

## A study on fine needle aspiration cytology of epididymal nodules

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### Abstract

**Introduction:** Fine needle aspiration cytology (FNAC) is a rapid and relatively inexpensive technique used extensively in the diagnosis of a large variety of neoplastic and nonneoplastic lesions in many organs. There are very few literature reports documenting the role of fine needle aspiration cytology (FNAC) in the evaluation of epididymal nodules. The aim of this study was to highlight the cytomorphologic features of FNAC in epididymal nodules.

**Methods:** A descriptive study was carried out in all the patients presented with palpable epididymal nodules for FNAC over a period of two and half years in department of pathology, Kathmandu Medical College Teaching Hospital, Sinamangal, Kathmandu. FNAC was performed using 23 gauge needle with 10ml syringe. Smears were routinely stained with PAP, Giemsa stain and Special stains whenever needed.

**Results:** A total of 31 cases of non – neoplastic lesions were identified. Age ranged from 15 to 52 years. Majority of cases were of tuberculous epididymitis accounting for 38.70%.

**Conclusions:** FNAC serves as an important tool to screen and diagnose all palpable epididymal nodules and provides information for further management.

**Keywords:** Fine needle aspiration cytology, epididymal nodules, neoplastic, non-neoplastic lesions

### Introduction

Epididymis is a long convoluted duct extending down the posterior aspect of the testis to the lower pole where it becomes the ductus deferens.<sup>1</sup> Inflammatory diseases are the most common lesions in the epididymis. Of the many specific inflammatory states that affect the testis and epididymis, tuberculosis is common in the epididymis.<sup>2</sup>

Fine needle aspiration cytology (FNAC) is a rapid and relatively inexpensive technique used extensively in the diagnosis of a large variety of neoplastic and nonneoplastic lesions in many organs of our body. The low risk of complications is an additional advantage which allows FNAC to be performed in outpatient departments and in radiology theatres; it is also highly

subtle in debilitated patients, readily repeatable and useful for multiple lesions.<sup>3</sup>

FNAC is a simple, easy and rapid diagnostic test used in the evaluation of epididymal swellings.<sup>4,5,6</sup> It may also be used as a very useful alternative to excision biopsy in the diagnostic work up of male genital tract lesions. Most of the non-neoplastic lesions are managed conservatively, avoiding unnecessary surgical excision.

There are very few literature reports documenting the role of cytology in the evaluation of epididymal nodules. This could be because epididymal nodules are overall uncommon in clinical practice. Thus, this study was carried out to highlight the cytomorphologic features of FNAC in epididymal nodules.

Methods

This is a descriptive study carried out in the department of pathology , Kathmandu medical college teaching hospital, Sinamangal, Kathmandu over a period of two and half years September 2014 to March 2017 .

A total of 31 palpable epididymal nodules were aspirated as a routine OPD procedure as a part of this study. FNAC was performed using 23 gauge needle with 10ml syringe. Smears were routinely stained with PAP, Giemsa stain and special stains whenever needed. Cases were categorized into following entities: acute epididymitis, non-specific chronic epididymitis, tuberculous epididymitis, filariasis, spermatocele and spermatic granuloma.

Result

A total of 31 cases were studied, all of them showed non – neoplastic lesions (Table 1).Age ranged from 15 to 52 years. Majority of cases were seen among the age

31 to 40 years (table 2). Most of the cases had painless epididymal nodules except in two cases of acute epididymitis where the lesion was painful and tender.

Table 1: Distribution of cases according to cytomorphological diagnosis

S.No	Cytomorphological diagnosis	Number of cases	Percentage
1	Tuberculous epididymitis	12	38.70%
2	Non – specific chronic epididymitis	9	29.03%
3	Spermatocele	4	12.90%
4	Spermatic granuloma	3	9.68%
5	Acute epididymitis	2	6.46%
6	Filariasis	1	3.23%
	Total	31	100%

Table 2: Distribution of diseases in relation to age groups

Age (In years)	11-20	21-30	31-40	41-50	51-60	Total
Tuberculous epididymitis	-	4	5	3	-	12
Non –specific chronic epididymitis	3	1	4	-	1	9
Spermatocele	-	1	3	-	-	4
Spermatic granuloma	-	-	1	1	1	3
Acute epididymitis	-	-	2	-	-	2
Filariasis	-	1	-	-	-	1

Cytopathological findings

Histopathological confirmation was obtained only in 2 cases; however, accuracy of diagnosis could be judged from clinical response to treatment. Most of the lesions regressed after treatment, confirming the cytology diagnosis.

