CONGENITALLY ABSENT VAS DEFERENS

THESIS

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in Dermatology and Venereology

By

KHALED ABD EL-MONEIM YOUSEF BAHGAT

Under Supervision of

Prof. Dr. ALI ABD EL-FATTAH

Professor of Dermatology & Venereology
Ain Shams University

Dr. HUSSEIN ABD EL-DAYEM

Lecturer of Dermatology & Venereology
Ain Shams University

Faculty of Medicine
Ain Shams University

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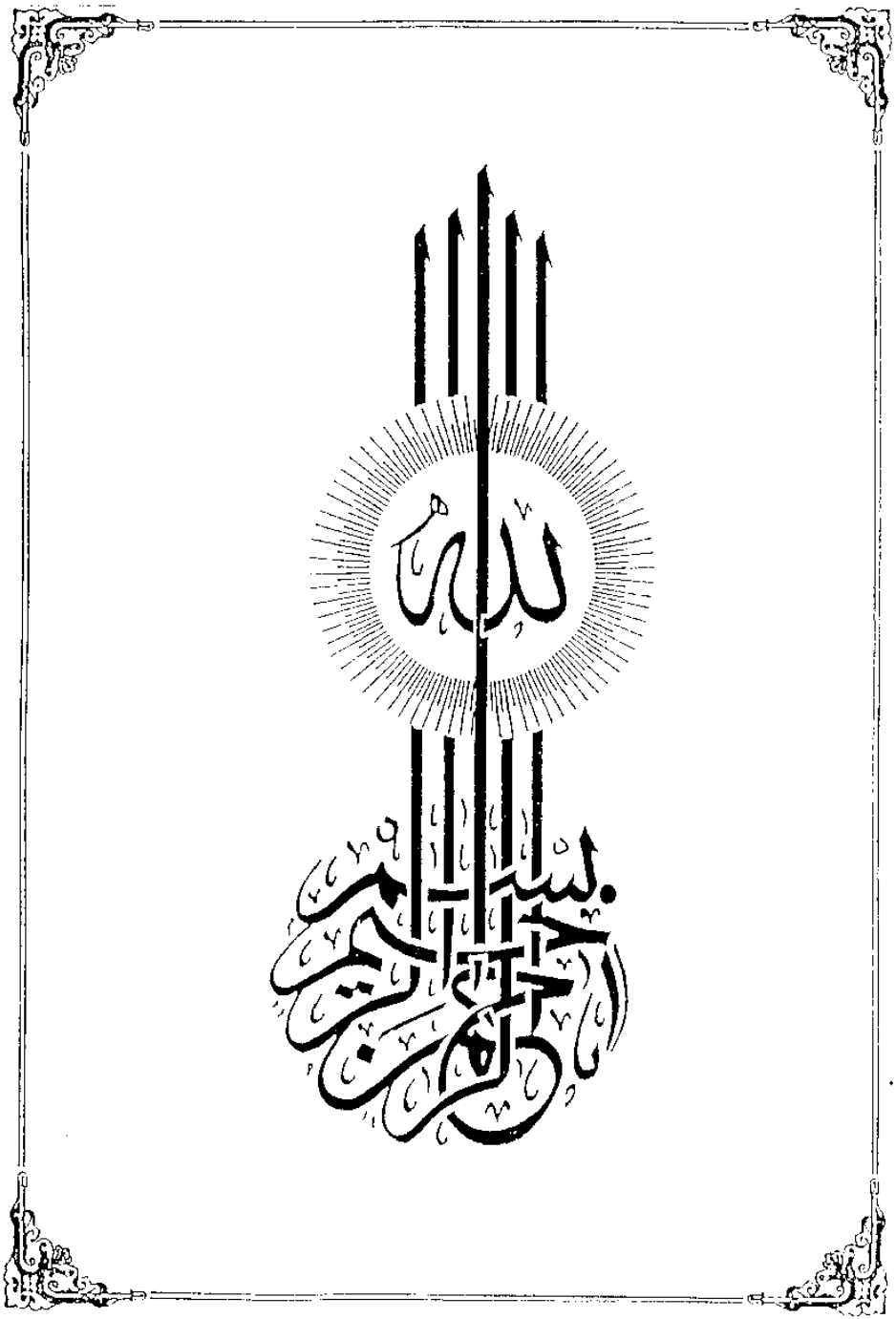

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INTRODUCTION

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Congenital absence of the vas deferens is not widely known but relatively a frequent cause of obstructive azoospermia.

Keshin and Pink (1944) stated that the first satisfactory report of a bilateral anomaly of the seminal tract was recorded by John Hunter in 1755. Mann stated also that Ernest Godard in 1860 reported the case.

With increasing knowledge amongst people in general, many more men now seek medical advice for infertility; and also as a result of increased resources for complete investigation of male infertility, abnormalities and disorders formerly regarded as rare have proved fairly common. According to Hellinga, Ultee & Ruward (1971) the incidence is 1% of patients seeking andrologic help because of infertility. Amelar & Dubin (1975) found bilateral congenital absence of vas in 2% of infertile patients. Schelen (1980) found 1.66% incidence in men evaluated for infertility.

