

# SUMMARY

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The assesement of the cytological details of testicular material obtained by biopsy has added greatly to the understanding of both normal and abnormal testicular functions.

The aim of this work is to study testicular biopsy as regards its indications, complications, techniques and various methods for its evaluation in order to throw further light on its role in diagnosis and prognosis of male infertility.

Testicular biopsy may be indicated in cases of azoospermia and severe oligozoospermia to differentiate between the obstructive and functional nature of these conditions. It is also helpful in studying the meiotic division of spermatogenic cells in cases of teratozoospermia & asthenozoospermia and it is also needed in cases of hypogonadism to differentiate between primary & secondary types.

In cases of intersex, gonadal biopsy is done in order to determine the type of tissue present whether testicular, ovarian or streak gonad and consequently the type of intersex is known.

Testicular biopsy may also help in diagnosis of some diseases such as myotonic muscle dystrophy, acute lymphocytic leukaemia, periarteritis nodosa, amyloidosis and rare pathological conditions which may or may not have a relation to the infertility state of the patient e.g. microlithiasis, carcinoma in situ ; bilharziasis, tuberculosis and sarcoidosis.

During some operations e.g. varicocelectomy, the success of operation depends on the presence of reversible testicular inhibitory changes which could be ascertained by the biopsy. During epididymovasostomy operation, the biopsy may help in localizing the proper site for anastomosis.

Testicular biopsy is contraindicated in the following conditions :

- 1) Strong suspicion of obstructive azoospermia (full epididymal head) to avoid adhesions produced by the biopsy which minimise success of epididymovasostomy.
- 2) Inflammation or infection of the testis to avoid spread of infection.
- 3) Patients suffering from sever illness or contraindication to general or local anaesthesia.
- 4) Malignant tumours of the testis to avoid blood spread of malignant cells.

- 5) Sever atrophy of the testis, since the histological result can be guessed in advance.
- 6) A contraindication to biopsy the fact that after a month of performing the biopsy, it is complicated by the appearance of certain antibodies in patient serum. Schoysman (1980) considered it more logic that the appearance of the antibodies is only a passing phase, lasting no more than few months .
- 7) Some urologists bilieve that one of the contraindications to the biopsy is the danger of intra-testicular hematoma formation with its complications.

Testicular biopsy may be evaluated by :

- I) Light microscopy.
- II) Electron microscopy.
- III) Immunohistochemical method.
- IV) Cytogenetic method.
- V) Cytochemical and biochemical method.

I) Using light microscopy, 3 different methods were described: qualitative, quantitative and semiquantitative methods.

By the use of qualitative evaluation, different histopathological patterns were described e.g. normal testicular histology, Sertoli cell-only syndrome, Klinefelter syndrome, spermatogenic arrest, progressive tubular hyalinization, prepubertal testis, sloughing and/or disorganization,

multiple mixed lesions and hypospermatogenesis.

Several quantitative methods were described for evaluation of the biopsy :

- a) Counting each cell type in seminiferous tubule and expressing this number per Sertoli cell or per tubular wall circumference.
- b) Measuring the relative density of each testicular component and its correlation with the total sperm count in the semen.
- c) Counting the number of mature spermatids per tubule and its correlation with the total sperm count in the semen.
- 4) Enumeration of homogenization resistant spermatids in testicular homogenates and estimation of daily sperm production for entire testis.
- 5) DNA flow cytometry method.

Using the semiquantitative method, Johnson (1970) described an easy method in which each tubule was given a score and a mean score for all tubules was calculated. Also Hellings (1976) and Makler & Abramovici (1978) described similar methods but their methods had no wide application as the Johnson (1970) scoring system.

- II- By the use of electron microscopic study, the fine structure of the testis could be studied especially in normal testis.
- III- Using immunohistochemical method, the presence of IgG and complement deposits in tubular wall and germinal cells in 50 % of infertile cases was proved.
- IV- By the use of cytogenetic evaluation, diagnosis of meiotic abnormalities could be known.
- V- Cytochemical and biochemical evaluation of the biopsy whether normal or pathological provided valuable information about testicular metabolism especially steroid synthesis.