Review Article

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PENILE ENHANCEMENT PROCEDURES: UROLOGICAL AND ETHICOLEGAL ISSUES.

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SUMMARY

Phalloplasty procedures for most men requiring penile augmentation surgery are cosmetic procedures; generally the patients have a normal-sized and fully functional penis but they think that their penis is too small. There are not well defined indications for penile enhancement surgery and, except for the treatment of "micropenis", there are not established guidelines and the outcome measures for success are still unclear. All penile enhancement techniques often do not reach the expected result and the grade of patient's satisfaction is frequently poor. Phalloplasty procedures for psychological dysmorfism are not approved by any scientific society and the majority of these procedures are performed in private settings. The ethical and medicolegal problems resulting from a penis enhancement can be various and numerous, but few of them are reported in literature. After phalloplasty an attribution of professional responsibility and request of reimbursement is not rare. In this contribution the authors summarize a panorama of several urological and medico-legal aspects related to phalloplasty procedures.

Introduction

Penis size has been always a cause of anxiety for some men who would like to have a bigger penis.

Historical and cultural backgrounds all over the world underline that for many men the size of their penis is an important issue. In ancient times some tribes used weights, piercing or tattoos into the glans and the skin of the penis in order to stimulate and amaze the partners. Surprisingly this technique is also used nowadays. Figure 1 shows the penis of a young man who request the insertion of two little silicon balls on both sides of his penis. Some men believing that their penis is too small tried to change the size of the penis through physical and surgical proceedings (1,2).

The aim of our review is to describe the "small penis syndrome" (SPS), a form of dysmorfophobia, in which the men have normal-sized penis but suffer they think the size is too small, in contrast to men who have a truly small penis (micropenis). We also analyze

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urological aspects and medico-legal issues related to phalloplasty procedures.

Material and methods

We reviewed literature about the definition of "micropenis" and "small penis syndrome' (SPS); we summarized suggested treatments, their values and their limits and we define appropriate diagnostic methodology and correct approach, respecting the fundamental rights of patients.

Penis size is variable depending on the method of measurement and the study populations. The length and girth of a flaccid penis ranges between 7.6 and 13 cm in length and between 8.5 and 10.5 cm in circumference. The length and girth of an erect penis ranges between 12.7 cm to 17.7 cm in length and 11.3 to 13 cm in circumference. (3,4) Penile length significantly increases during the gestational age (6 mm at 16 weeks to 26.4 mm at 38 weeks) (5) and during the first 3 months of life. During the childhood, penile length increases slowly until adolescence when the length increases extensively until it reaches the final size. The normal penile size in a full-term male neonate is 3.5 ± 0.7 cm in the stretched length and 1.1 ± 0.2 cm in diameter compared with 13.3 ± 1.6 cm in adulthood (6). The length of stretched penis corresponds to the length of erect penis. A penis shorter than 2.5 standard deviation (SD) is defined as "micropenis" and for this condition exists a consensus about the need for a possible surgery phalloplasty procedure. The causes of micropenis are both hypogonadotropic and hypergonadotropic hypogonadism, or idiopatic. Sometimes micropenis may be associated with major chromosomal defects. Tab 1 shows the key point related to micropenis. Micropenis is different from inconspicuous penis in which the penis appears small, but, when stretched, the penis length is normal (figure 2). Inconspicuous penis includes buried penis, also called hidden penis, and webbed penis. Buried penis is a normally developed penis that is hidden by the suprapubic fat and obesity is the most frequently cause. A poor penopubic fixation at the base of the penis and a scar after penile surgery may determine an hidden penis. Webbed penis is also known as penoscrotal fusion and may be congenital or acquired following penile surgery or extensive circumcision. Also for inconspicuous penis there is indication for phalloplasty procedures. Most of men requiring phalloplasty think that their penis is too short and thin, while their penis is really normal or included in the standard deviation range of measurement. This condition is best known as "small penis syndrome" (SPS) that is a dysmorphophobia, an obsessive disorder where the