Tuberculous epididymitis (n=12)

Epididymal nodules were firm and size ranged from 1.5 to 3cm. Out of 12 cases, smears from 9 cases revealed numerous epithelioid cell granulomas with and without Langhan’s giant cells. Smears from 3 cases revealed predominantly caseous necrosis with polymorphs. The Ziehl – Neelsen staining on air – dried smears revealed acid – fast bacilli in 9 of the 12 cases. 1 patient underwent curative surgical excision for non – responsive disease. (Figure 1)

Non – specific chronic epididymitis (n=9)

Cytology in these cases revealed paucicellular smears with chronic inflammatory cells, tall columnar epithelium, few macrophages and granulation tissue fragments. Microbiologic studies demonstrated streptococci in 3 cases. All cases showed good response after a course of antibiotic therapy.

Spermatoceles (n=4)

Aspiration yielded straw – colored fluid with decrease in size following aspiration. Smears showed numerous sperms and some cyst macrophages many with engulfed sperms against a clear background. (Figure 3)

Spermatic granulomas (n=3)

Cytology in these cases revealed plenty of degenerating sperms amidst inflammatory cells, foreign body type giant cells and histiocytes. (Figure 4)

Acute epididymitis (n=2)

Cytology revealed sheets of neutrophils and few macrophages against a background of fibrinous material

Microfilarial infection (n=1)

Cytology revealed microfilaria amidst inflammatory background. (Figure 5)

## Discussion

FNAC has an overall sensitivity and specificity of 90% for diagnosing chronic epididymal lesions, with a positive predictive value of 87.5%.<sup>7</sup> As an initial step, FNA can yield information which assists greatly in planning subsequent steps in management and treatment. FNAC may also be used as a very useful alternative to excision biopsy in the diagnostic work up of male genital tract lesions.

Non – neoplastic lesions are more common in epididymis than neoplastic lesions. In present study all cases were of non neoplastic lesions among which there was a predominance of tuberculous epididymitis accounting for 38.70%. Majority of the cases were seen from 31 years to 40 years of age. The spectrum of lesions observed in our study is similar to that reported earlier.<sup>5,6,7</sup>

Similar study done in Nepal by Paudyal et al showed predominantly benign lesions accounting for 59.4% and taking histologic diagnosis as gold standard, FNAC was Found to have a sensitivity of 81.48% and specificity of 42.85 %.<sup>8</sup>

Tuberculous epididymitis can occur by hematogenous route or by direct spread from urinary tract. Hematogenous spread is common among the childhood age group while direct spread is common among adult age group.<sup>9</sup> This lesion is accurately diagnosed if their

inflammatory nature is recognized. In our study we observed two cytological patterns of inflammation in tuberculous epididymitis, one with numerous epithelioid cell granulomas and Langhan's giant cells others with predominantly necrosis. The Ziehl – Neelsen stains revealed more number of acid fast bacilli in necrotic smears than the first pattern of inflammation. Thus this serves as a minimally invasive technique in the diagnosis of tuberculous epididymitis and provides adequate material for cytologic and microbiologic examination, avoiding unnecessary surgeries. It is also valuable in the diagnosis of inflammatory, infectious and degenerative conditions, in which sample can be used for microbiological and biochemical analysis in addition to cytological preparations.<sup>3</sup>

After ruling out tuberculosis, granulomatous inflammation along with plenty of intra- histiocytic and extracellular spermatozooids in the background of mixed inflammatory cells clinches the diagnosis of spermatic granuloma. Spermatic granuloma may clinically mimic tumour due to its well defined nature and firm consistency.

