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Adult Buried Penis Repair with Escutcheonectomy and Split-Thickness Skin Grafting

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ABSTRACT

Aim: To describe a technique for surgical correction of adult buried penis, including a technique for skin graft harvesting from the escutcheonectomy specimen itself, with an emphasis on remaining open questions in the literature.

Methods: We present our method for surgical correction of adult buried penis with a review of the literature.

Main Outcome Measure: Components of successful buried penis repair include return of directed voiding, elimination of local skin inflammation and infection, improvement in hygiene, return of sexual functioning, cosmesis, and patient satisfaction. To date, there are no broadly accepted tools for comprehensive measurement of outcomes after buried penis repair.

Results: Adult buried penis repair is generally associated with excellent rates of satisfaction and improvement in functioning. Currently available data are extremely limited; however, they do suggest that, when in doubt, more aggressive debridement of diseased tissue combined with split-thickness skin grafting may provide superior outcomes. Split-thickness skin grafts are associated with excellent rates of successful graft take, even in cases of severe preoperative pathology and patient comorbidity. Although these grafts come at the cost of some increased surgical morbidity, they are associated with low rates of major complications. Morbidity can be further significantly decreased by harvesting the graft from the excised escutcheon itself, a technique that we present here.

Conclusion: Surgical correction of adult buried penis is safe and effective; however, future work is required to further optimize outcomes and reduce surgical morbidity. **Strother MC, Skokan AJ, Sterling ME, et al. Adult Buried Penis Repair with Escutcheonectomy and Split-Thickness Skin Grafting. J Sex Med 2018;XX:XXX–XXX.**

Key Words: Reconstructive Surgical Procedures; Buried Penis; Concealed Penis; Trapped Penis; Lichen Sclerosus

INTRODUCTION

Adult buried penis is defined as the engulfment of the penis by the surrounding tissue.[1,2] It usually implies the complete inability to retract the surrounding tissue sufficiently to expose the glans. Instead, the glans and penile shaft remain inextricably within a pseudocavity (or "skin well")[1] preventing normal hygiene, directed voiding, and sexual function.

There are 2 components that are both usually present in the development of acquired buried penis: redundant tissue, which engulfs the penis, and scarring, which leads to a loss of viable penile shaft skin.[3]

The most common risk factor for the development of buried penis is obesity.[3] Obese patients often form an accumulation of fat between the waistline sulcus superiorly and the inguinal creases and penopubic junction inferiorly. This accumulation, which is referred to as an "escutcheon" because of its shield-like shape, provides the redundant tissue that is the first component of the buried penis. As a result of this redundant tissue, hygiene becomes difficult. Urine and other moisture can become entrapped, which leads to chronic inflammation, infection, scarring, and ultimately loss of viable genital skin, which completes the buried penis formation.[3] Other factors such as overzealous circumcision, hidradenitis, primary lichen sclerosus, and genital lymphedema may also contribute to one or both of these steps.[1–3]

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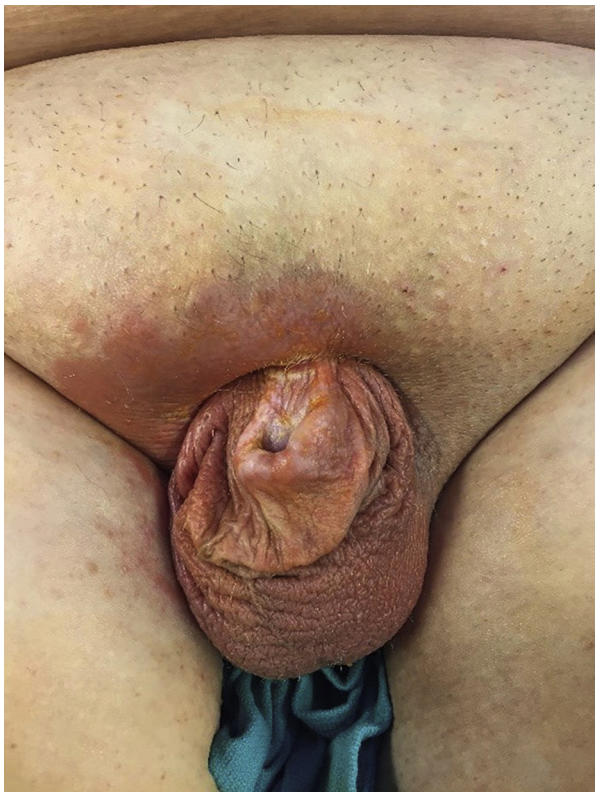

