# COMPARATIVE STUDY BETWEEN DYNAMIC VERSUS STATIC STITCH, AS A SIMPLE TREATMENT FOR BURIED PENIS

**THESIS**

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" قالوا سبحانك لا علم لنا إلا ما علمتنا

إنك أنت العليم الحكيم "

صدق الله العظيم

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**Mostafa Nasr**

**To**

**My**

**Family**

**&**

**My**

**Friends**

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# Abstract

Buried penis is an entity that belongs to a group of conditions referred to as inconspicuous penis. Which is a phallus that is or only appears to be small ***(Maisels et al., 1986).*** The buried penis itself is otherwise normal in size but buried in the prepubic fat.

The etiology is not completely clear; however it could be explained by many theories one of which is poor attachments between the shaft skin and underlying fascia.

In this study an anchoring technique was used to suture the penile skin to Buck's fascia (dynamic stitch) or to pubic bone periostium (static stitch).

Forty six patients were included and randomly allocated between 2 groups: A (dynamic) B (static). We did not find any significant relation between the age of the patient and the results or the complications, denoting that the optimal age of intervention is at the time of presentation.

An acceptable operative time ranging from 20-35 minutes and 25-40 minutes for both groups respectively.

In group A, the two anchoring stitches were taken at 3 and 9 O'clock positions between the deep dermis of degloved penile skin at the penopubic angle to the Buck's fascia at the same level using delayed absorbable material (Vicryl 4/0) while in group B; the deep dermal stitches were fixed to the periosteum of the pubic bone instead.

Most of the results were in favor of simple (the dynamic stitch) technique denoting its superiority, using delayed absorbable stitch and the optimal time of intervention is at the time of presentation.



## Key Words:

- Inconspicuous Penis
- Buried Penis
- Trapped Penis
- Concealed Penis

# Introduction

Buried penis is an entity that belongs to a group of conditions known as inconspicuous penis. Inconspicuous penis is a term used for a phallus that is – or only appears to be – small, with seven conditions included under this term ***(Maisels et al., 1986).*** These conditions are; poor penile suspension, webbed penis, trapped penis, concealed penis, diminuted penis, micro-penis and buried penis ***(Klauber Sant, 1985).***

The literature on this subject is confusing because various authors use the terms inter-changeably. *The poor penile* crura *suspension* to the pubic bones leads to imperfect support of the penile shaft and hence its abnormal appearance. *Webbed penis* consists of a midline skin web and/or dartos bands at the peno-scrotal angle, which bind the ventrum of the penis to the scrotum. This obscures the peno-scrotal angle and the penis as well ***(Shepard Wilso & Sallade 1980).*** *Trapped penis* is characterized by the shaft being bound down in a scar tissue and thus becoming embedded or imprisoned in the scrotum and/or the pre-pubic fat ***(Kilauber Sant, 1985).*** *Concealed penis* is a phallus that is normal but hidden behind overhanging supra-pubic fat in extremely obese individuals ***(Wollin, et al., 1990).***

The penis may be small and malformed as a result of epispadius, extrophy, sever hypospadius or chromosomal abnormalities. This category is referred to as *diminutive*

*penis* and should be differentiated from *micro-penis*, which is small but not malformed *(Klauber Sant, 1985).*

The term buried penis was initially described by Keyes in 1919. It consists of a penile shaft that is otherwise normal, but obscured within an overabundance of pre-pubic fat *(Keyes, 1919 and Duckett, Snow, 1986).*

It is important to be aware of this group of disorders for three reasons; *firstly,* routine circumcision is certainly contraindicated in some, *secondly*, the abnormal appearance of the external male genitalia may have a psychological impact on children and their parents; and *thirdly* some cases may be associated with sexual dysfunction, pain, and/or abnormalities of the urinary stream.

Treatment of patients with buried penis can be quiet challenging, and different treatment modalities were described. Theses modalities ranged from simple weight loss, liposuction, lipectomy, to direct surgical maneuvers to the phallus itself *(Devine 1989).*

**Objective:**

The aim of this work was to compare two techniques for treating the buried penis patients using either Buck's fascia stitch (dynamic) or periosteal stitch (static) and to assess the validity of using delayed absorbable instead of non-absorbable suture material.