Spermatocele as a cystic lesion, was third most common lesion (12.90%) observed in our study exhibiting numerous spermatozoa in the background of few macrophages. There was one case of filarial infection which showed microfilaria with mixed inflammatory cells in the background comprising of eosinophils, lymphocytes and neutrophils. Lymphatic vessels of spermatic cord appear to be the preferential residing site of adult worm. Similar study done by Mitra et al. described aspirates of scrotal swellings which showed microfilaria along with eosinophils, neutrophils and few lymphocytes. Presence of the eosinophils in the aspirates from epididymal nodules should be screened meticulously for this parasite.<sup>10</sup>

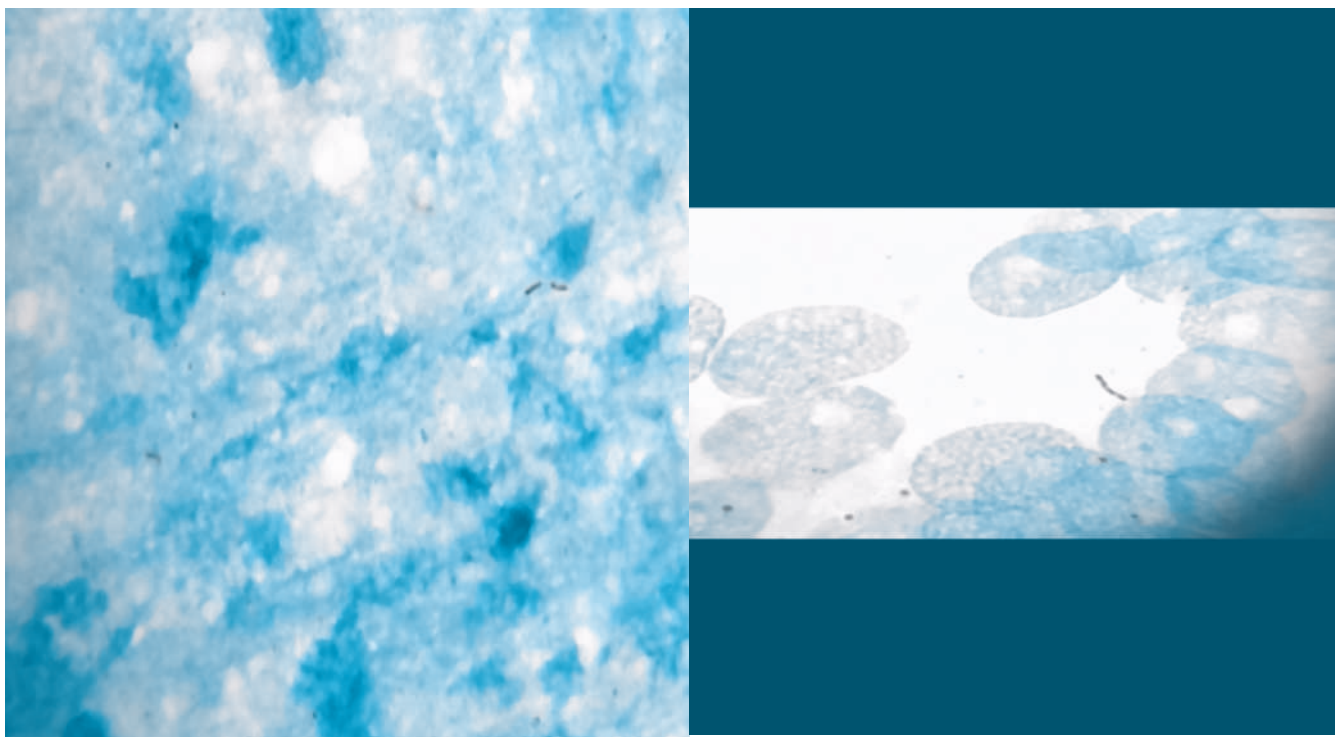
## Conclusion

Tuberculous epididymitis is the most common lesion among all non neoplastic lesions. FNAC serves as an important tool to screen and diagnose all palpable epididymal nodules and provides information for further management. It also avoids unnecessary need for an open biopsy.

