

The Effectiveness of Skin Anchoring Technique for the Treatment of Isolated Buried Penis

İzole Gömülü Penis Cerrahisinde Cilt Fiksasyon Tekniğinin Sonuçları

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ABSTRACT Objective: Buried penis has long been a problem not only for its causes but also for diversity in the techniques of surgical correction sometimes with unsatisfactory outcomes. The aim of the current study is to evaluate the effectiveness of a simple skin anchoring technique. **Material and Methods:** Buried penis repair patients between 2016 and 2018 were analyzed and those are younger than 1 year old, have accompanying congenital anomalies and a body mass index over 25 were excluded. The technique involves a complete degloving of penile shaft skin followed by two fixation sutures (5/0 polydioxanone) at 5 and 7 directions between Buck's fascia at the penile base and the skin dermis at the base of the degloved penis and trimming the redundant prepuce per the skin length with resultant circumcision. **Results:** There were 12 patients whose mean age was 4.67±2.84 years and the mean follow up was 15.83±7.84 months. One (8.3%) patient had dissatisfaction who was lost to follow up but reached out by phone. Rest of the patients had satisfactory cosmetic outcomes. **Conclusions:** When treating patients with an isolated buried penis; degloving and skin anchoring technique is a simple and functionally and cosmetically satisfactory surgical technique.

Keywords: Buried penis; children; anchoring

ÖZET Amaç: Gömülü penis sadece meydana getiren sebepler nedeni ile değil aynı zamanda çok farklı tedavi yöntemlerine rağmen başarısız sonuçlar nedeni ile de güncel bir problemdir. Çalışmanın amacı izole gömülü penis cerrahisinde cilt sabitleme tekniğinin sonuçlarını bildirmektir. **Gereç ve Yöntemler:** Çalışmada 2016-2018 yılları arasında gömülü penis nedeni ile opere edilen yaşı birden büyük, eşlik eden anomalisi olmayan ve vücut kitle indeksi 25'in altında olan olgular irdelendi. Penis tam deglovingi takiben penis kökünde Buck fasyası ile dermis arasına saat 5 ve 7 yönlerinde iki adet fiksasyon dikişi ile sabitlendi ve sünnet yapıldı. **Bulgular:** Çalışmaya dahil edilen 12 hastanın yaş ortalaması 4,67±2,84 yıl ve ortalama takip süresi 15,83±7,84 aydı. Estetik memnuniyetsizlik nedeni ile takipten çıkan 1 (8,3%) olgu dışında bütün hastalar sorunsuzdu. **Sonuç:** İzole gömülü penis cerrahisinde uygun hasta grubunda cilt asma tekniği basit ve işlevsel ve kozmetik olarak tatminkar bir cerrahi tekniktir.

Anahtar Kelimeler: Gömülü penis; çocuk; cilt asma

Since its first description by Keyes in 1919, the buried penis is known as a disease which is quite common and challenging. There have been many diverse definitions as well as classification in the literature, hence there is no consensus yet. It is defined as a penis, normal in size that appears short and obscured within the pubic tissue as a result of inad-

quate fixation of the skin at the base of the penis. The penis may be congenitally inconspicuous due to inefficient skin suspension (buried penis), excessive fat accumulation in the genital area (concealed penis) or due to the severe penoscrotal web (webbed penis).¹ Maizels et al classified the disease as a subgroup of the concealed penis.²

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The problem is not only confined to children but also seen in adults although the etiology is different. The main etiologic factors in children are congenital and iatrogenic while the most common presenting symptom is the concern of parents about the penis size if not the urinary symptoms such as recurrent balanitis, difficulty in voiding or phimosis.³⁻⁶ The condition is also psychologically a hassle both for the parents and child. It is also more chaotic in adulthood if the patient was not able to solve the problem during childhood. After a century of the description of the disease, there has not established consensus regarding the definition, management, and treatment but, even it is mainly a congenital problem it might also be encountered with post-circumcision scarring. The most common approved hypothesis regarding the buried penis is based on dysplastic dartos fascia due to abnormal bands between the Scarpa's fascia and the Buck's fascia. The complexity of the situation is not only due to the severity of the parental concerns or physical and psychological symptoms of the patients, but also various surgical techniques described in the literature. Herein, we evaluated the effectiveness of a simple skin anchoring technique to treat buried penis in isolated cases.

