

TESTICULAR BIOPSY

Its Value in Male Infertility

BY

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It is only in recent years that the male factor is becoming increasingly recognised as an important factor in the consideration of a sterile couple. Barrenness was so far attributed to the female partner, but research work has convincingly shown that the male partner is as much responsible for this state of affairs.

Testicular biopsy is one of the important investigations in the assessment of male infertility. Microscopic study of testicular tissue, accessible as it is, has been neglected till quite recent times. An important step in this direction was made by Max Huhner in 1913; he advocated testicular aspiration as a measure in cases of azoospermia. This has now been replaced by formal incisional testicular biopsy because testicular aspiration is attended by certain disadvantages: (1) the amount of testicular tissue obtained by aspiration is insufficient for a careful pathological study; (2) testicular aspiration may give rise to troublesome haemorrhage; and (3) the pain and discomfort after an incisional biopsy is even

less than after a testicular aspiration.

Testicular biopsy was first performed experimentally by Engle and clinically by Hotchkiss. The technique has been perfected by Charney and this is the method followed by us.

Technique of Testicular Biopsy:

The testis is held firmly in the left hand and the overlying skin is infiltrated with 1% procaine solution. A small transverse incision $\frac{1}{2}$ cm. long is made and deepened through all the fascial layers till the parietal layer of the tunica vaginalis is reached which is cut through. At this moment a few ml. of clear fluid escapes; a little retraction now exposes the shining visceral layer of the tunica vaginalis and the underlying tunica albuginea. A nick is made on this covering and a little pressure on the testis helps to extrude a bead of testicular tissue which is cut away with a small curved iridectomy scissors. One skin suture is all that is necessary to close the incision. A scrotal support is advised for a week. The testicular tissue is fixed in Bouin's fluid, mounted in paraffin for section and stained with haematoxylin-eosin.

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This operation has been carried out by us at the Family Welfare Centre on 46 patients who were azoospermic. Of these, 28 cases were found to have normal spermatogenesis; 8 patients showed poor spermatogenesis; spermatogenesis was found to be arrested at the spermatocyte level in 10 cases.

Testicular biopsy has been used widely for determining the type of testicular tissue encountered in states of impaired fertility. Since testicular biopsy gives the most direct evidence of the actual state of spermatogenesis, its usefulness in cases of male infertility can well be realised. The clinical usefulness of testicular biopsy has so far been limited to the management of azoospermia. Normal spermatogenesis indicates a breach in continuity of the ductal systems and suggests exploration of the testis, epididymis and spermatic cord to locate the site of obstruction. In azoospermic cases, therefore, testicular biopsy helps to differentiate between the obstructive and non-obstructive types. In the former, testicular biopsy will show normal spermatogenesis whereas in the latter, spermatogenesis may be arrested at various levels, or there may be a germinal cell aplasia, peritubular fibrosis, etc.

More recently, testicular biopsy has been used in cases of oligospermia; we now recognise two forms of oligospermia, obstructive and non-obstructive. The former state is encountered in post-inflammatory obstructive lesions of the ejaculatory ducts, the latter being seen in cases

where there is incomplete maturation of sperms. Testicular biopsy helps in differentiating between these two types of oligospermia and is necessary before instituting rational therapy in oligospermic cases.

Testicular biopsy has been used as a prognostic gauge to determine the state of spermatogenesis following severe systemic infections like pneumonia, small-pox, mumps and other illnesses associated with prolonged and continuous high pyrexia. Not only can one get an idea of the degree of damage to the seminiferous tubules but one can also assess the capacity of the tubules to regenerate.

A fourth and important use of testicular biopsy is in cases undergoing therapy. By repeated biopsies it is possible to estimate the efficacy of various extracts used from time to time for the stimulation of spermatogenesis.

It is not possible in a short talk to elaborate on the different aspects of testicular pathology. Suffice it to say that until very recently, testicular biopsy had a rather limited application. It is an undisputed means of differentiating between obstructive and non-obstructive azoospermia, but deeper studies in the stages of spermatogenic maturation and its arrest, and a better understanding of the pathology of the seminiferous tubules have widened the scope of testicular biopsy studies in the management of male infertility.

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