**Conflict of interest:** Non declared

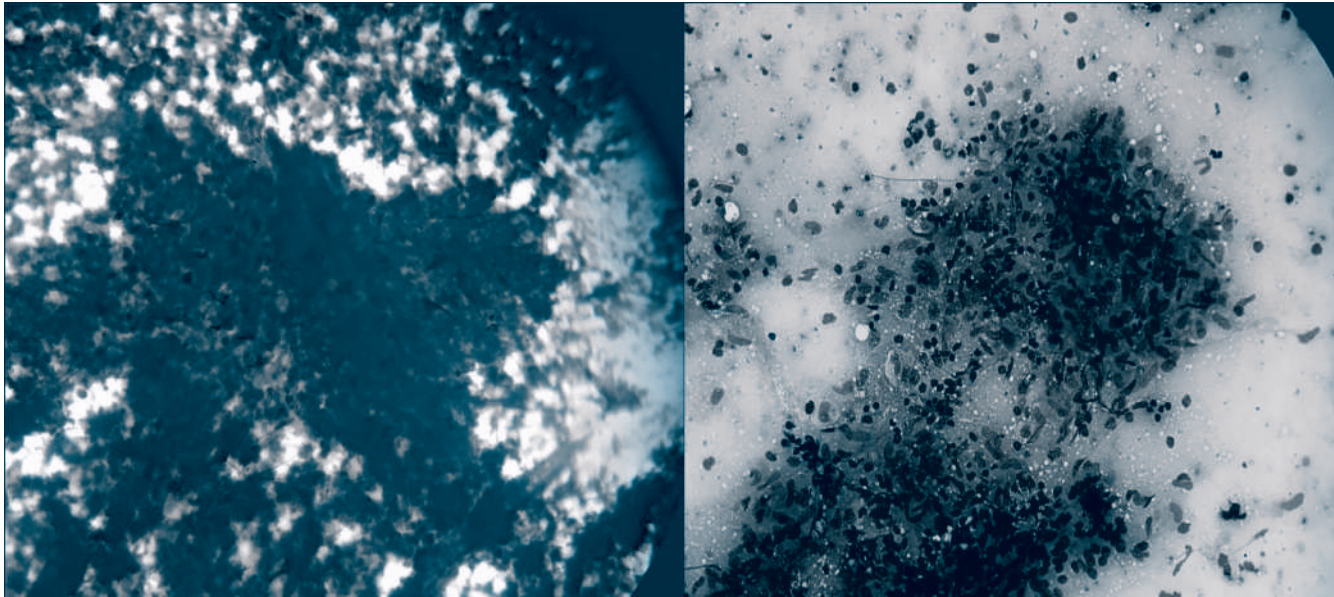
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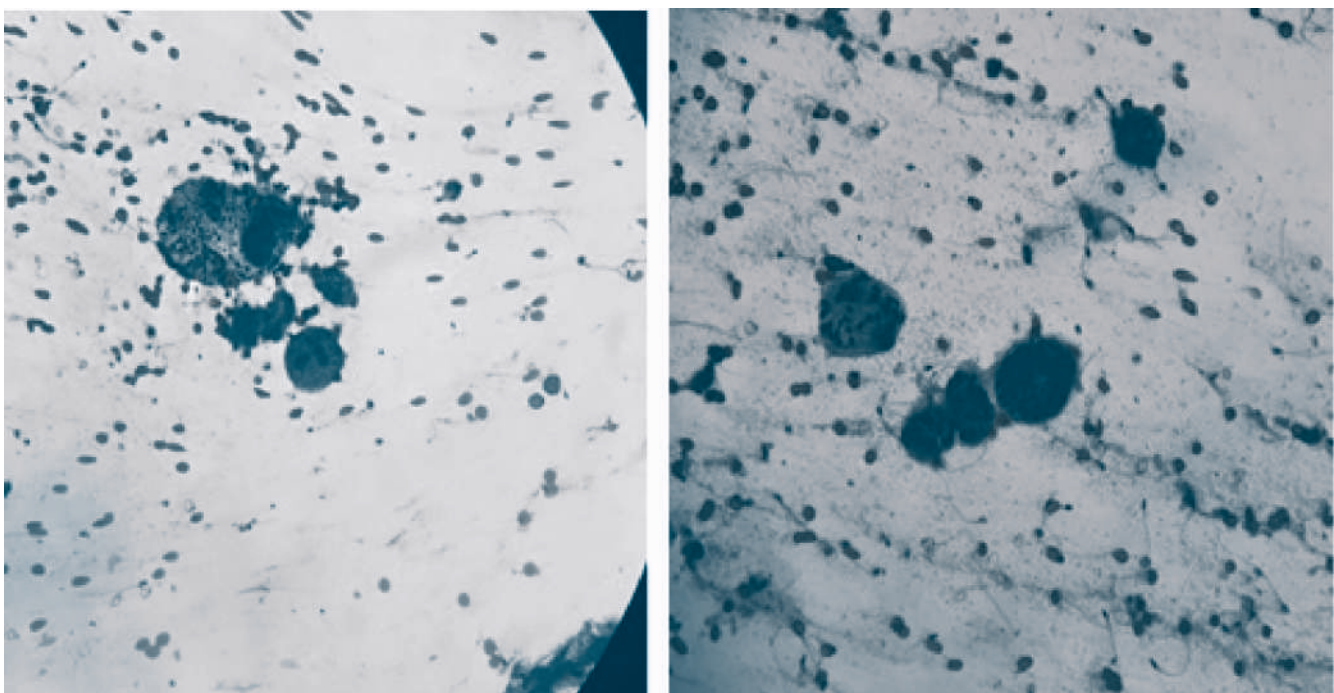


