Surgical Correction of Concealed penis
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Background/Purpose: A concealed penis is defined as a phallus of normal size buried in the prepubic tissue (buried penis), enclosed in scrotal tissue (webbed penis), or trapped by scar tissue after penile surgery (trapped penis). The aim of this study was to detect the etiological factors, clinical presentation and outcome of surgical correction techniques.

Materials & Methods: From January 2003 to January 2008, 20 patients with concealed penis were operated upon. The mean age was 6 years and 8 months. There were 10 patients with buried penis, 7 patients with trapped penis, and 3 patients had webbed penis. The common surgical policy in most of our cases included complete penile degloving, excising the scarring due to previous surgery, fixing the penile skin at the penopubic and penoscrotal angles and reconstructing the penile skin.

Results: Sixteen patients (80%) showed an excellent result as regards to the postoperative length and cosmetic appearance of the penis. Residual redundant penile skin was present in 4 patients (20%) resulting in a bulky penis which was not acceptable by parents. Excision of the excess skin was done after 6 months. Five patients (25%) presented with mild lymphatic stasis of distal shaft that subsided spontaneously within few months. There was superficial infection in 2 cases (10%); it responded to conservative treatment. All patients were followed up for a mean period of 28 months (1-5 years).

Conclusion: concealed penis has a variable etiology and requires a flexible surgical approach. Repair of concealed penis is a simple and effective outpatient procedure which alleviates the initial complaint and provides good cosmetic and functional results with greater satisfaction to the patients and their parents.

Index Word: concealed penis, buried, webbed, trapped.

INTRODUCTION

A concealed penis is an inconspicuous phallus. It is categorized into three subgroups, buried, webbed and trapped penis 1. A buried penis is a normal-sized penis totally buried in prepubic tissue because of lack of skin attachment to the shaft. It can be identified by the absence of the circumferential groove at the base of the penis 2-3. A webbed penis is characterized by a ventral fold of skin that joins the distal shaft and scrotum obscuring the penoscrotal angle 4, while the trapped penis is usually the result of injudicious circumcision of a concealed penis, and less frequently, a result of surgery for other pathologies 5-6.

An abnormal appearance of the external genitalia may have psychological effects on the child and his family. Fear to be discovered and teased by classmates may result in depression, feeling of inadequacy and insecurity. Parents are frequently worried about the future of their child. Early surgical reconstruction may therefore benefit the child and parents as well. It is very important for the primary
care physician to make a correct diagnosis and to promote timely referral. This study was done to review the etiological factors, clinical presentations, best time for surgical correction and outcome of surgical techniques to correct the concealed penis.

PATIENTS AND METHODS

From January 2003 to January 2008, this study included 20 cases of concealed penis. Ten cases (50%) had buried penis, 7 (35%) had trapped penis and 3 patients (15%) had webbed penis. The obese patients with secondary concealed penis were excluded. All cases were evaluated clinically with emphasis on true length of the penis, the presence or absence of the prepuce, the length of penile skin in circumcised patients and presence of any inflammations or cicatrizing scars following circumcision. Establishing the diagnosis of concealed penis and its category, as buried, webbed or trapped, can be done with meticulous clinical examination only; no further investigations were needed for this purpose.

Great care was directed to preoperative penile hygiene especially in buried and trapped penis. During obtaining the informed consent, assessing the expectations of patients and parents was critical.

Surgical Technique

General anesthesia with endotracheal intubation was given to all cases and local anesthesia was avoided as dissection of the surgical planes could then become more difficult.

Buried Penis:
Cases with buried penis were repaired using 2 techniques. In the first 5 cases, a traction suture was applied to the glans, a circumferential coronal incision was done, and by using the Buck's fascia as the plane of dissection, the penis was degloved to the penopubic junction. Sharp dissection of the dysgenetic dartos fibers, to free the penis from its deep tethering, was carried out. Fixation was then performed by placement of absorbable sutures (polyglycolic acid 4/0 to 2/0 according to the patient's age) between the dermis of the skin shaft at the base of the penis and buck's fascia, lateral to the posterior neurovascular bundle and lateral to the urethra, thus restoring the penopubic and penoscrotal angles respectively. The circumferential incision was then closed with absorbable sutures (Fig. 1). In the following 5 cases, a modification of the previous technique (modified scrotal technique) was done.