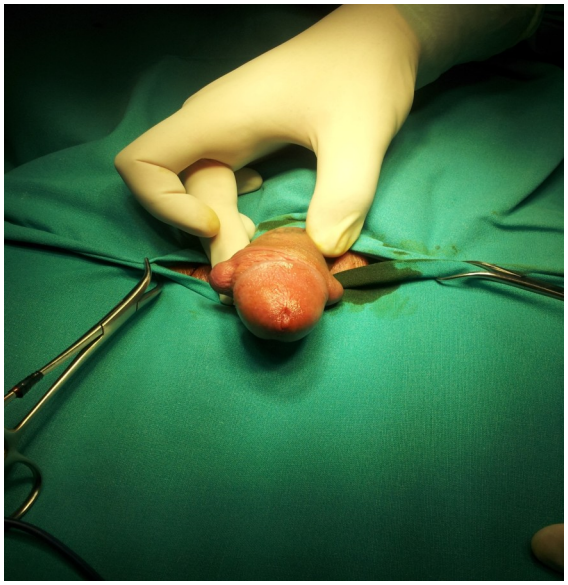

Figure 1: Small silicon balls on each side of the foreskin for cosmetic reasons. After few months the patient required the removal. Personal observation.

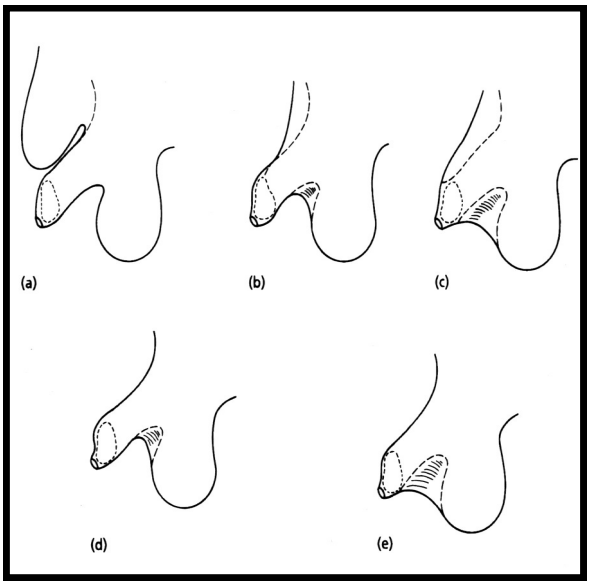

Figure 2: Inconspicuous penis: Buried and Webbed penis. a, b Buried penis. c Mixed Buried and Webbed penis. d,e Webbed penis.

patient has a fixation on an imaginary flaw of his physical appearance. People affected to this syndrome may develop major depressive episodes and frequently tend to avoid social life and intimate relationships. In some cases these patients believe that a change of their penis size is a prerequisite for their happiness and well-being (7). These patients, looking for a solution to their imaginary problem, frequently use internet pages or junk science as font of informations and often, after underwent phalloplasty surgery procedures, they are still unsatisfied.

Phalloplasty procedures

Phalloplasty procedures that have been described in literature are numerous (3,8) and can be schematically divided into "penile lengthening procedures" and "penile girth procedures" (table 2).

Penile lengthening procedures:
Liposuction of pubic fat

Sometimes the penis may appear shorter because it is covered by an abundant pubic or abdominal fat. This condition is also called "hidden penis". However abdominal/ pubic liposuction and suprapubic lipectomy is a safe approach that can result in a cosmetic visual lengthening effect of the penis. This procedure is often made as part of other procedures of phalloplasty.

Micropenis
• Micropenis is a normally formed penis that is at least 2.5 SD below the mean size in stretched length for age (i.e., <1.9 cm in a term neonate). A buried penis must be differentiated from a micropenis, with the former having a normal penile stretched length.
• The most common causes of micropenis are hypogonadotropic hypogonadism, hypergonadotropic hypogonadism (primary testicular failure), and idiopathic.
• Evaluation includes karyotype; determination of serum LH and FSH concentrations; measurement of testosterone levels before and after hCG stimulation; serum studies of anterior pituitary function; MRI of the head to assess the hypothalamus, anterior pituitary, and midbrain; and assessment of penile growth after androgen stimulation.
• If the penis does not respond to testosterone, gender reassignment is an option, but this is controversial.
• In adulthood, most men born with micropenis have male gender identity and satisfactory sexual function, even if penile size is less than what is considered in the normal range.

