USE OF ORAL MUCOSA GRAFT IN URETHROPLASTY

Thesis

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in Urology

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List of Contents

List of Figures

List of Tables

Table No. ***Title*** ***Page No.***

List of Abbreviations

BMG ……Buccal Mucosa Graft

BXO ..... Balanitis Xerotica Obliterans

C&S ..... Culture & Sensitivity

Fig. ..... Figure

FTG ..... Full Thickness Graft

LSA ..... Lichen Sclerosus Atrophicus

LMG……. Lingual Mucosa Graft

OMG ..... Oral Mucosa Graft

P-value..... Probability Value

RUG ..... Retrograde Urethrogram

SD ..... Standard Deviation

SPSS ..... Statistical Program for Social Science

STG ..... Split Thickness Graft

INTRODUCTION

Reconstruction of the urethra has continued to present an enormous challenge for urologic, pediatric and plastic surgeons as diverse opinions have been expressed on the quality and type of ideal substitution material. The unique demands of the urethra set a high standard for autogenous graft substitutes **(Eppley et al., 1997).**

In 1993, El-Kasaby et al. used oral mucosal graft from the lower lip for treatment of penile and bulbar urethral strictures in adult patients.

In 1996, Morey and McAninch reported indications, operative technique, and outcome in 13 adult patients with complex urethral strictures in which oral mucosa was used as a non-tubularized onlay graft for bulbar urethra reconstruction. Since that time, oral mucosa has become an increasingly popular graft tissue for penile or bulbar urethral reconstruction performed in single or multiple stages **(Morey and McAninch, 1996a).**

Oral mucosa has received increased attention in the field of urological reconstructive surgery as it is readily available in all patients and is easily harvested from the cheek with a concealed donor site scar with low

postoperative complications and high patient satisfaction **(Barbagli et al., 2010).**

Moreover, oral mucosa is hairless, has a thick elastin-rich epithelium which makes it tough yet easy to handle, and has a thin and highly vascular lamina propria which facilitates inosculation and imbibitions **(Markiewicz et al., 2007a).**

Buccal Mucosa graft is harvested from the inside of the cheek and may be associated with donor site morbidity like mental nerve neuropathy and damage to Stensen's duct. Furthermore in a few patients requiring near total urethral reconstruction additional tissue may be required. The mucosa covering the undersurface of the tongue is identical in structure with that lining the rest of the oral cavity and has recently begun to be explored for urethral reconstruction with promising results **(Simonato et al., 2006).**

AIM OF THE WORK

To evaluate the donor site morbidity after using the oral mucosa graft in urethroplasty.

ANATOMY AND BLOOD SUPPLY OF THE URETHRA AND PENIS

Male Urethra

The male urethra may be divided into proximal (posterior) and distal (anterior) segments **(Velasquez et al., 2007).**

The proximal segment is comprised of prostatic and membranous portions, while the distal segment is made up of bulbous and penile (pendulous) segments **(Fig. 1).** The prostatic urethra is 3–4 cm in length, is formed at the bladder neck and exits the prostate at the apex, where it is continuous with the membranous urethra; it is lined by transitional epithelium. The membranous urethra is 2–2.5 cm in length; it is the shortest segment of the male urethra. It is lined by stratified/pseudostratified columnar epithelium and is surrounded by skeletal muscle fibers of the urogenital diaphragm (external urethral sphincter). The bulbous urethra has a larger luminal caliber than the prostatic or membranous urethra, and extends within the bulb of the corpus spongiosum from the distal margin of the urogenital diaphragm to the penile urethra **(Fig. 2).** The lining epithelium is identical to that of the membranous urethra, being of a stratified/pseudostratified type. The ducts of Cowper's (bulbourethral) glands, which are

embedded in the urogenital diaphragm, open into the posterior aspect of the bulbous urethra **(Fig. 3).** The penile urethra extends to the tip of the glans penis at the urethral meatus. It is surrounded in its entire length by the corpus spongiosum. The distal 4–6 cm of the penile urethra is a saccular dilatation termed the fossa navicularis that terminates at the urethral meatus **(Epstein et al., 2011).**

