شبكة المعلومات الجامعية

# بسم الله الرحمن الرحيم


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# التوثيق الالكتروني والميكروفيلم

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## التوثيق الإلكتروني والميكروفيلم

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## نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات


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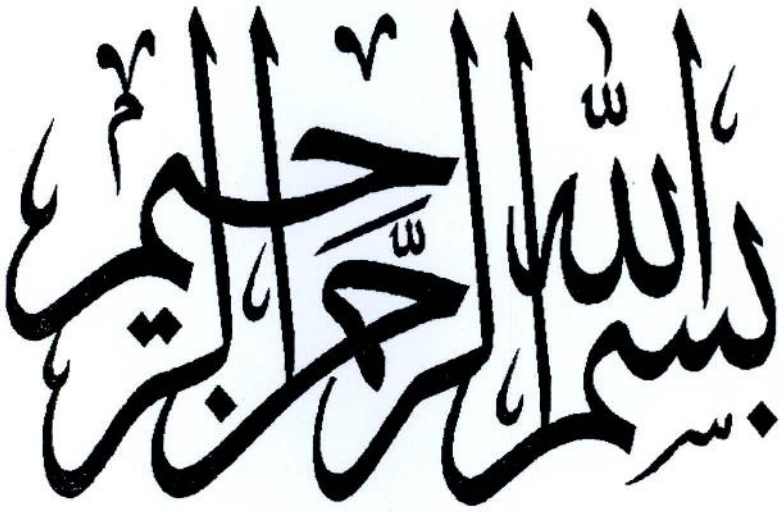
بسم الله الرحمن الرحيم

# THE USE OF ALPROSTADIL [PROSTAGLANDIN $E_1$] INTRACAVERNOSAL INJECTION FOR ASSESSMENT OF PENILE HEAMODYNAMICS IN IMPOTENT DIABETICS.

Thesis
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in partial fulfillement of the requirements of the
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# *INTRODUCTION*

# INTRODUCTION

Impotence is the consistent inability to achieve or sustain an erection of sufficient rigidity for sexual intercourse.[1]

The penis is the male organ of copulation. The normal condition of the human penis is to be flaccid. It is only during rapid eye movement during sleep, sexual or reflex stimulation that the penis becomes erect. It is that shift of state, from flaccid to erect to make the act of copulation possible, that has been the focus of attention for many centuries. It is only in the last twenty years that the physiologic process of erection has been carefully studied by modern science and just in the last few years that the newest field of molecular biology has been implemented. [2]

## Anatomy of the penis: (Figure 1)

It comprises an anchored portion, termed the radix or root, and a free pendulous portion, termed the corpus or body, which is completely enveloped in skin. The bulk of each is composed of three cylindrical masses of tissues, i.e. two corpora cavernosa and a single ventral corpus spongiosum.

### 1- Corpora cavernosa:

The composition of the penis has been described as three cylindrical erectile bodies bound together and surrounded by connective

tissue. Two of the three bodies, the paired corpora cavernosa, are arranged side by side in the dorsal part of the penis.

The corpora cavernosa, but not the corpus spongiosum, are covered by a thick fascial layer, the tunica albuginea which is a multilayered structure comprised of alternating bands of circular and longitudinal collagen. It is important in maintaining the structural integrity of the penis.

The midline septum consists of vertical bands of collagen that allow free access of blood from one side of the corpora to the other.

The tunical surfaces of the corpora cavernosa are fused in the midline except proximally, where they separate to form the tapered crura. The crura are firmly bound on each side to the periosteum of the ischeal rami. The crura are covered on their caudal surfaces by variable quantities of striated ischiocavernosi muscles.[3]

**2- Corpus spongiosum:**

It is a single erectile body, lies ventrally, in a median groove created by the paired cavernous bodies. The corpus spongiosum encloses the urethra and expands distally to form the glans penis.

At its proximal end, the spongiosum expands to form the bulb of the penis. The striated bulbo-cavernosus muscle covers the bulbous urethra. [3]

**3- The skin:**

The skin covering the penis is thin, loosely bound to the shaft, free of adipose tissue, and pigmented on its dorsal surface, along the median raphe.

**4- Fascia:**[3]

***a- Superficial fascia:***

Thin layer of connective tissue with scattered smooth muscle cells and elastic fibres. It is directly contiguous with that of the scrotum.

***b- Deep fascia: (Buck's fascia)***

It is a thin, strong layer that envelops all three erectile bodies from the base of the glans to the bony attachment at the root.

The cavernous bodies themselves are enveloped by a dense, fibrous envelope, the tunica albuginea. The deeper fibres of the tunica surround each corpus cavernosum individually and converge medially to form the septum of the penis.

The corpus spongiosum is covered by its own tunica, which is thinner and more elastic than that of the corpora cavernosa. The glans has no fibrous sheath but contains much fibrous connective tissue.

**5- Ligaments:** [3]

The weight of the penis is supported by two fibrous bands:

***a- fundiform ligament:***

It is more elastic and is a direct continuation of the deep subcutaneous fascia of the anterior abdominal wall. It splits dorsally to

surround the body of the penis and becomes interspersed in the superficial penile fascia.

***b- Suspensory ligament:***

It is a triangular ligament, lies deep to the fundiform. It arises from the anterior surface of the pubic symphysis and extends to the dorsum of the penis, where it attaches to the deep penile fascia on both sides.

**6- Parenchyma:** [4]

The corpus cavernosum tissue is composed of a fibromuscular trabecular meshwork forming cavernous lacunae. Trabecula vary greatly in dimension, showing a dense packing of unit of collagen fibrils, randomly bundles of smooth muscle with intervening fibrocytes, elastic fibers, small blood vessels and nerve elements.

An endothelium lines the confluent lacunea. The endothelium shows short clefts or in folds of endothelial cytoplasm and rests upon a complete basement membrane.

## Arterial supply: (Figure 2)

The arterial supply to the penis originates from internal pudendal artery. It is the smaller of the 2 terminal branches of the anterior trunk of the internal iliae artery. It leaves the pelvic cavity and enters the gluteal region and as it passes through Alcock's canal (pudendal) in the ischiorectal fossa it becomes the penile artery,[4] which gives the following branches: