

Buried Penis: Review of 16 cases

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Buried penis is an uncommon congenital disorder in which penis is partially or completely hidden within the subcutaneous tissue due to abnormal attachment of the skin to the penile shaft. Sixteen cases of buried penis were managed during a period of 2 years. Two different surgical techniques were employed while dealing with these cases. The aim of the study was to evaluate and compare the results of the two techniques. Age ranged from 6 months to 10 years. Presenting complaint in all the patients was hidden or inconspicuous penis. Preputial unfurling was performed in 5 cases (Group A) whereas 11 patients (Group B) underwent penoplasty devised by Brisson et al. Postoperative follow up was of 6 months. Post operative complications were mainly recurrence, edema and redundant skin. In group A 2 (40%) patients had recurrence and 1 (20%) showed redundant skin where as in group B only 1 (9%) had recurrence, 7 (63%) developed significant edema that settled over 72 hours. Cosmetic result was excellent / good in 2 (40%), satisfactory in 1 (20%) and unacceptable in 2 (40%) cases of group A whereas it was excellent in 6 (54.5%) cases, good in 3 (27.2%), satisfactory in 1 (9%) and unacceptable in 1 (9%) case of Group B. Authors recommend early surgical approach to correct buried penis. Penoplasty is a better option than simple preputial unfurling. Circumcision should always be avoided in children having buried penis.

Key Words: Buried Penis, Penoplasty, Micropenis.

Buried penis is an anomaly in which normal elastic configuration of Dartos fascia is congenitally absent that results in abnormal arrangement of foreskin relative to penile shaft¹. The penile shaft is otherwise normal but inadequate fixation of penile shaft skin at the base results in tenting of penis. This results in pseudomicropenis appearance in otherwise healthy, non obese child.^{2,3} The shaft is hidden beneath a prepuce that is confluent both with abdominal wall as well as scrotum. Problems associated with buried penis are cosmesis, difficult accessibility, poor hygiene and negative feelings by parents and patients. Recurrent balanitis, urinary retention, infection and urinary spray during voiding are caused by associated phimosis⁴. Early recognition of the condition is important to avoid performance of standard circumcision which will result in denuded shaft⁵. Surgical correction of buried penis is indicated not only for cosmetic reasons but also for associated problems. Various techniques have been described to correct the anomaly. In the present study two different surgical techniques were used to evaluate their results.

Patients and Methods

Sixteen male children with buried penis were managed from January 2003 to December 2004 at the Department of Pediatric Surgery, Mayo Hospital, Lahore. Age ranged from 6 months to 10 years. Six (37.5%) children were < 2years, 4 (25%) were between 2 and 4 years, 4 (25%) between 4 and 6 years and 2 (12.5%) were between 6 and 10 years. Patients were operated by two surgeons using different surgical techniques. First author performed simple preputial unfurling in 5 children (Group A) to provide adequate replacement of penile shaft skin whereas third author employed penoplasty as devised by Brisson et al in 11 children (Group

B) wherein skin at the root of penile shaft is fixed to corpora along with fixing of tunica albugenia over the base of the penis to the prepubic fascia.

Operative Techniques

- a. **Preputial Unfurling:** All the operations were performed under General anaesthesia. Caudal block was given in children above 2 years of age to alleviate post operative pain. Genital area was prepared and draped in usual fashion. Broad spectrum antibiotics were given pre and postoperatively. All the patients in this group were less than 2 years of age. Phimosis is released by giving 1 cm incision on the ventral side of the narrowest diameter of prepuce. Circumferential incision in the outer layer of prepuce is made at the level of corona. Careful dissection between the two layers of prepuce is carried out to separate them completely. Proximally the penile shaft is straightened and mobilized by degloving. Distally the freed double layer of prepuce is unfurled and pulled as preputial sleeve to meet the skin near abdominal wall where it is stitched. Ventral slit of phimosis release is closed by Z plasty.
- b. **Penoplasty:** A Foley catheter is passed in children above 3 years of age. Foreskin is retracted and a 3/0 silk traction stitch is applied on the glans. Circumferential incision is made at the level chosen for proposed mucosal collar. Mucosa is divided circumferentially. Skin on the ventral side is incised along the median raphe from the mucosal collar to the root of the penis. Three traction sutures are applied on the distal cut edge and the prepuce is unfurled. The penis is then degloved, excising all the dysgenetic Dartos fibres between the

skin and penis. Dissection continues to the pubic bone on the dorsal side and penoscrotal junction on the ventral side. Sutures of 4-0 PDS are applied on the dorsal side from prepubic fascia to the tunica albugenia just distal to split of corpus cavernosum at 10, 12 and 2 O'clock positions. These sutures are tied once all have been applied. These stitches keep the penis in position to allow the shaft skin to adhere to the penis. Sutures of 4-0 chromic catgut are now applied through the skin crease at the base of the penis through the tunica albugenia on the penile shaft, then out through the skin crease leaving a 2 mm skin bridge between the skin entrance and exit sites. These sutures are placed at 10, 12 and 2 O'clock positions on the dorsal surface and 4, 6 and 8 O'clock positions on the ventral surface. Sutures are tied on the skin. Median raphe incision is reapproximated using 4/0 chromic catgut including a small portion of tunica in each stitch. Redundant skin is excised. Penile shaft skin to coronal collar skin anastomosis is completed. A compressive dressing is applied. Foley catheter is removed after two days.