MATERIAL AND METHODS

A retrospective chart review was performed on all patients who underwent buried penis repair between January 2016 and December 2018. Following approval by Koç University Ethics Committee with number 2019.023.IRB2.012 on 18.01.2019 and consent by the parents, data were assembled through an institutional database and augmented with the electronic medical record for the hospital. The study was conducted per the principles of Helsinki Declaration. Data were collected on demographics, comorbidities, preoperative characteristics, operative interventions, and postoperative complications and outcomes. Buried penis patients those are younger than 1 year old, or with a body mass index over 25, or who have had concealed penis after any kind of surgery, including circumcision were excluded from the study as well as any patient with an accompanying urogen-

ital anomaly. The primary outcome was the long-term satisfaction of the parents for the cosmetic appearance while the secondary outcome was the recurrence of the condition. As a standard of care, all patients were followed up at postoperative 1st, 6th, 12th and 24th months. Long-term outcomes' data was achieved through phone calls at a single point in time regardless of the original surgery date with a total inclusion percentage of 100%.

SURGICAL TECHNIQUE

Under general anesthesia with antibiotic cover (cefazolin sodium), a 4/0 polypropylene was used to hang and tract the penis via the glans penis. A circumferential penile incision was made and a complete degloving from the level of the pubic bone on the dorsal surface to the penoscrotal junction on the ventral surface was performed so the deep fascia was dissected to free the penile skin shaft from its deep attachments. A silicone urethral catheter might be used to be in the safe side and to have the ease control on the penis. Two fixation sutures (5/0 polydioxanone) at 5 and 7 directions between the skin dermis and Buck's fascia at the penile base were placed to prevent retraction of the penis (Figure 1). Lastly, the redundant outer preputial ventral skin was resected toward the penoscrotal junction and the dorsal preputial skin was cut circumferentially to adjust the inner and outer prepuce. The anastomosis of the skin of the penile shaft to the inner prepuce of the coronal sulcus was completed with interrupted 6/0 absorbable sutures. A compression dressing was applied which was removed by the parents in two days.

STATISTICAL ANALYSIS

Statistical analysis was performed with IBM SPSS Statistics 26.0.0 (Chicago, IL). The characteristics of the study sample were summarized by descriptive statistics, with dichotomous or ordinal data presented as percentages, and continuous data as means with standard deviations. Kolmogorov-Smirnov test was used to demonstrate normal distribution. One-Way ANOVA was used for homogeneity of the variables, Student's T-test and Pearson correlation were used for parametric data, and Mann-Whitney U, Wilcoxon