After complete degloving of the shaft, as mentioned previously, with a circumferential coronal incision, the shaft was drawn out of the cutaneous cylinder through an additional incision made along the scrotal raphe. This maneuver allowed complete resection of the abnormal fibrous bands of dartos and allowed easy placement of absorbable fixation sutures as ventral sutures were easily applied through a transverse incision at the penoscrotal junction. The shaft was then reinserted in the cutaneous cylinder and the skin wounds were closed with absorbable sutures (Fig 2).

Webbed penis:

A transverse incision was made at the penoscrotal junction and, with dissection to the deep fascia, the scrotum is allowed to assume a more caudal position. This was followed by circumferential dissection along the buck's fascia freeing the penis from its deep tethering and excising any abnormal bands. Fixation of dartos fascia and dermis of penile skin to Buck's fascia was done using polyglycolic acid sutures. The scrotal incision was closed longitudinally to create the penoscrotal angle (Fig 3).

Trapped penis:

After excising cicatricial scar that trapped the penis and compete penile degloving, the resultant bare area and remaining penile skin was assessed.

Penile skin was used to cover the penis in 5 patients (Fig 4), while 2 patients had insufficient penile skin and split thickness skin grafting was necessary to resurface the penile shaft (Fig 5).
(a) preoperative buried penis
(b) placement of absorbable fixation sutures
(c) postoperative result

Fig. (1): Buried Penis repair

(a) additional incision along the scrotal raphe
(b) the shaft was drawn out the cutaneous cylinder
(c) complete resection of abnormal fibrous bands with fixation sutures
(d) reinsertion of the shaft in the cutaneous cylinder
(e) closure of cutaneous incision
(f) postoperative result

Fig. (2): Buried Penis repair; modified scrotal Technique

(a) webbed penis
(b) fixation of dartos fascia and dermis of penile skin to buck’s fascia
(c) postoperative result

Fig. (3): Repair of webbed penis
(a) trapped penis  (b) excising cicatricial scar and complete penile degloving  
(c) postoperative result

Fig. (4) : Trapped Penis without Graft

(a) complete trapped penis (b) exposure of the trapped penis  
(c) trapped penis with insufficient penile skin

(d) covering of trapped penis with split thickness skin graft  
(e) early postoperative result  
(f) late postoperative result

Fig. (5): Trapped Penis with Graft
RESULTS
This study included 20 patients with concealed penis. Their ages ranged from 3 months to 15 years (mean age was 6 years and 8 months). Their presentation is shown in table (1). Nine patients (2 with buried and 7 with trapped penis) were previously circumcised. The diagnosis was completely made by clinical examination; no investigations were needed.

All patients underwent surgical repair; 10 patients with buried penis underwent complete penile degloving, excision of the dysgenetic dartos fascia, fixing the penile skin at the penopubic and penoscrotal angles to avoid recurrence, while in the 3 patients with webbed penis, only reconstruction of the penoscrotal angle was performed after excision of the penoscrotal web as normal penopubic angle was already present. Seven patients with trapped penis were treated by excising the cicatricial scar that trapped the penis and in 2 of them extensive scar excision was needed, so they had insufficient penile skin and split-thickness skin grafting was necessary to resurface the penile shaft.

Mean follow – up period was 28 months (1-5 years). Postoperative complications included; hematoma in 2 cases (10%) that resolved completely by conservative treatment within 2 weeks, Superficial infection was present in 2 patients (10%) responded to medical treatment and subsided without any undesirable consequence. Distal shaft skin lymphedema occurred in 5 patients (25%) and resolved spontaneously within a few months. Sixteen patients (80%) showed an excellent result as regards to the postoperative length and cosmetic appearance of the penis and required no additional surgery. Residual redundant penile skin was present in 4 patients (20%) resulting in a bulky penis which was not acceptable by them and excision of the excess skin was done after 6 months.

Table 1: patients characteristics, operative results.

<table>
<thead>
<tr>
<th>Total patients</th>
<th>Buried (n=10)</th>
<th>Webbed (n=3)</th>
<th>Trapped (n=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation:</td>
<td>Hidden penis, Difficult hygiene</td>
<td>Difficulty in directing stream</td>
<td>Bad cosmesis, phimosis, dysuria, dribbling between voids, recurrent UTI</td>
</tr>
<tr>
<td>Pre-repair</td>
<td>2</td>
<td>_</td>
<td>7</td>
</tr>
<tr>
<td>Circumcision</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complications:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Residual redundant skin:</td>
<td>3</td>
<td>_</td>
<td>1</td>
</tr>
<tr>
<td>• Hematoma:</td>
<td>1</td>
<td>_</td>
<td>1</td>
</tr>
<tr>
<td>• Lymphedema:</td>
<td>3</td>
<td>_</td>
<td>2</td>
</tr>
<tr>
<td>• Superficial Infection:</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>Outcome:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pt/Parent Satisfaction:</td>
<td>7/10</td>
<td>3/3</td>
<td>6/7</td>
</tr>
</tbody>
</table>
DISCUSSION

The first description of concealed penis was given in 1919 by Keys. The first attempt at surgical correction of this problem was done by Schloss in 1959 and in 1968, successful correction was performed by Glanz in an adult. Since that time, numerous techniques have been developed (2-3).

