

# PERCUTANEOUS MANAGMENT OF VASCULOGENIC IMPOTENCE

## Thesis

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Of M.D degree of radio diagnosis*

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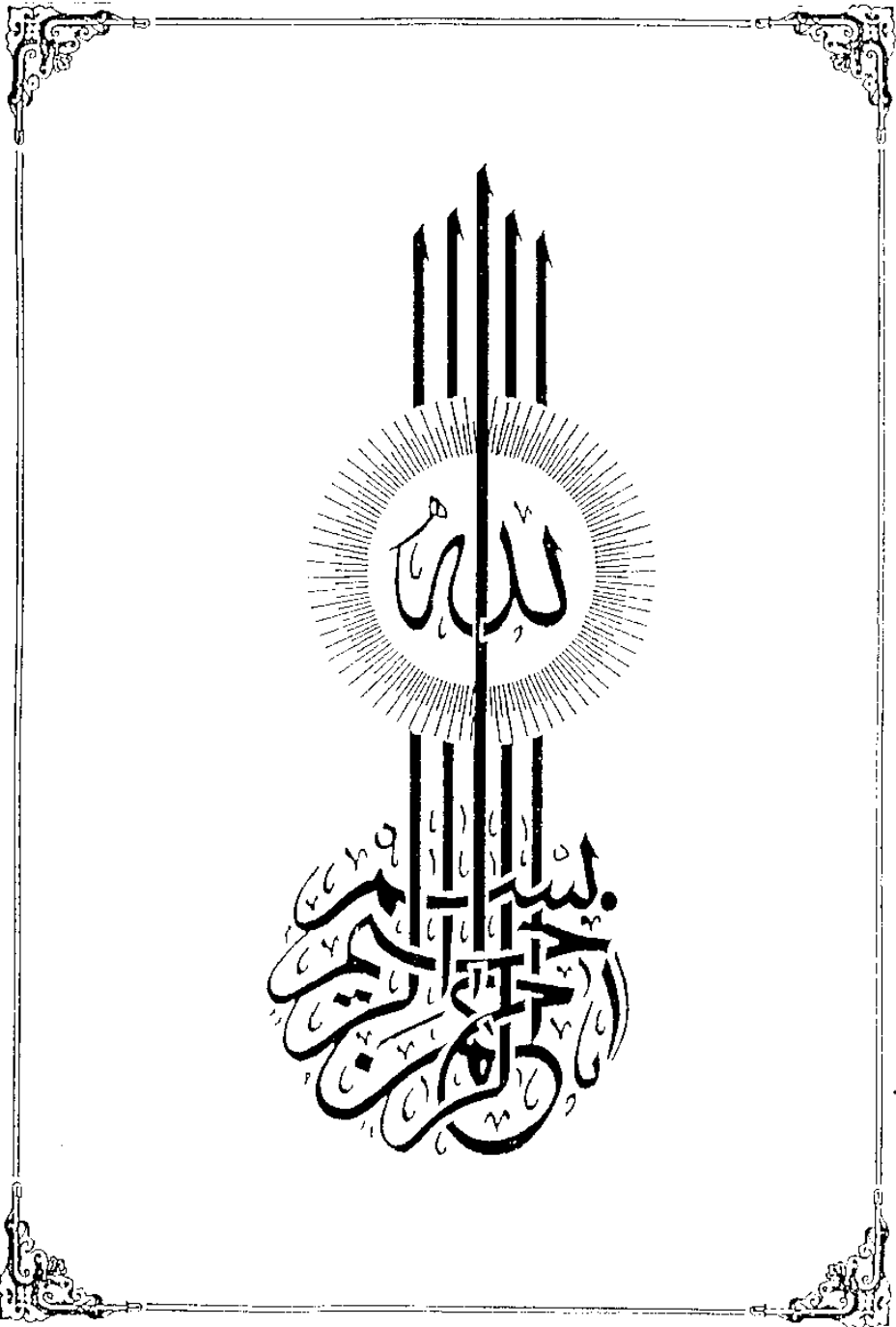
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# ***INTRODUCTION***

## I N T R O D U C T I O N

Impotence is a common disorder that in many people has a profound effect on their well being. It is defined as the constant inability to achieve or maintain an erection of sufficient rigidity for sexual intercourse.