As the bilateral absence of the vas is now recognized with sufficient frequency in men having azoospermia that it has become axiomatic to consider this possibility in every instance in which the semen is devoid of spermatozoa. The final diagnosis is established only by

exposure and inspection of the testes and their adnexa, although attentive preoperative diagnosis may be entertained on the basis of careful palpation of scrotal contents. Also the characteristic picture of semen analysis is of great value in such cases as will be shown later.

The condition is explained on embryological basis due to aplasia of the Wolffian duct which is utilized by the genital system to build the excretory duct including body and tail of epididymis and the vas deferens . The seminal vesicles are also absent as they develop as a pouch from the terminal part of the Wolffian duct.

These cases can be considered as well in studying the different effects of vasectomy, which has gained wide acceptance as a form of male contraception, as lifelong human model of vasectomy.

ANATOMY OF HUMAN VAS DEFERENS

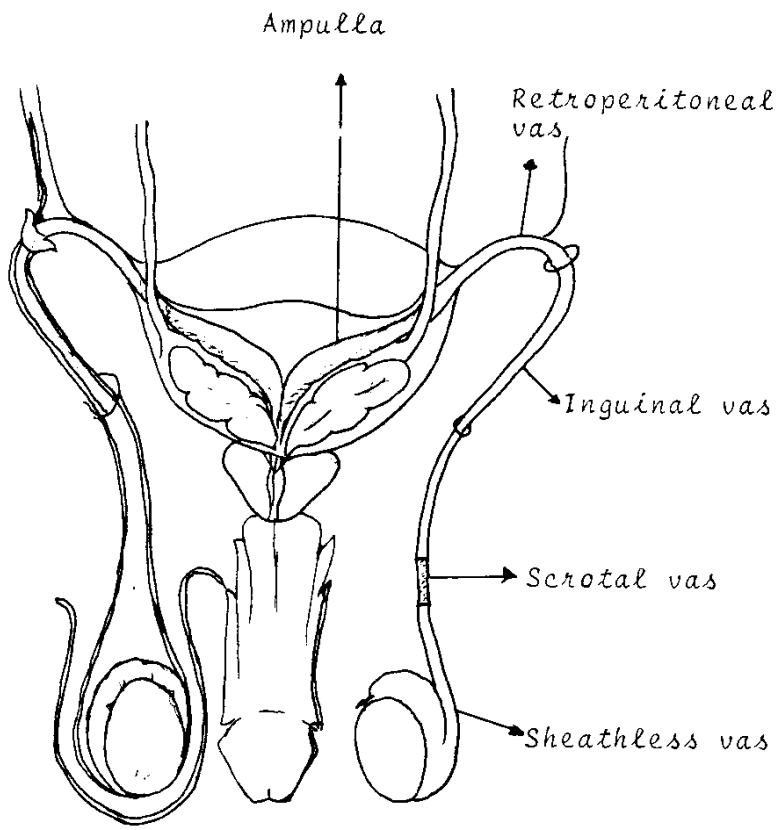

Fig. (1). The five portions of the vas deferens

Anatomy Of Human Vas deferens

The vas deferens is easily palpable in the scrotum, as a portion of spermatic cord. It is a tube about 35 cm.in length and extends from the cauda epididymis through the external and internal inguinal rings and then over the ureter and behind the bladder. The terminal section enlarges to form an ampullary portion that joins the duct of the seminal vesicle, forming the ejaculatory duct (Fig. 2). Anatomically the vas deferens may be divided into five portions (Fig. 1):

1. The sheathless epididymal portion contained within the tunica vaginalis.
2. The scrotal portion.
3. The inguinal portion.
4. The retroperitoneal or pelvic portion.
5. The ampulla.

Connecting at tail of the epididymis, at first it is tortuous,but soon it becomes straight, it ascends along the posterior border of the testis on the medial side of the epididymis.

As it leaves the deep inguinal ring, it separates from the other structures of spermatic cord and passes medially hooking on the inferior epigastric vessels, and ascends