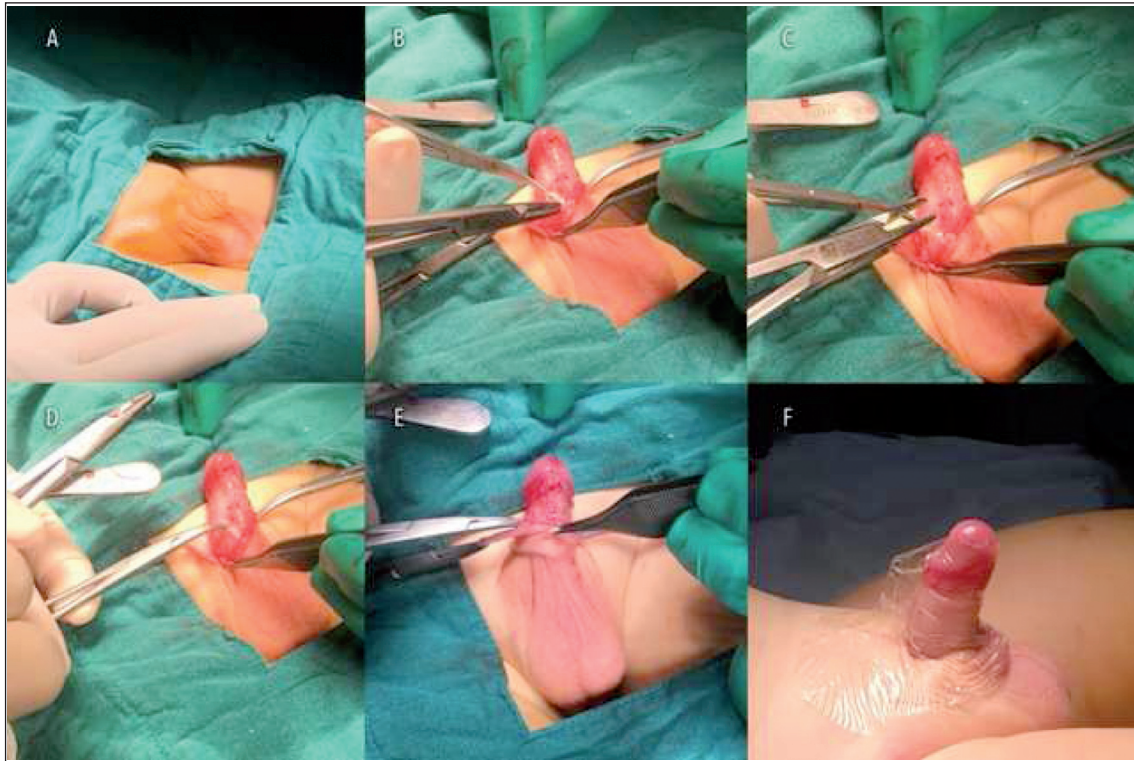


FIGURE 1: A) The preoperative view of a patient. B) The fixation suture between the skin dermis and Buck's fascia at the penile base were placed to prevent retraction of the penis. C) The postoperative view of the same patient.

and Kruskal-Wallis tests and Spearman correlation were used for non-parametric data. Statistical associations were considered significant if the p-value was < 0.05 .

RESULTS

A retrospective review of the hospital records defined 12 patients during study period those meet the inclusion criteria who had a mean age of 4.67 ± 2.84 years. The mean follow-up was 15.83 ± 7.84 months. All patients admitted due to the parental concerns of penis size or referral by a pediatrician. The patients underwent the surgical procedure described above for the repair of the buried penis as outpatient surgery. No serious intraoperative or early postoperative complications had occurred. One (8.3%) patient who was lost to follow up but reached out by phone had an unsatisfaction with the appearance. Rest of the patients had esthetically and functionally satisfactory outcomes. None of the patients had urinary tract infection or any other urinary problems.

DISCUSSION

The complexity of the buried penis is due to lack of consensus on the definition, causes as well as management. A very simple definition of a normal in size but concealed within the pubic tissue due to a lack of fixation of the skin at the base of the penis by Maizels is preferred in this study.² Excess fat, especially in the adolescents, would deteriorate the situation.⁷ Another problem related with the gender is that the predilection of the male body to preferentially gain weight at the abdominal and suprapubic area which results in a decrease in the length of the penis due to fixation to the pubis and lost in the fat pad.⁸ However, neither in adults nor in children, there is a specific data that indicates the prevalence of the disease or BMI value that would suggest a management strategy.⁹

The two major objectives in the surgical repair of the buried penis are restoring the function and esthetic appearance of the penis. Having so many di-

verse techniques which have been aiming different etiology, the complexity of the outcomes as well as complications increases. The algorithm established in adult patients is based on the underlying pathology.⁶ In children, on the other hand, Whilst liposuction and pubic lipectomy are the techniques described.^{5,10} However, the major concerns regarding the aggressiveness of these techniques are the risk of complications, unfavorable esthetical outcome and time needed for the operation. Furthermore, obesity might be more easily self-corrected in children compared to adults.

The technique presented here in a particular group of patients starts with complete degloving of the penile shaft. To our knowledge, this will release the fixed penis enabling it to improve in length and will improve the outcome alone while preventing the unnecessary complications. However, to fix the previously released penis shaft not to be buried again, two fixation sutures were placed between the skin dermis and Buck's fascia at the penile base. The trimming of the redundant skin was decided per case. In patients with insufficient penile skin, all care was taken to protect the skin. A dorsal and ventral slit found to be enough to prevent phimosis without the necessity of removing and trimming the currently short prepuce.

There are limitations to our study. It is a retrospective review and the number of the patients is limited. Furthermore, as an inherited problem in retrospective studies, long-term follow-up data is difficult to obtain per some patients would be transi-

tioned to other centers. A phone call catch-up was performed to overcome this, yet responses do hold some intrinsic biases as the patients were not seen by a physician and could not factor in outcomes that were subjectively occult.

CONCLUSION

Hence, to prevent all possible complications and have better outcome, a simple technique in which two stitches were placed at the base of the penile body after complete degloving is being proposed in isolated buried penis patients.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Emrah Aydın, Mehmet Ali Özen, Pelin Oğuzkurt, Egemen Eroğlu; **Design:** Emrah Aydın, Mehmet Ali Özen, Pelin Oğuzkurt, Egemen Eroğlu; **Data Collection and/or Processing:** Emrah Aydın; **Analysis and/or Interpretation:** Emrah Aydın; **Literature Review:** Emrah Aydın; **Writing the Article:** Emrah Aydın; **Critical Review:** Emrah Aydın, Mehmet Ali Özen, Pelin Oğuzkurt, Egemen Eroğlu.

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