# Embryological Anatomy of the penis

The genetic sex of the individual is established at fertilization, and depends on whether Y or X chromosomal sperm fertilizes the X-chromosomal ovum resulting in (XX or XY) sex chromosomal complex. The Y-chromosome, through its testis-organizing H-Y antigen factor, provides the strong testicular differentiating influence on the medulla of the indifferent gonads. In the developing testes, the primary sex cords are transformed into seminiferous tubules. Further sexual differentiation of the genital ducts and the external genitalia depends on the type of the gonads. Developing testes secrete two substances: the *first* is the androgene testosterone, that determines the maleness of the internal and external genitalia, and the *second* is the Mullerian inhibiting factor that causes involution of the female internal genital structure. Thereafter, the genital tubercle rapidly grows into an elongated and enlarged phallus which is the penis ***(Jost, 1971).***

**Development of the male external genitalia (Figure 1):**

The developing penis elongates almost perpendicular to the anterior abdominal wall, pulling the urogenital and urethral folds ventrally. Between the urethral folds on the ventral aspect of the penis, the urethral groove is present, which becomes deeper and lined by a proliferating layer of endodermal cells called the urethral plate. The urethral plate extends distal to the urogenital ostium of the phallic portion of the urogenital sinus. With proliferation of the urethral folds and deepening of the urethral groove, the urethral folds begin to fuse along the ventral aspect of the penis. The original urogenital ostium moves distally with progressive fusion of the urethral folds and formation of the phallic urethra ventrally. Whereas the urogenital ostium moves progressively distally toward the glans forming the external urethral

orifice, the ectodermal prominence along the line of fusion of the urethral folds forms the median raphe of the penis ***(Jones, 1919).***

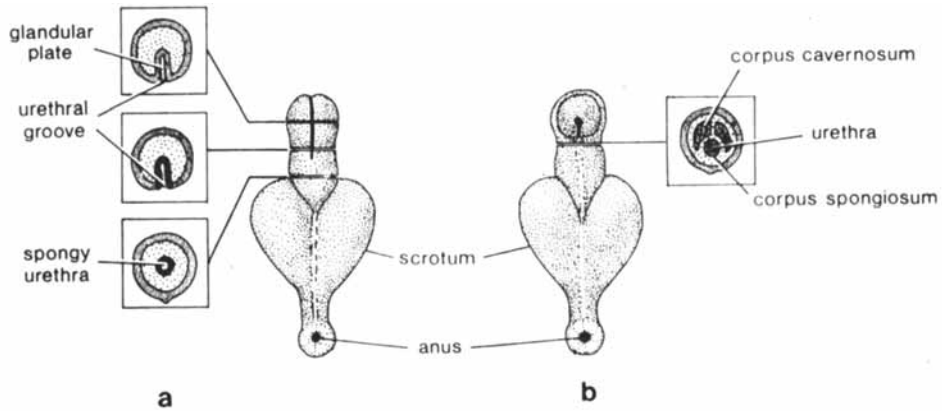


***Figure (1):*** a) Formation of the phallic urethra with progressive closure of the urethral folds. b) Mesenchymal differentiation into corpus spongiosum and corpora cavernosa ***(Quoted from Aizid, Sakti, Das, 1993).***

The mesenchymal tissue surrounding the developing urethral tube condenses to form the corpus spongiosum, which expands at the tip of the phallus as the glans penis. Proximally, several buddings from the urethra develop as bulbo-urethral ducts and glands into the corpus spongiosum. Dorsally, the proliferation and consolidation of mesenchymal tissue is divided by a midline septum into the two compartments of corpora cavernosa *(Glenister, 1956).*

The developing preputial fold rolls over the base of the glans progressing towards the tip. An in-growth of a sheath of epithelium called

glandular lamella proliferates in the groove between the glans and the nascent prepuce. Active proliferation of the cells of the glandular lamella proximally inside that groove pushes the preputial fold distally **(Figure 2).** Additionally, mesenchymal growth between the layers of the prepuce carries it farther beyond the tip of the glans penis. At about the 16$^{th}$ week, break down of the epithelial layer of the glandular lamella and its splitting into two layers, create the preputial cleft between the glans and the prepuce. This process begins distally and continues proximally and is not complete until early childhood ***(Hinman, 1991).***


***Figure (2):*** In-growth of glandular lamella in the groove between the glans penis and preputial fold with its subsequent breakdown forming the preputial cleft (drawn after Hinman) ***(Quoted from Aizid, Sakti, Dos, 1993).***

# Gross anatomy of the penis

The penis is composed of three spongy cylinders encased in a fascial sheath (Buck's fascia) **(Figure 3).** The extremely loose penile skin and subcutaneous connective tissue permit considerable elongation and expansion of the corpora within their coverings. The three cylinders are the paired corpora cavernosa and the single corpus spongiosum ***(Aizid, Sakti & Das, 1993).***

The corpus cavernosum consists of a thick fibro-elastic sheath (tunica albuginea) and a spongy erectile tissue. The crura (roots) of the corpora cavernosa arise from the inferior pubic rami and join at the hilum of the penis to form the pendulous portion. A fibrous fascial sheet (suspensory ligament) attaches the hilar portion of the corpora cavernosa to the periosteum of the pubic bone to support the penis.

