male adult worm, unfertilized or fertilized egg and microfilaria. Spermatocele, yielded cloudy white fluid and showed predominantly spermatozoa and nucleated sperm precursor cells with a background of protein-rich fluid (Figure 2). Spermatic granuloma diagnosed by the presence of epithelioid cell granuloma, macrophage and multinucleated inflammatory giant cells engulfing sperms in addition to lymphocytes and plasma cells (Figure 3). Adenomatoid tumour on fine-needle aspiration showed mesothelial-like cells arranged in small clusters, sheets and glands. The cells had centrally to eccentrically placed nuclei and abundant vacuolated cytoplasm.



**Figure 1. Smear Showing Fragments of Gravid Female Worm (PAP; X10)**



**Figure 2. Smear Showing Predominantly Spermatozoa and Some Nucleated Sperm Precursor Cells with a Background of Protein Rich Fluid (PAP; X10)**



**Figure 3. Epithelioid Cell Granuloma, Macrophage and Multinucleated Inflammatory Giant Cells Engulfing Sperms (PAP; X10)**

### DISCUSSION

FNA of testis is easy to perform but small tiny lesion of epididymis is slippery, difficult to fix and even after ultrasonographic guidance may yield inadequate material.<sup>3</sup> In our experience, most of the unsatisfactory smears of epididymal lesion were due to dilution of the aspirated material with fluid present in the scrotal sac. Epididymal cyst

was the most common lesion and diagnosed by aspirating clear or straw-coloured fluid showing macrophages and few epididymal epithelial cells.

Epididymitis are more common than tumor.<sup>4</sup> FNAC are usually not done in these cases and clinician treat the patient by antibiotics and rest.<sup>4</sup> Acute and chronic epididymitis are infectious in origin often related to retrograde spread from the prostate.<sup>4</sup> Acute epididymitis shows large number of intact degenerated neutrophils and sheets of reparative epithelial cells.<sup>4</sup> Chronic epididymitis shows less cellularity than acute epididymitis and reveal mixed inflammatory cells.<sup>4,5</sup> Abundant caseous material is aspirated in cases of tubercular epididymitis.<sup>2,4</sup> Clusters of epithelioid histiocytes and some multinucleated Langhans giant cells are seen in the smear.<sup>2,4</sup> Demonstration of Acid Fast Bacilli by Zeihl-Neelsen stain or by culturing the aspirate provides confirmatory diagnosis.<sup>2,4</sup> Filarial epididymitis reveals adult gravid female, adult male, fertilized and unfertilized eggs, microfilaria and tissue response with presence of acute and chronic inflammatory cells, and granulomatous and giant cell reactions.<sup>6</sup>

Spermatocele is a localized cyst like lesion of epididymis.<sup>4</sup> It is related to variable distension of portions of epididymis with its secretion and contains large number of spermatozoa.<sup>4</sup> It usually arises as a result of an obstruction to outflow from the epididymis.<sup>4</sup> Aspiration yields cloudy white fluid and shows predominantly spermatozoa and often some nucleated sperm precursor cells with a background of protein rich fluid.

Spermatic granulomas present as tumor like lesions adjacent to the testis or seminal vesicle and are often associated with infection; trauma or previous surgery and represents an inflammatory reaction to exuded spermatozoa.<sup>4</sup> Smears have two major elements.<sup>4</sup> The first inflammatory granulomatous reaction with epithelioid and multinucleated inflammatory giant cells in addition to lymphocytes, eosinophils and plasma cells and the second major component consist of spermatozoa, many of these lie free within the smear background but others have phagocytosed by epithelioid cells.<sup>4,5</sup> Caseous necrosis is not identified. Well-preserved sheets of epididymal epithelium are occasionally noted.<sup>5</sup>

Painless long standing enlargement of epididymis is usually neoplasm.<sup>7</sup> Most of them are benign, most commonly adenomatoid tumor.<sup>7</sup> Adenomatoid tumor on fine needle aspiration shows cellular smear comprising of cohesive arrangement of uniform appearing epithelial like cells.<sup>7</sup> The cells present in flat monolayer, three dimensional cords, and gland like structures and represent mesothelial elements.<sup>7</sup> In contrast with a typical mesothelial cells nuclei are eccentrically positioned within the abundant vacuolated cytoplasm giving rise to signet ring appearance.<sup>7</sup>

## CONCLUSION

FNAC is easier, cost effective, time saving, minimally invasive, minimally traumatic and reliable first step outdoor or radiologically indoor procedure for the diagnosis of epididymal lesions which guide the clinician for early institution of medical and surgical therapy.

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