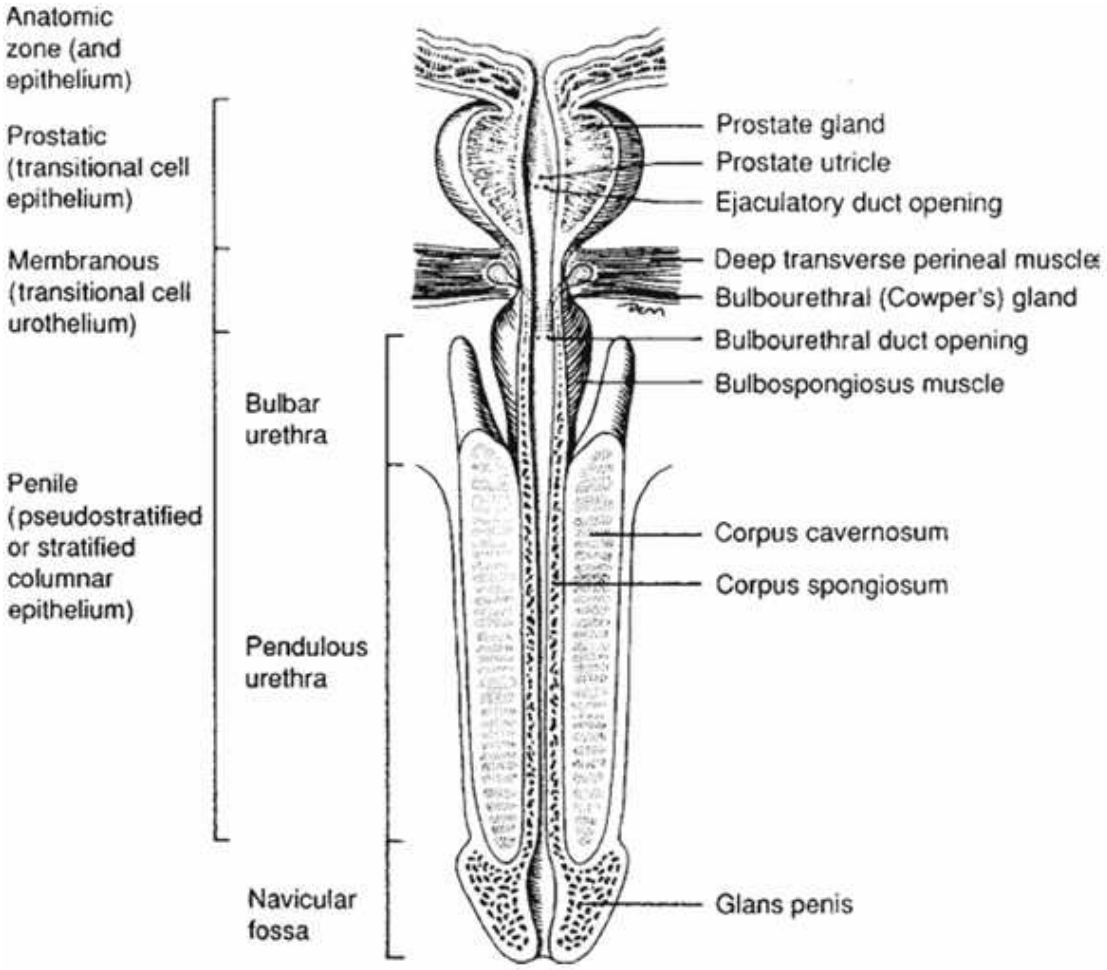

Fig. (1): Anatomy of the male urethra (**Carroll and Dixon, 1997).**

There are five layers of the anterior urethra: urethral epithelium, lamina propria, corpus spongiosum, tunica albuginea, and Buck's fascia **(Young et al., 2000).**

Most of the penile urethral lining is a stratified/ pseudostratified columnar epithelium, whereas the distal penile urethra, including the fossa navicularis, is lined by ciliated stratified columnar epithelium or stratified non keratinizing squamous epithelium. The lamina propria of the penile urethra is a fibroconnective tissue with elastic fibers and scattered, longitudinally oriented smooth muscle.