The urethra-containing corpus spongiosum lies in the ventral groove formed by the paired corpora cavernosa. Its expanded proximal portion (the bulb) is attached to the inferior layer of the urogenital diaphragm. Distally the corpus spongiosum expands to form a conical mass (the glans penis). The tunica albuginea of the corpus spongiosum is much thinner than that of the corpora cavernosa, and at the glans penis it is practically absent. The three corpora and the penis are composed of multiple blood-filled cavernous spaces (sinusoids) separated by trabeculae of supporting connective tissue containing smooth muscle cells, arterioles, venules, and terminal nerve endings. The sinusoids are lined with endothelial cells with a possible secretory function, which may be important in the erectile process ***(Aizid, Sakti, Dos, 1993).***

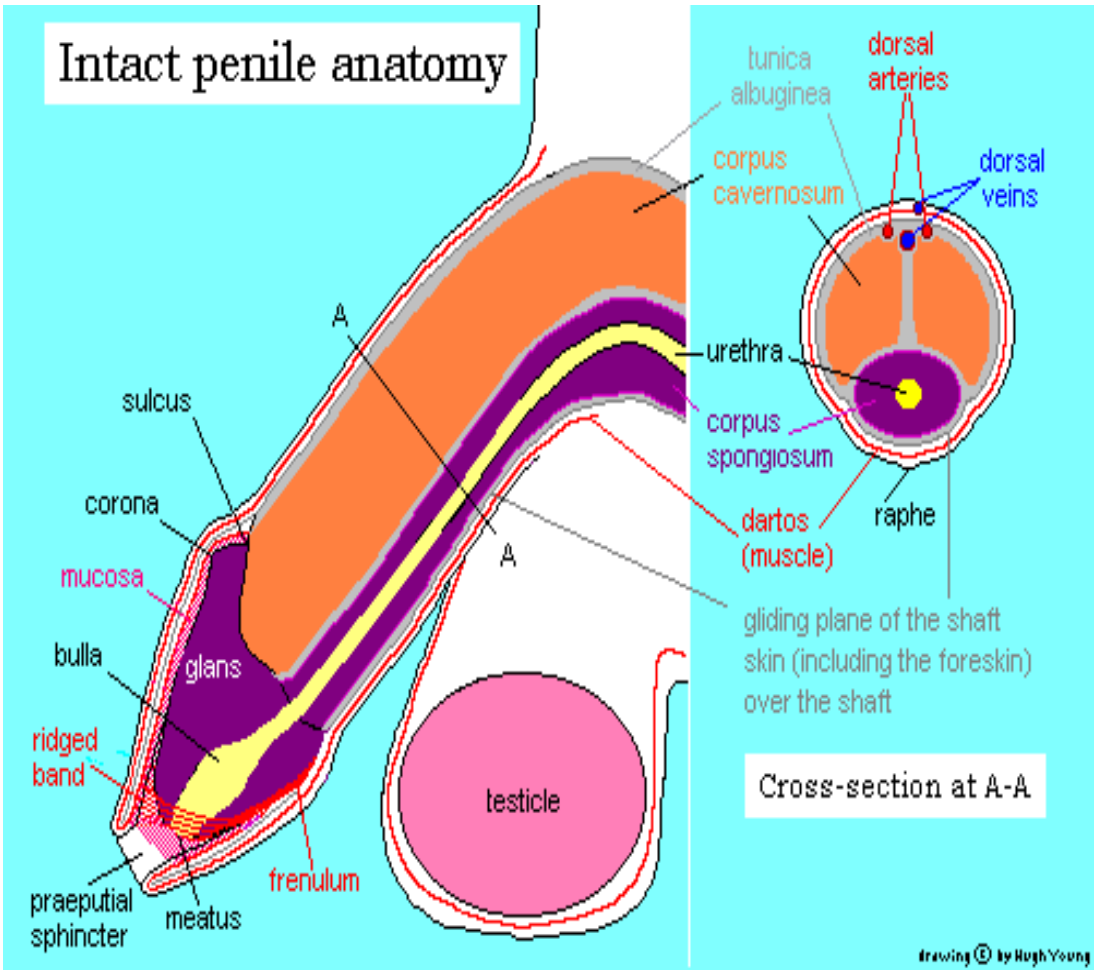


***Figure (3):*** Anatomy of the penis
***(Quoted from www.emedicine.com)***