For social and ethical reasons, the mechanism and hemodynamics of this essential human function remained speculative and controversial for a long time.

impotence is one of the most common sexual dysfunctions.

It is estimated-according to American studies-that the incidence of erectile disturbances that require treatment is twice as high as that for coronary artery disease.

Before the last two decades, it was believed that impotence was caused by organic factors in only 5% of cases. Since then, it has been shown that organic factors more frequently are the cause of impotence up to 80% of cases.

Penile erection is a complex neurovascular event that has been the subject of extensive clinical research, and during the last several years, important changes have

occurred in the evaluation, diagnosis and treatment of impotence.

These advances have stemmed largely from improved understanding of the mechanism, hemodynamics and pharmacology of physiologic erection.

Erectile dysfunction can be divided into psychogenic and organics impotence.

The most common cause of organic impotence is the vascular insufficiency.

Vascular impotence occurs when there is insufficient blood flow to the corpora cavernosa or when venous leak occurs that allow loss of blood from the corpora cavernosa.

Arterial insufficiency may be due to congenital malformation of the penile arteries, atherosclerosis or traumatic occlusive disease.

The concept of venous insufficiency as a cause of erectile dysfunction dates back to the turn of the twentieth century. Wooten in 1902 and Lydston in 1908 suggested that ligation of the dorsal veins of the penis might be effective treatment for certain types of impotence. However, the causes of venous leakage from the cavernosal spaces are not known to date.

The evaluation of patients with vascular impotence requires testing of both arterial and venous elements. The first step takes place by the I.C. injection of vasoactive active drugs with  $\alpha$ -adrenergic blocking agent (e.g. papaverine and phentolamine). A poor response to the intracavernous injection of vasoactive drugs is highly suggestive of vascular insufficiency.

The penile-brachial index, Doppler ultrasound, duplex with color doppler and arteriography were the methods used to examine the arterial side.

On the other hand, cavernosography was used to evaluate the venous side.

In this study, 100 patients suffering from impotence were examined to detect cases of vasculogenic impotence. Cases of arteriogenic impotence due to localised accessible stenotic segment were managed by transluminal balloon angioplasty and cases of venogenic impotence were managed by venoablation using coils, gelfoam and sclerosing materials.

It is evident that the pathophysiology of venous leakage in impotent patients is still unclear and further



studies are needed for better understanding of this mechanism to help more in better handling of these cases aiming at excellent therapeutic results.

# ***ANATOMY***

## A N A T O M Y   O F   T H E   P E N I S

It consists of two parts: The root and the body.

### i. The Root of the Penis:

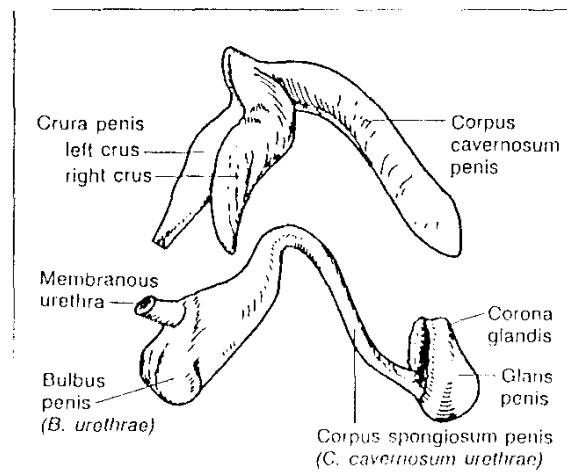
Consists of the three masses of erectile tissue which lie in the urogenital triangle of the perineum. They include the two crura and the bulb of the penis, which are firmly attached to the margins of the pubic arch and the perineal membrane respectively. The crura and bulb of the penis are the posterior regions of the corpora cavernosa and the corpus spongiosum (Fig. 1).

