

Spectrum of lesion on testicular FNAC excluding infertility cases: A retrospective analysis of cases

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Abstract

Introduction: The incidence of testicular lumps has continuously increased in recent decades. FNAC serves as an important tool to diagnose and provide sufficient information for the initiation of treatment without need for an open biopsy.

Objectives: To find out spectrum of lesions in testicular swellings on FNAC excluding apart from infertility causes and to establish it as a promising diagnostic tool.

Materials and Methods: This is a study done at advanced cytology center. It is a retrospective study spanning over a period of 5 years. A total of 418 male patients with testicular lesion were subjected for FNAC. Demographic data and cause for FNAC were noted down. Diagnostic contribution of FNAC was evaluated taking clinical outcome after treatment or histopathology done in case of neoplastic lesion.

Results: The age range was 10 years to 75 years. Mean age was 36 years. Predominant lesions were of infectious causes, most common malignancy found was seminoma.

Conclusion: FNAC was observed to be capable of providing near correct diagnosis in most cases which was proved later on either on treatment or histopathology.

Keywords: Testis, Fine needle aspiration cytology testicular tumours.

Introduction

Testicular lumps & bumps are main cause for Fine needle aspiration. Testicular tumours is the most important malignancy among young male.¹

Testicular neoplasm which comprise a wide variety of morphologic types, constitute a small proportion of malignancies. Early identification and treatment is essential for achieving long-term survival.² FNAC, a minimally invasive technique is one of the important investigation in diagnosis of different neoplasm.

Fine needle aspiration of the testis and spectrum is a simple, rapid, minimally invasive and painless outpatient procedure. The sample obtained is more representative than biopsy as several puncture can be made and there is no local scarring³ So FNAC of testis along with scrotal sac is required to distinguish non-neoplastic lesion from neoplastic lesion

Materials and Methods

This study was done on 418 cases over 5 years of period. Previously the FNAC was performed by 18-19 G needle & therefore few cases of needle tract implantation were identified but nowadays FNAC is done by real fine needle of 24 G therefore no chance of needle tract implantation seen in cases of tumour.

Ultrasound guided fine needle aspiration was also performed under aseptic precaution using a 10ml syringe fitted with 24 gauge needles. Written consent was taken from each patient before procedure. Wet fixed in isopropyl alcohol and air dried smear of the aspirates were stained by Papanicolaou and May-

Grunwald-Giemsa method respectively. Then cytomorphological features of testicular FNAC was evaluated and reported as neoplastic and non-neoplastic lesions. Ziel Neelsen stain was performed in cases which yielded cheesy aspirates and acid fast bacilli were searched.

Results

Four hundred and eighteen cases were studied on FNAC of testis done for lump in testis excluding infertility cases. Age range was from 10yrs to 75 years with maximum number of patients were in third and fourth decade of life.

We found most common diagnosis of testicular swelling was tubercular orchitis which constitutes 234 (55.98%) out of 418 cases. After this, torsion 58(13.87%) was most common lesion set for FNAC, seminoma comprises of 38(9.09%) cases, epididymal cyst comprises of 26(6.22%) cases,

Spermatocoele presents in 24(5.74%) cases, suppurative orchitis presents in 18(4.30%) cases, embryonal carcinoma present in 16(3.82%) cases and teratoma presents in 4(0.95%) cases.

Fine needle aspiration cytology from testicular orchitis, reveal presence of epitheloid granulomas with caseation. Tubercular etiology was supported by detection of acid-fast bacilli (AFB) in some patients by doing Ziehlneelson staining. We also examined urine sample for presence of AFB. Nearly one third were positive for it. Genitourinary tuberculosis was confirmed on clinical evaluation. All the patient received anti-tuberculous treatment and all showed

response to treatment. All diagnosed tumours were confirmed on histopathology.

Non conclusive FNAC were not included in this study, reason being we did repeat FNAC and smear were checked for presence of material with rapid pap stain or diff-quick stains. Local seeding of tumours by the FNA procedures was not detected in present study.

Table 1: Total number of lesion (n=418)

Type of Lesion	Number of cases	%
Tubercular orchitis	234	55.98%
Tortion	58	13.87%
Seminoma	38	9.09%
Epididymal cyst	26	6.22%
Spermatocoele	24	5.74%
Suppurativeorchitis	18	4.30%
Embroynal carcinoma	16	3.82%
Teratomas	04	0.95%

On the basis of our study we found Tumours in 58(13.87) cases out of 418 and Non tumour cases are 360(86.12%). Seminoma as most common malignancy which is comprising of 38(65.5%). Embroynal carcinoma is comprising of 16(27.5%), Teratomas were least, comprising of 04(10.5%) cases.

Table 2: Diagnosis of testicular tumors (n=58)

Malignances	Number	%
Seminomas	38	65.5%
Embroynal	16	27.5%
Teratomas	04	10.5%

In non-malignant cases Tubercular orchitis are 234(65%) and it is most occurring lesion. Tortion cases are of 58(16.11%), Epididymal cyst are 26(7.22%), Spermatocoele are 24(6.66%) and suppurativeorchitis are 18(5%).