**Figure 1: Tuberculous epididymitis : Ziehl – Neelsen stain acid fast bacilli more number in caseous background A ( 100X) and single bacilli in Langhan's giant cell B (100 X)**



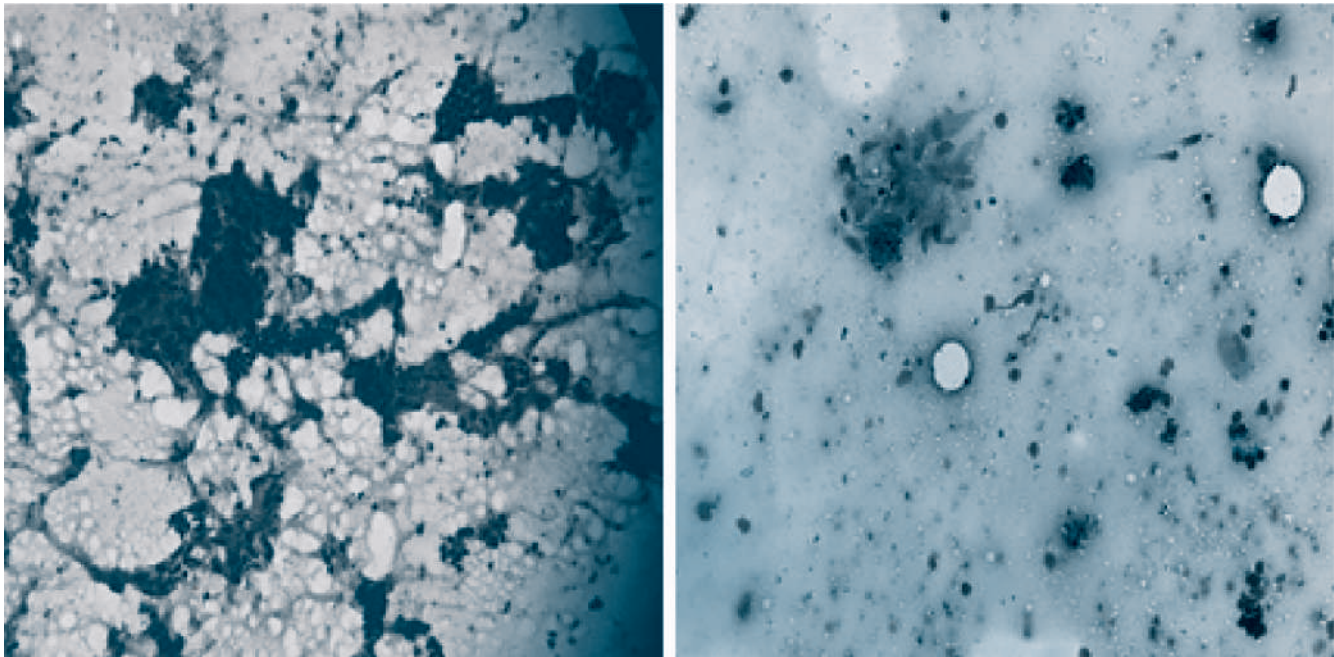


**Figure 2: Tuberculous epididymitis : A .Caseous necrosis and few polymorphs (PAP stain x 400) , B. Epithelioid cell granulomas with Langhan's giant cells (Giemsa and Pap x200)**

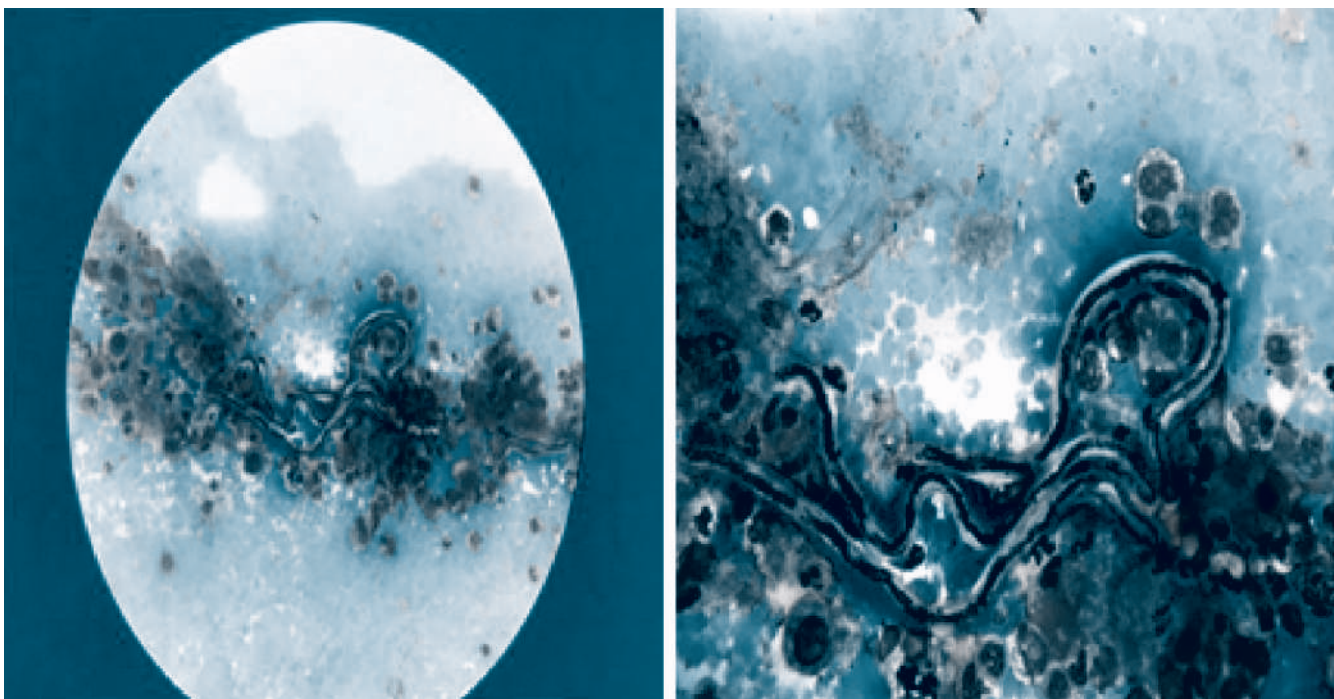


**Figure 3. Spermatocele: A & B. Cyst macrophages with engulfed sperms and numerous sperms in background (A & B Pap stain x400)**





**Figure 4. Spermatic granuloma : Degenerating sperms amidst inflammatory cells, giant cell and histiocytes (A Pap x200 and B Giemsa x200)**



**Figure 5. Microfilaria, microfilaria amidst inflammatory cells (A Giemsa stain x200, B Giemsa stain x400)**