

MANAGEMENT OF MALE INFERTILITY

Essay

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا

إِنَّا كُنَّا بِكَ عَالِمِينَ﴾

صدق الله العظيم

(البقرة / ٣٢)



TO

MY FAMILY

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INTRODUCTION

INTRODUCTION

Infertility may be defined as lack of conception after 12 months of unprotected intercourse. (*WHO, 1993*)

Infertility is a common problem that affect approximately 15% of all married couple. (*Ross, 1983*)

About a third of cases of infertility result from pathologic factors in the man, a third from factors in woman and a third from contributing factors in both partners. Therefore, the male factor is at least responsible in about 50% of infertile couples. (*Lipshultz and Howards, 1983*).

The causes of male infertility may be pretesticular, testicular and post-testiculat causes. (*Wong et al., 1973*)

Some infertile men have idiopathic infertility for which no causes can be identified. (*Greenberg et al., 1978*)

Male evaluation for infertility should be based on standard medical protocol, including history, physical examination and investigation (Semen analysis, hormoal assays, testicular biopsy). (*Wong and Swerdloff, 1991*)

Azoospermia is found in upto 10-20% of men, who present to infertility clinic. The main causes are testicular failure and ductal obstruction. Testicular biopsy remain difinitive test used to differentiate those two disorders. (*Jarow et al., 1989*)

Male infertility has multiple causes and similarly has varying treatment, including medical, surgical and assisted reproductive technique, which aim at maximization of the fertility potential of the male.

ANATOMY

ANATOMY OF MALE REPRODUCTIVE SYSTEM

The male genital organs include the testes, epididymides, vas deferens, ejaculatory ducts and penis, with the accessory glandular structure:- seminal vesicle, prostate and bulbo-urethral glands (Fig. 1). (*Williams et al., 1989*).

The Testes:

The testes are the primary male reproductive organs, they are suspended in the scrotum by scrotal tissues including the non striated dartos muscles and spermatic cords. The left testis usually being about 1 cm lower than the right. The average testicular dimensions are 4-5 cm in length, 2.5 cm in breadth and 3 cm in antero posterior diameter, their weight varies from 10.5-14 gm. Each testis ellipsoidal and compressed laterally, and obliquely set in the scrotum (Fig. 2). The testis is invested by three coats from outside inwards: the tunica vaginalis, tunica albuginea, and tunica vasculosa (*Williams et al., 1989*).

1. The tunica vaginalis is the lower end of the peritoneal processus vaginalis which preceds the descent of the fetal testis from the abdomen. to scotum. The tunica vaginalis which is a closed sac and the testis invaginated to it, it is reflected to the internal scrotal surface forming the visceral and parietal layer (Fig. 3) (*Williams, et al., 1989*).

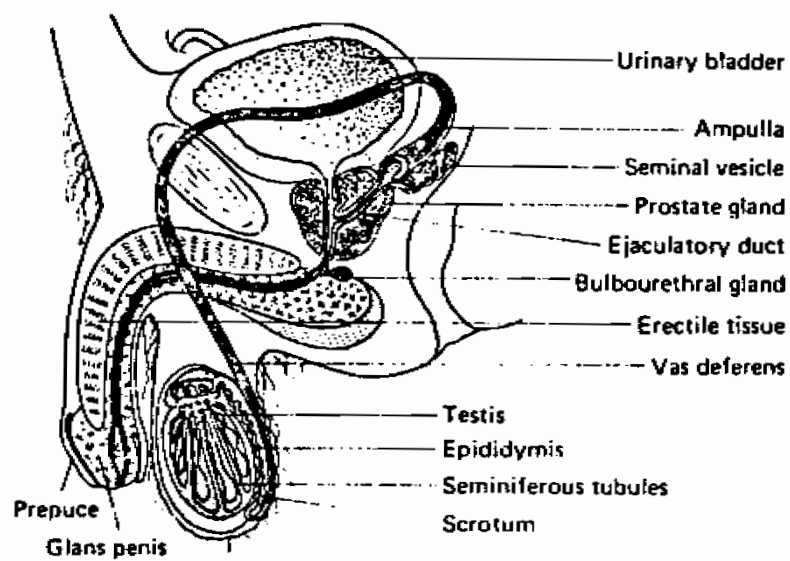


Fig. (1): The male reproductive system

(Cross-section of the male pelvis) (Guyton, 1991)