### The Crus Penis:

Commences posteriorly as a blunt rounded process which is attached to bone immediately anterior to the ischial tuberosity. Anteriorly, it converges towards its fellow in the median plane. Near the inferior border of the symphysis pubis, the two crura bend sharply down wards and forwards to become continuous with the corpora cavernosa.

### The Bulb of the Penis:

Occupies the interval between the two crura and is firmly connected to the inferior aspect of the inferior fascia of the urogenital diaphragm from which it receives a fibrous investment. It narrows anteriorly to become continuous with the corpus spongiosum. Its convex external



**Fig. (1)**

Illustration of the components of the penis

(E.J. Keogh, 1991).

surface is completely overlapped by the bulbospongiosus, its flattened internal surface is pierced above its centre by the urethra, which traverses its substance to reach the corpus spongiosum.

**ii. The Body of the Penis:**

Is composed of three elongated masses of erectile tissue which are capable of considerable elongation and enlargement when they are engorged with blood during erection. These masses are the right and left corpora cavernosa and the corpus spongiosum.

**The Corpora Cavernosa:**

Form the greater part of the body of the penis. Along their length they are in close apposition with each other being surrounded by a common fibrous envelope and separated only by a median fenestrated fibrous septum.

On the urethral surface they show a wide median groove, adjoining the corpus spongiosum and on the dorsal surface, a similar but narrower groove contains the deep dorsal vein. The two corpora cavernosa do not reach the end of the penis but terminate within the hollow internal aspect of the glans penis. Proximally, each is continuous with the corresponding crus penis.

The corpora cavernosa are surrounded by a strong fibrous envelope (the tunica albuginea) consisting of superficial and deep strata. The superficial fibres are longitudinal and form a single tube which encloses both corpora. (Fig. 2).

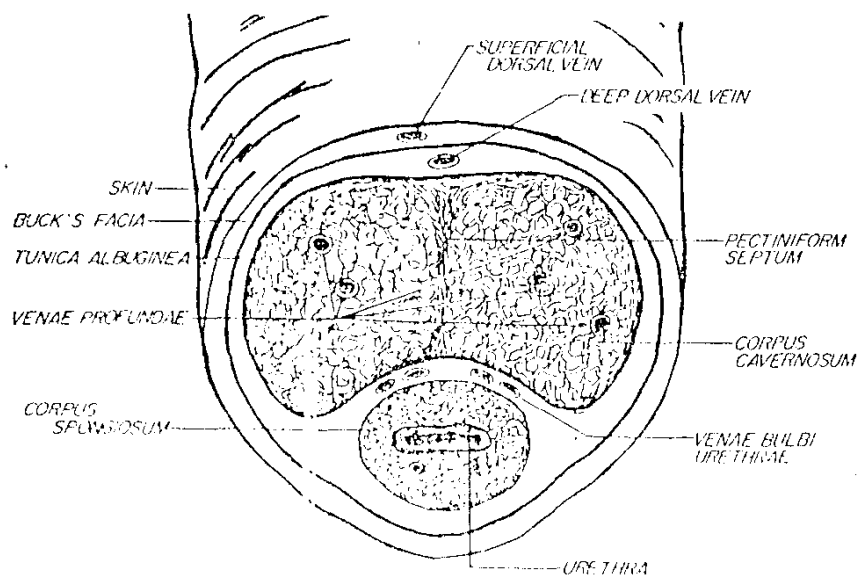
The deep fibres are arranged circularly and surround each corpus separately and form by their junction in the median plane the septum of the penis.

This septum is thick and complete proximally, but imperfect in the more distal region of the penis.

**The corpus spongiosum:**

Lies in the median groove on the urethral surface of the conjoined corpora cavernosa. It is traversed throughout its whole length by the spongy urethra. It is surrounded by the tunica albuginea. It ends near its distal end in the glans penis. The base of the glans has a projecting margin, the corona glandis. The navicular fossa of the urethra lies within the glans and opens by a sagittal slit on its apex.

The skin covering the penis is thin, dark and loosely attached to the fascial sheath. At the neck of the penis it is folded upon it self to form the prepuce which overlaps the glans.



**Fig. (2)**

Schematic drawing of cross section of the shaft of the penis  
 (Velcek and Evans, 1982).