Table 1: key-point related to micropenis. (Mod from Campbell - Walsh Urology X edition 2012, Elsevier Saunder)

Suspensory ligament dissection

The suspensory ligament of the penis allows the vaginal penetration stabilizing the penis at a required position. The dissection of this ligament from the periosteum of the pubic bone allows forward movement of the corpora. In this way a flaccid penis may extend closer to its erect length, but this increase is minimal and sometimes there could be an unaesthetic scar (figure 3) and a iatrogenic shortening.

Skin flaps

The skin flaps allow to advance penopubic skin, that sometimes could prevent a major extension of the penis, into the penile shaft. It is usually part of an elongation procedure, necessary to cover the extended penis with additional skin, or it could be performed in all the conditions where skin shortage is apparent (ie, overly aggressive circumcision). The most used technique is the "inverted V-Y", in combination with a suspensory ligament dissection, in order to recreate a new forward ligament using lateral skin flaps.

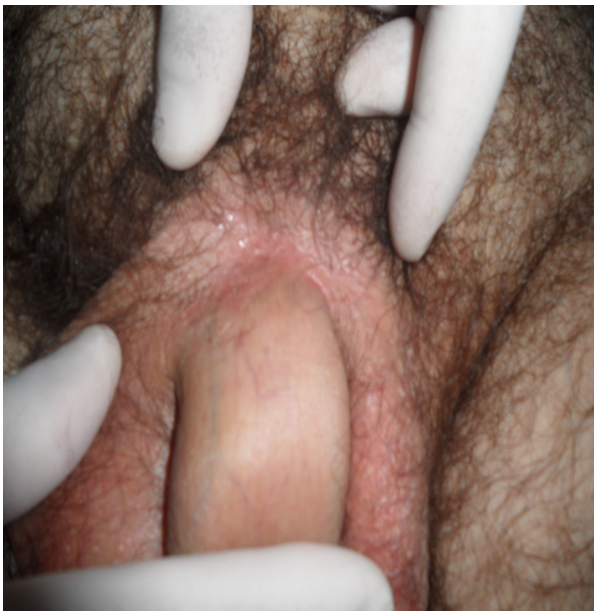

Figure 3: Poor results of surgical procedure of "Suspensory ligament of the penis dissection and autologous fat injection", in a 30 years old man, one year later the treatment. The patient signed a generic module of informed consent and he underwent the surgical procedure only after few days. Legal claim was acted by the

Penile girth enhancement:
Injectable materials

The injection of different materials, like autologous fat, silicon and hyaluronic acid gel could be performed in order to enhance penile girth.

The injection of abdominal fat obtained by liposuction may increase penile circumference. The complications, such as curvature or asymmetry of the penis and the formation of nodules (figure 4), are frequent and are caused by fat necrosis and reabsorption.

Silicon injection may be used through liquid injectable silicone (LIS) at a volume of 100 – 150 ml, in order to achieve some change in penile girth. Following silicone injection serious complications may occur, some of which are related to the large volumes that were injected and others of which are due to drifting and distant migration, swelling, penile distorsion, idiosyncrasia, late granulomatous reaction. Additionally, injection of LIS into the penis may cause loss of sensation and erectile dysfunction secondary to a damage of penile blood vessels and nerves.

Recently it has been performed hyaluronic acid gel injection into the glans penis in order to increase its circumference. The results have been satisfactory and not burdened with major complications.

Graft procedures

Graft procedures used to date are: dermal fat grafts, allografts and venous grafts.

Dermal fat graft is made by removing epidermis from the skin, leaving the other layers and the underlying subcutaneous tissue. Complication rate is high. Curvature, shortening and asymmetry of the penis may occur such as persistent postoperative penile edema and induration, venous congestion and possible skin injury.