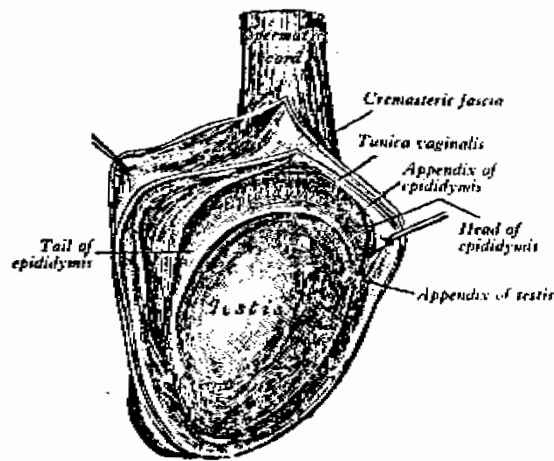


Fig. (2): The right testis exposed by incising and laying open the cremasteric fascia and parietal layer of the tunica vaginalis on the lateral aspect of the testis; (Williams et al., 1989)

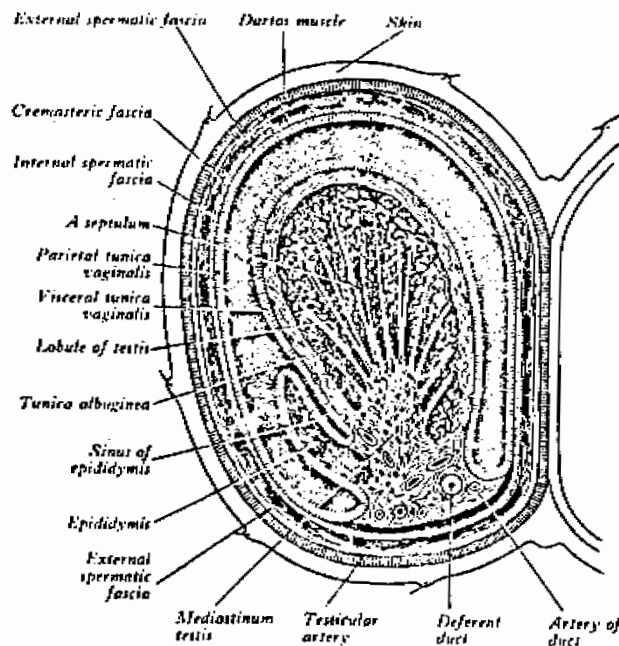


Fig. (3): Transverse section through the left half of the scrotum and testis. The tunica vaginalis is represented as artificially distended to show its visceral and parietal layers; (Williams et al., 1989)

The visceral layer covers all aspects of the testis except the posterior border. The parietal layer more extensive than the visceral layer, reaches below the testis and ascends in front of and medial to spermatic cord. The potential space between its visceral and parietal layers containing serous fluid allowing smooth gliding of testis (*Williams et al., 1989*).

2. The tunica albugina is a dense, bluish - white covering for the testis, composed mainly from interlacing bundles of collagen fibers, covered externally by the visceral layer of the tunica vaginalis, except at the epididymal head and tail and the posterior testicular aspect where vessels and nerve enter the testis. It covers the tunica vasculosa and at the posterior border of the testis project in to it as incomplete septum "the mediastinum testis", from its front and sides numerous incomplete septum testis divided the testis incompletely into cone shaped lobules their bases at the surface and apices converging upon the mediastinum (*Williams et al., 1989*).
3. The tunica vasculosa contains a plexus of blood vessels and delicate loose connective tissue, extending over the internal aspect of the tunica albuginea and covering the septa and therefore all lobules (*Williams et al., 1989*).

Structure of the Testis:

Internally the testicular architecture is dominated by the lobules, their number in one testis ranges from 200 - 300 (Fig. 4). Each lobule contains one to three or more minute convoluted seminiferous tubules, arranged like loops, opening at both end into the tubuli recti and thus in to the rete testis. The total number of the tubules in each testis 400 - 600 and length of each is 70 - 80 cm their diameter varies from 0.12 - 0.3 mm. They have a central lumen, a stratified epithelium four to eight cell in thickness, composed of sertoli cells and spermatogenic cells. The interstitial tissue between the tubules is composed of leydig cell, blood vessels, extensive lymphatic channels and numerous macrophage (*Williams et al., 1989*).

Blood Supply:

The arterial supply to the human testis and epididymis is derived from three sources (Fig. 5):

1. The internal spermatic artery which arise from abdominal aorta.
2. The deferential or vasal artery which arise from inferior vesical artery.
3. The cremasteric artery or the external spermatic artery which arise from the inferior epigastric artery (*Harrison and Berchy, 1948*).

Testicular Venous drainage:

The blood from the testis returns to the pampiniform plexus of spermatic cord at the internal inguinal ring. The pampiniform plexus