Results

Complications of the surgical procedures were mainly wound infection, postoperative excessive edema, redundant skin and recurrence. Cosmetic results were arbitrarily considered excellent, good, satisfactory and unacceptable based on satisfaction of the parents and patients. At 6 months follow up 2 (40%) patients of group A had recurrence, 1 (20%) had redundant skin and only 2 (40%) had good to excellent cosmesis. In group B only 1(9%) patient had recurrence which was corrected after 6 months. Postoperative edema in 7 (63%) was the major complication in this group which settled spontaneously after 4-5 days. Postoperative wound infection occurred in 3 (27.2%) cases of group B. Cosmetic results in group A were excellent / good in 2 (40%), unacceptable in 2 (40%) and satisfactory in 1 (20%) patient where as in group B they were excellent in 6(54.5%), good in 3 (27.2%), satisfactory in 1 (9%) and unacceptable in 1 (9%) patient.

Discussion

Buried penis has abnormal arrangement of the penile foreskin relative to penile shaft. Inelastic Dartos fascial fibres restrain the extension of otherwise normal penis¹. Invisible penile shaft remains buried in a tuft of loose wrinkled foreskin giving the impression of micropenis. Other etiological factors include deficiency of shaft skin,^{2,6} abnormal attachment of tunica albuginea to Buck's fascia⁶, insufficient attachment of Dartos fascia and penile skin to Buck's fascia⁴ and low position at which the crura unite to form the penile shaft leaving a large gap between the shaft and the symphysis which fills with fat and areolar tissue⁷.

Buried penis was first described by Keyes in 1919 as penis lying buried beneath the integument of the abdomen, thigh or scrotum⁸. It should not be confused with 'concealed

penis' which is an acquired condition associated with thick suprapubic fat pad in an obese boy^{3,9}. Correction in a case of concealed penis is unnecessary as it is self correctable^{2,3}. Prompt recognition of buried penis is important so as to differentiate it from other anomalies like micropenis, penile agenesis and concealed penis which may need alternative management². Trapped penis refers to a condition in which the shaft of the penis is trapped in a scarred prepubic skin usually after circumcision⁹. A child with buried penis if undergoes circumcision will still appear uncircumcised with loss of fore skin. All the patients of buried penis are usually referred for cosmetic reasons although other aspects like recurrent balanitis as a result of accumulation of urine between the inner layer of prepuce and glans may be indication for treatment.⁶ On physical examination penile shaft is not visible. When prepuce and skin are retracted by digital compression at the base of the penis, a normal shaft and a glans of adequate size for the age can be identified¹.

There is some controversy regarding the treatment of buried penis. Some believe that the condition is a developmental stage that will resolve at puberty¹⁰. However there is evidence that spontaneous resolution may not always occur.^{7,11} Psychologic, emotional and social aspects of children warrant correction.^{7,9-11} Different operative techniques have been adopted in the past to correct the anomaly. Preputial unfurling described by Donahoe is simple and easy to perform². Immediate post operative results of this technique are also satisfactory. However, as loose relationship between the penile shaft and unfurled foreskin resumes when the edema subsides particularly so if the redundant foreskin remains¹². Moreover the base of the penis remains in its abnormal position and eventually shaft retracts pulling the skin down with it⁷. Skin flaps have been used when previous circumcision destroyed the penile shaft skin¹³. Circumcision, therefore, should never be performed in cases having inconspicuous penis⁵. The operative technique adopted for group B patients in the present study provides complete lysis of dysgenetic Dartos fibres, good attachment of the skin to penile shaft, minimal suture line and excellent immediate post operative results. Chromic catgut was used to suture the skin in the present study, others used nonabsorbable materials to anchor dermis with the tunica albugenia.^{12,14} Preputial island pedicle flap was used to cover the penile shaft by Kojima et al¹⁵. Frenkl et al fixed the subcutaneous penile skin at the base of degloved penis to Buck's fascia of penile shaft at 3 and 9 O'clock position¹⁶. Borsellino et al used scrotal raphe to exteriorize the penile shaft and reconstructing the penoscrotal and penopubic angle without any incision on penile skin¹⁷. Chuang split the ventral preputial skin in the midline, transposed it to the dorsal aspect, trimmed it and approximated in a Z-plasty fashion on the dorsal surface of the penis¹². There is some controversy concerning the treatment of buried penis in obese children. Maizels et al advised suprapubic lipectomy as an essential part of the procedure in obese children⁹. Colodny states that suprapubic lipectomy is rarely, if ever required¹⁸.

Joseph reports that excision of suprapubic fat does not give satisfactory results and over weight patients should be treated with buried penis operation alone⁷.

The authors conclude that surgical approach should be adopted for children of buried penis. This alleviates the parental and patient's concern for social embarrassment. Functional problems like urinary retention and spraying during voiding are also cured. Circumcision should never be performed on children with buried penis. Cosmetic results of penoplasty are superior than preputial unfurling.

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