Urethral innervation is mainly by the dorsal nerve of the penis **(Yucel and Baskin, 2003a).**

Branches of the perineal nerve can supply the periurethral area in some men **(Velasquez et al., 2007).**

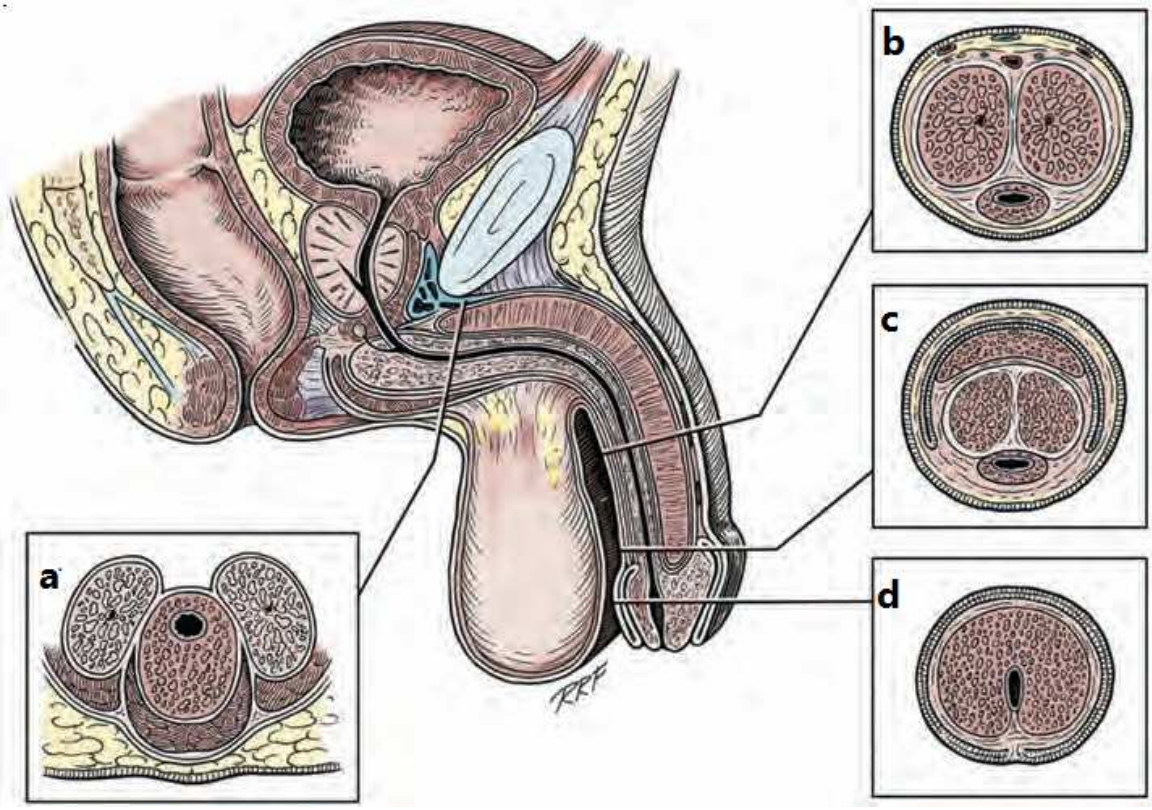

Fig. (2): Cross sections of the anterior urethra. (a**)** The bulbous urethra. (b**)** Penile shaft. (c**)** Coronal margin. (d**)** Glans **(Jordan, 1996).**