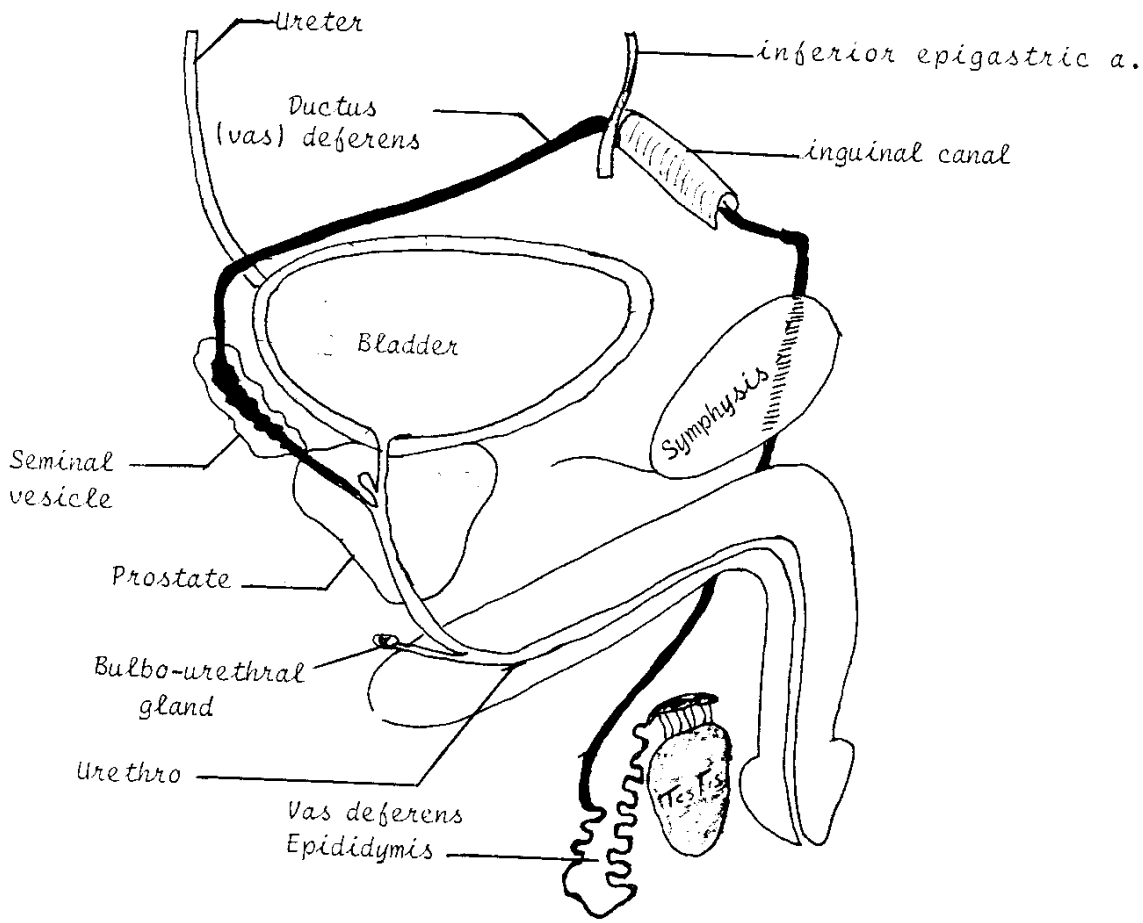

Fig. (2). Diagram of the male genital system indicating the course of the deferent duct.

for about 2.5 cm anterior to the external iliac artery. Next it goes backwords and slightly downwards, crossing the external iliac vessels obliquely, reaches the lesser pelvis, where it continues posteriorly between the peritoneum and the lateral wall of the pelvis and the medial side of obturator nerve & vessels. Then it crosses the ureter and reaching its medial side, bends at acute angle, turns medially and slightly forwards between the posterior surface of the bladder and the upper end of the seminal vesicle. Reaching the medial side of the seminal vesicle, it is directed downwards and medially (while it is in contact with it),and gradually approaches the opposite duct. Here it lies between the base of the bladder and the rectum, from which it is separated by the rectovesical fascia. Lastly, it passes downwards to the base of the prostate, and is joined at an acute angle by the duct of the seminal vesicle to form the ejaculatory duct. (Warwick and Williams 1973).

Arterial Supply

The deferential artery is derived from the internal iliac as a branch of inferior vesical artery supplies primarly the ductus deferens and the epididymis but anastoses also with the testicular artery (Grant 1972).

Venous Drainage:

The middle group of pampiniform plexus drains the veins of the vas deferens which course with the vas and finally ends in the prostatic & vesical plexuses.

Lymphatic Drainage:

The collecting vessels from the ductus end in the external iliac nodes.

Innervation at the Vas Diferens:

The epididymis , vas deferens, seminal vesicles and prostate have only an autonomic nerve supply (Potts 1957). The sympathetic supply of the autonomic system comes from the presacral nerve (superior hypogastric plexus) which divides at the first level of the sacrum into two hypogastric nerves. The nerves terminate, one on each side of the rectum, in the inferior hypogastric (pelvic) plexus. The inferior hypogastric plexus is widely spread and covers the prostate, seminal vesicles, etc..,The filaments to the vesicle also give rise to periureteral nerve loops that assist in the innervation of the ejaculatory ducts, and an occasional filament passes down the vas to the epididymis. In addition, the middle gonadic nerves, which arise from presacral nerves, supply

the epididymis and the vas deferens. Finally, the inferior gonadic nerves, which arise from the nerve loops around the lower end of the ureter and from the adjacent inferior hypogastric plexus, supply the remainder of the vas deferens.

All three layers of the vas musculature are equally innervated (Baumgarten et al.,1971). Large nerve fibres run only between the outer longitudinal and the middle circular layers. The nerve network consists of few preganglionic fibres and many postganglionic fibres that extend to individual muscle cells.