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FNAC as a diagnostic modality in male infertility -a prospective study of 10 months

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Abstract
Background: *Infertility is one of the common problems that can lead to a detrimental effect on life of couples trying to conceive.[1] Studies suggest that males are responsible in 30-50% cases of infertility.[1-5] As an alternative to testicular biopsy the fine needle aspiration cytology of the testis is being used increasingly to find out the cause of azoospermia. Aim: The aim of this study was to evaluate diagnostic accuracy of testicular FNAC in cases of azoospermia.* ***Subjects and Methods:*** *It is a prospective study for a period of 10 months from March 2021 to December 2021 in which 35patients, aged 20-38 years with zero sperm count (Azoospermia) were included FNA was done by non aspirate method using 22G needle . In each case a minimum 2slides were prepared from each of testis.* ***Results:*** *Of the 35 cases, 15 (43 %) were classified as normal maturation . 14 (40%) cases of maturation arrest /hypospermatogenesis ,four (11 %) cases of sertoli cell only syndrome and 2 (6%) cases of inadequate aspiration*
Conclusion: *FNAC of testis is an alternative to biopsy to find out the cause of azoospermia. It is simple, quick, less invasive, minimal painful method and can be done as a routine procedure.*
Keywords: *FNAC, infertility ,azoospermia, sertoli cells,*

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I. Introduction:

Infertility is one of the common problems that can lead to a detrimental effect on life of couples trying to conceive.[1]Studies suggest that males are responsible in 30-50% cases of infertility.[1-5]

While investigating male infertility first investigation which is advised by clinician is semen analysis for evaluation of count and morphology of sperm.[6]Azoospermia being the first abnormal finding and requires detailed clinical evaluation and further investigations. Azoospermia is categorized into two types: Obstructive and non obstructive.[8]

As testicular biopsy is a invasive procedure alternative to testicular biopsy testicular fine needle aspiration (FNA) has gained increasing popularity as a simple, quick, less invasive and minimal painful technique that can help in assessing the testicular function accurately or categorizing the etiology of azoospermia.[1-4,6]

The aim of this study was to evaluate diagnostic ac curacy of testicular FNAC in cases of azoospermia.

II. Materials And Methods:

This study has been carried out in the Swastik diagnostic laboratory Jammu on patients referred mainly from GMC Jammu from March 2021-December 2021

FNA was performed in 35 patients, aged 20-38 years with zero sperm count (Azoospermia), detailed clinical history was recorded and physical examination was performed on each patient after obtaining consent

Inclusion and exclusion criteria

Patients with history of infertility of more than 1 year duration were included in the study.

Patients with orchitis, vericocele, tubercular orchitis were excluded from the study.

FNAC was done by nonaspirate method using 24G needle . Needling was performed 2-3 times in one go and needle was held for 30 seconds each time. In each case a minimum 2 slides were prepared from each of

testis. Population of sertoli cells and spermatogenic cells were identified and expressed in percentage as described by Agrawal et al.[2]

Also following indices were calculated:

1.Spermatic index: The percentage of spermatozoa per 100 spermatogenic cells was expressed as "Spermatic index".

2.Sertoli cell index: The "Sertoli cell index" was expressed as number of Sertoli cells per 100 spermatogenic cells

3.Sperm-Sertoli cell index: The "Sperm-Sertoli cell index" was the ratio of spermatozoa to Sertoli cells.

Depending upon the percentage of different types of cells counted, we categorized the interpretation as follows:

Table no.1

Pathological Finding of Smear

Normal maturation	Spermatogenic to sertoli cell ratio 1.5:1
Hypospermatogenesis Maturation arrest	Spermatogenic to sertoli cell ratio <1.5:1 When maturation up to spermatozoa stage is not seen
Sertoli cell syndrome	No spermatogenic cells
Inadequate	Failure to demonstrate any cells

III. Results

A total of 35 patients were studied . Age range was 20-38 years. There were 32 cases of primary infertility and 3 cases of secondary infertility. Semen analysis showed oligospermia in 7 cases and 28 cases showed azoospermia.Slides were examined and the cases were reviewed according to four subcategories.

Normal spermatogenesis was seen in 15(43 %) cases, hypospermatogenesis /maturation arrest in 14 (40%) cases ,sertoli cell only syndrome in 4(11 %)and inadequate in 2(6 %) cases respectively

Table no.2

Cytological findings n= 35

Cytological findings on smear	**Number of cases**	**Percentage %**
Normal maturation	15	43
Hypospermatogenesis Maturation arrest	14	40
Sertoli cell syndrome	04	11
Inadequate	02	6

IV. Discussion

Fine needle aspiration cytology is a minimally invasive technique in the diagnosis and management of infertility. Although hormone level assessment infers a great help in evaluation of testicular function, aspiration cytology is required mostly in cases of obstructive azoospermia. It helps to differentiate obstructive cases which can be corrected surgically from non obstructive cases.

The most frequent finding in our study was normal spermatogenesis (43%) which is similar to studies carried out by Kurien et al,[1] Agrawal et al,[2] Basim Ahmed,[3]Prasad et al,5] and Ahmad et al.[6] They also mentioned that demonstration of normal spermatogenesis in patients of azoospermia denotes obstructive pathology which is surgically correctable. The second most common diagnosis in our study was maturation arrest (40%) . One of the study carried out by RC Adhikari[7] had maximum cases of Sertoli Cell Syndrome while we had only 11% cases of sertoli cell syndrome

We had calculated various indices like spermatic index, sertoli cell index and sperm-sertoli cell index. Spermatic index is zero in cases of Sertoli cell only syndrome. Sertoli cell index is very important index to differentiate between causes of azoospermia, as it is lowest in normal spermatogenesis and progressively increases in maturation arrest, hypospermatogenesis and sertoli cell only syndrome. The sperm-Sertoli index is highest in normal spermatogenesis and progressively decreases in maturation arrest, hypospermatogenesis and sertoli cell only syndrome. Our findings are similar with the findings of RC Adhikari and Agrawal et al.[2

No complications were observed after fine needle aspiration except for minimal pain.

V. Conclusion :

The following conclusions were drawn:

- On cytology we could provide reasonably accurate diagnosis, which helped in patient management.
- As an alternative to testicular biopsy, fine needle aspiration cytology of testes has gained popularity as a simple, quick, less invasive and minimal painful method.
- Compared to testicular biopsy one of the important advantage of testicular FNA is reduction in turnaround time. Thus it is possible to issue reports on the same day of collection of the sample.
- Maturation arrest was most common finding after normal spermatogenesis

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