Table 3: Non-neoplastic lesion (n=360)

Type of Lesion	Number	%
Tubercular orchitis	234	65%
Tortion	58	16.11%
Epididymal Cyst	26	7.22%
Spermatocoele	24	6.66%

Discussion

Testicular FNAC has not readily become a routine clinical method, although there are several advantages of this method over open biopsy.⁴ FNAC is essentially non-traumatic and easy to carry out, but it requires considerable practice in its execution and in the interpretation of the aspirates. The main advantage is avoiding delays in diagnosis.⁵ Very few literatures are found which has documented the role of FNAC in

epididymal and testicular nodule other than infertility causes.

Earlier there was hesitancy for aspiration in testicular mass lesion in fear of the possibility of seeding an early stage testicular tumour. The magnitude of such a procedure is unknown and not substantiated by convincing evidence FNAC does not have the same potential for spreading for seeding that a needle core biopsy has.⁶

In our study we found tubercular orchitis as a most common non-malignant lesion which is also confirmed by one study,⁷ which suggest acute orchitis as common inflammatory lesion which is followed by tubercular epididymitis. This study also suggest most common malignant tumours were seminoma and embryonal carcinoma and our study also shows same results as most common malignant tumour is, seminoma (65.5%) which is followed by embryonal carcinoma (27.5%). Genitourinary tuberculosis is the second most common site of involvement among extrapulmonary tuberculosis and may involve kidney, ureter bladder or genital organ⁸ Epididymis is the most common site for tubercular involvement which usually occur either hematogenously or by retrocanalicular descent of organism from tuberculous prostate. After the involvement of ductus deferens, testis get infected.¹⁰

Diagnosis of isolated tuberculousepididymo-orchitis is often challenging as it may present as testicular mass without specific signs and symptoms of tuberculosis.¹¹ This also occur in our single case of tubercular orchitis. In tubercular orchitis FNAC smears reveal epitheloid granuloma with or without Langhans giant cells and a caseous necrotic material, ZN staining may or may not demonstrate AFB.¹²

A study done as "Histopathological spectrum of testicular tumour a single center experience" also showed. Seminoma as a most common (56%) malignant tumour.¹³

Elevated serum lactate dehydrogenase (LDH) and human chorionic gonadotrophin (HGH) can be seen in both tubercular orchitis and testicular tumour.¹⁴ Smears from the seminoma tumour showed discohesive large tumour cells dispersed in singles with granular cytoplasm, enlarged nucleus and with prominent nucleoli. The background was "tigroid" with variable amounts of lymphocytes. The tigroid smear background tends to be seen in less cellular samples.¹⁵ Its presence is not considered pathognomic of seminoma since similar findings have been in aspirates melanoma squamous cell carcinoma renal cell carcinoma and synovial sarcoma.¹⁶

Thus this diagnostic dilemma may result in an inappropriate surgical procedure for potentially curable medical illness. A high index of suspicion, scrotal ultrasound and FNAC can be quite helpful in the diagnosis supporting investigation like imaging techniques are often not very helpful and may simulate a tumour. This may be because of its rare occurrence.¹⁷

Elevated serum lactate dehydrogenase (LDH) and human chorionic gonadotropin (HCG) can be seen in both tuberculous orchitis and testicular tumour.¹⁸ On present study serum LDH levels were raised and in few cases tumour markers were done which were within normal limits polymerase chain reaction (PCR) is expensive but provides rapid detection of Mycobacterium tuberculosis.¹⁸ In our study only 80 patients went for PCR detection for tuberculosis, which detected as positive in 62 patients.

We detect 24 cases of spermatocele which constitute 5.74% of total cases whereas in one study it constitute 26.5% (25 cases of spermatocele out of 94 cases which are comprising of inflammatory and non-inflammatory lesion. Smears from spermatoceles demonstrated numerous sperms on a clear background. Lack of inflammation and foreign-body giant cells helped to distinguish the condition from a sperm granuloma. Cyst macrophages can be seen.¹² Same study showed 8 cases of hematoma/torsion, 3 cases of epididymal cyst out of 94 cases of inflammatory and non-inflammatory lesions which constituting 8.5% & 3.10% respectively. In our study, torsion cases constituting 13.8% and epididymal cyst constituting 6.22% which shows more occurrence of these cases at our place.

Conclusion

Present study was done at private laboratory for histopathology and cytology in city. We have good number of referrals from the city and around. FNAC is choice of investigation in testicular swelling as it provides successful diagnosis with minimal invasion procedure as compared to biopsy. We can easily identify inflammatory lesions from non-inflammatory lesions on cytology of testis and patient can be managed according it. Unnecessary biopsy can be avoided specially in inflammatory lesion which includes mainly tubercular lesions. Therefore FNAC has established role in the diagnosis of testicular swellings as it can diagnose the lesion successfully.

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