Figure 1. Acquired buried penis — preoperative. Preoperative image demonstrates complete burial of the glans penis within inflamed penile shaft skin. Thickened erythematous tissue and scarring is seen extending onto the lower abdomen and superior scrotum despite completed treatment with antifungals. The supine positioning in this image minimizes the apparent contribution of the escutcheon. Figure 1 is available in color online at www.jsm.jsexmed.org.

Unfortunately, once skin loss occurs, medical therapy is of limited utility in restoring normal function.[2,4] Even in cases where scarring occurs secondary to obesity, weight loss rarely results in improved penile exposure. Thus, the treatment for this disease remains primarily surgical.

INDICATIONS FOR PROCEDURE

Surgical correction of buried penis is indicated when inability to expose the glans leads to impairment of voiding, hygiene, or sexual function that is significantly bothersome to the patient. Inability perform a sufficient clinical or self-examination to rule out a penile malignancy may also be considered an indication for surgery in this high-risk population. Medical therapy should be considered before surgery; however, there are no data to suggest that a trial of medical therapy is mandatory.

PREOPERATIVE PREPARATION

Preoperative evaluation involves a thorough history and physical examination. History should specifically address urinary symptoms, because urethral stricture disease commonly occurs in patients who present with buried penis[2] but is often very difficult to evaluate. Symptoms such as slow or splayed urinary stream may be caused by either the buried penis itself or occult stricture disease. Current sexual and erectile function should be documented.

Examination of the pannus should be performed with the patient in the standing position so the full extent of the redundant tissue can be appreciated.[5] The genital skin should be carefully assessed for scarring and lymphedema. Local skin infections should be treated with antibiotics or antifungal medications. It may be reasonable to attempt to reduce the extent of lichen sclerosus sclerosis with a topical steroid for 2 to 6 months[2]; however, these efforts are often met with very limited success, and the effects on the outcomes of surgical therapy are unknown.[4]

Smoking cessation 4 to 8 weeks before surgery is known to improve surgical outcomes.[6] Poor nutrition, long-term steroid use, and elevated hemoglobin A1c are known risk factors for poor wound healing, and optimization of these parameters should occur as a matter of principle[7]; however, skin grafting is not strictly contraindicated above any particular A1c value[8] or steroid dosage. Antiplatelet and anticoagulant medications are generally withheld before surgery and for 5 days afterward.

We attempt to perform cystoscopy or retrograde urethrography routinely in the presence of any urinary symptoms; however, these are often impossible due to inability to access the urethral meatus in the office (Figure 1).

We believe that successful treatment is greatly facilitated by collaboration between a plastic surgeon and a urologic surgeon.[5] The full extent of repair necessary can rarely be fully appreciated before surgery, and intraoperative findings such as urethral stricture, hidradenitis, or malignancy among others may necessitate intraoperative input from both specialties.

INTRAOPERATIVE CONSIDERATIONS

Excision of Diseased Penile and Scrotal Tissue

The patient is positioned supine, and after the usual surgical preparation, the borders of the diseased tissue are carefully marked. The glans is then exposed, beginning with a longitudinal dorsal or ventral slit in the cicatrix. Care is taken to avoid inadvertent injury to the glans or urethra during mobilization. The maximum viable amount of glans tissue is preserved to minimize changes in penile sensation; however, little if any preputial collar is left proximal to the glans, because, even in the rare instances when this skin is not diseased, it often develops significant edema after surgery, which leads to an inferior cosmetic result.

With the glans exposed, a Foley catheter is inserted, and a glans holding stitch of 2-0 monofilament nonabsorbable suture is placed. If a 16 Fr Foley catheter passes easily, a clinically