The Allografts are performed by inserting alloderm, that is an acellular dermal matrix

Penile lengthening procedures	Penile girth enhancement
Liposuction of pubic fat	**Injectable materials** *abdominal fat* *silicon* *hyaluronic acid gel*
Suspensory ligament dissection	**Graft procedures** *dermal fat grafts* *allografts* *venous grafts*
Skin flaps	

Table 2: procedures of phalloplasty.

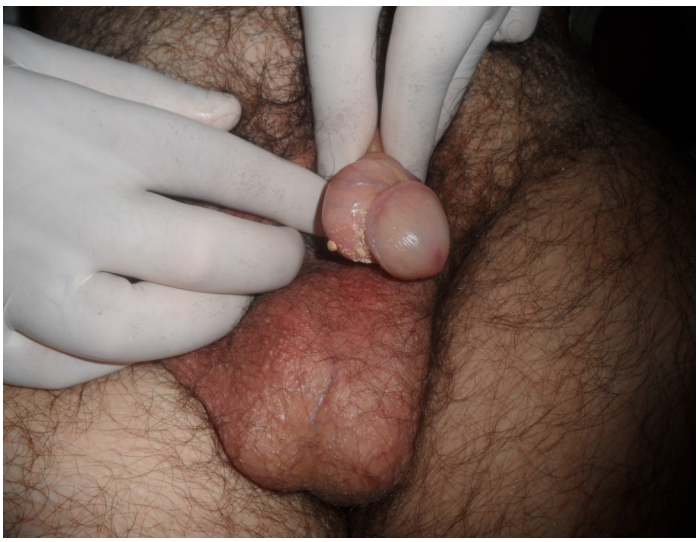

Figure 4: Nodules on the inner layer of the foreskin following abdominal fat injection. Ten month after the procedure. The patient advanced medico-legal actions. Personal observation.

derived from donated human skin, above the Buck's fascia at the interface with the dartos fascia. Allograft techniques have a low complication rate and include erosion, fibrosis, infection, resorption and skin loss.

Austoni et Al firstly decribed a penile girth enhancement procedure with Venous grafts, placing segments of saphenous vein along the lateral margins of tunica albuginea.(9) The circumference enlargement is present just during the erect state, so it could be recommended in patients with dysmorphophobia related to the erected penis. Even if results are good, this technique is still considered experimental because it has not been largely reproduced.

Ethical-legal issues

Misinformation or lack of information about penis size is really common and it is important to educate the patient about the normal variation in penile size and about the relative importance of the penile size for satisfactory intercourses both for men and for women.

The small penis syndrome is a dysmorphophobia and then the first approach to this problem, after an educational and counselling one, must be psychological. Cognitive behaviour therapy can be useful and fluoxetin or others SSRI have been shown to be effective and better than placebo in treating this type of dysmorphophobia (6). A surgical approach for SPS must be considered only if conservative treatments failed.

Phalloplasty procedures for psychological dysmorfisms are not approved by any scientific society and the majority of these procedures are performed in private settings.

Strictly concerning performed technical approach of phalloplasty, medical literature did not yet perform guidelines on this field of sexual medicine; consequently any intervention must require a carefully evaluation of possibly benefits against dangerous consequences for patient; health definition within WHO (whole patient's wellness in physical, psychological, social spheres) finally justifies a surgical intervention whose object is related to a better sexual patient's life. Worthy of mentioning the schedule of informed consent which should include specific indication about the strong motivation of the patient, the failure of previous conservative treatments and the risks/benefits ratio of any surgical technique. The detailed description of possible complications and side effects and related poor outcomes. The absence or lack of informed consent could indicate a "battery" violation of the duty of care. To contrast retained poor surgical outcomes of phalloplasty, it is imperative to maintain sufficient and clear medical record of previous patient condition, which requires and implies professional secret (10); it has also to bear in mind that cosmetic purpose of phalloplasty requires duty of results , within the Italian Civil rules Code.

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