A concealed penis is defined as a phallus of normal size buried in prepubic tissue (buried penis), enclosed in scrotal tissue (webbed penis), or trapped by scar tissue after penile surgery (trapped penis), while micropenis represents a penis length less than 2 standard deviations below the mean for age when measured in the stretched state and diminutive penis is seen when the penis is small, malformed or both; secondary to epispadias, extrophy, severe hypospadias or intersex conditions (9). This study included 20 patients with normal sized concealed penis which should be differentiated, before any treatment, from the micropenis or diminutive penis and, as mentioned, this needs only meticulous clinical examination. Concealed penis is not a rare entity as previously thought. More definition, categorization and specification of the management of these cases will raise the awareness of the medical community and lead to better recognition of a larger number of cases.

Most pediatric cases with concealed penis present in neonates or prepubertal boys. The age in this study ranged from 3 months to 15 years. Adolescents presenting with concealed penis are usually obese, and weight loss should be advised (10). Obese patients with secondary concealed penis were excluded from this study. The timing of surgical repair of concealed penis is controversial; some prefer to defer surgical correction until school age while others advocate surgical intervention in infancy, and state that before 3 years of age, surgical correction is important so that the child is able to void while standing during the period of toilet training. We think that surgery may be more helpful earlier rather than later. Surgery at an early age relieves anxiety and improves self confidence.

Indications for surgical repair of concealed penis are numerous, for example, a concealed penis can hamper proper hygiene, trap urine and complicate voiding leading to repeated infections, secondary phimosis or even urinary retention (12-13). In addition, children with concealed penis are at a risk for psychological and social trauma (14).

In our study, 9 patients (45%) were previously circumcised. Circumcision may be a cause of trapped penis. In addition it complicates the repair; as the preputal skin can be used to cover the penile shaft after its release (11). Therefore it is recommended that these boys should not be circumcised until a decision is made regarding the concealed penis.

Numerous techniques have been described for repairing the concealed penis. Variations have been proposed for different presumed etiologies and to simplify the procedure (15-16-17-18-19). The modified scrotal approach, which we used for correction of buried penis, has simplified the complete exteriorization of the penile shaft, with easy control of bleeding and facilitated the application of fixation sutures to create the penoscrotal and penopubic angles. So, the surgeon must be aware of these different techniques to tailor the operative steps to the particular needs and the anatomic aberrations in individual cases.

Many series that reported long-term outcome of pediatric cases found that surgical correction resulted in excellent long-term cosmetic results. Surgery eliminated associated negative feelings, improved penile appearance and facilitated better hygiene (20-21-22). Most of the complications e.g. penile edema or hematoma, and superficial infection are temporary and usually resolve by conservative measures. Reported rates of recurrent retraction, however range from 1-15% and often require re-surgery. Penile shaft edema has been reported in 1-11% and usually resolves spontaneously. Dissatisfaction with cosmesis is possible, but the physician should preoperatively assess for unrealistic expectations (23-24). The mean follow-up in this study was 28 months (1-5 year). Excellent results, regarding the general appearance, accessibility and easy hygiene, could be obtained in 16 patients (80%). Four patients (20%) were not satisfied by the final results due to residual redundant penile skin resulting in a bulky penis.

CONCLUSION

Concealed penis has a variable etiology. Circumcision could be the initial cause or an aggravating factor.
Circumcision should be deferred in these patients until a decision has been made regarding the concealed penis to preserve the preputal skin. Early surgical correction of this problem is advocated; it relieves anxiety and improves self confidence. Numerous techniques have been described for repairing the concealed penis. Variations have been proposed for different presumed etiologies and to simplify the procedure. Surgeons dealing with these cases should have a versatile approach for surgical correction. The concealed penis is not as rare as stated in some reports and raising the awareness of the medical community can lead to better recognition and management of a larger number of cases.

REFERENCES


