Use of fascia lata graft blanket wrap to prevent fistulas in hypospadias repair

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**ABSTRACT**

**Objectives:** To evaluate the efficacy of fascia lata graft in hypospadias repair, especially in cases with paucity of subcutaneous dartos pedicle or tunica vaginalis flap, with the aim to avoid the potential complication of urethrocutaneous fistula and hence the resulting morbidity.

**Materials and Methods:** 10 patients aged 4-8 years, were included in this study. Six patients had posterior hypospadias and had undergone unilateral orchidopexy for associated undescended testis. Four patients had urethral fistula, following primary hypospadias repair. In all the cases, the reconstructed neourethra was reinforced with blanket wrap of fascia lata graft, harvested from lateral aspect of mid thigh. The follow up ranged from 12-18 months.

**Results:** There were no complications experienced in the present series and none of the cases developed urethrocutaneous fistula. The cosmetic results were satisfactory.

**Conclusion:** We conclude that fascia lata blanket wrap can be successfully used as an interposition graft in hypospadias repair, with the aim to reduce the incidence of urethrocutaneous fistula.

**KEY WORDS:** Hypospadias, fascia lata graft, interposition graft, urethrocutaneous fistula

Urethrocutaneous fistula remains one of the most common complications of hypospadias repair, with a reported incidence of 1 to 91%. [1-3] A review of available literature, suggests that avoidance of overlapping of urethral and skin suture lines by interposition of vascularized flap, significantly reduces its incidence.[1-10] For this purpose, a number of investigators have recommended reinforcement of repair by use of dartos pedicle flap, tunica vaginalis flap, buccal mucosa, or by de-epithelized penile skin.[1,2,4-11] But a paucity of dorsal foreskin and tunica vaginalis flap, due to previous urethral or inguinoscrotal surgery, results in a surgical challenge. With the aim to avoid the development of urethrocutaneous fistula in such cases, we evaluated the role of fascia lata graft in-patient with urethral fistula and in those with posterior hypospadias undergoing two-stage repair. To the best of our knowledge, the present study appears to be the first surgical experience evaluating the efficacy of fascia lata graft, both in primary and re-operative hypospadias repair, after the study by Kargi et al., done exclusively in patients with urethral fistula.[11]

**MATERIALS AND METHODS**

Ten boys aged 4-8 years, were included in the present study. According to Duckett's classification, 6 patients had posterior hypospadias (four penoscrotal and two scrotal hypospadias) and had undergone first stage surgery 12-18 months back. All these cases had associated undescended tests, for which orchidopexy had been performed at the age of 12 to 18 months. The second stage hypospadias repair as proposed by Retik et al., was performed in these cases, reconstructing the neourethra by tubularisation of midline ventral penile skin flap [Figure 1a, b].

The remaining 4 patients had urethral fistula following primary hypospadias repair (Snodgrass urethroplasty) for mid-penile and distal penile hypospadias and they underwent anatomical fistula closure.

In all the cases, fascia lata graft was harvested from the lateral aspect of left mid thigh i.e., iliotibial tract. The
The use of a fascia lata graft was then used to reinforce the neourethral suture line and the repaired urethral fistula as a blanket wrap and the graft was secured in position with a few interrupted sutures [Figure 1c]. The penile skin was sutured in two layers and glans wings were closed with Vicryl 6-0 sutures [Figure 1d]. A compression dressing was applied and the urethral stent was left in place for 10-12 days. The postoperative follow-up ranged between 12-15 months, with an average of 12.5 months.

RESULTS

Since all the patients had undergone either two-stage repair with inguino scrotal surgery or had undergone previous primary hypospadias repair, so a paucity of dartos pedicle flap and tunica vaginalis interposition flap was experienced during urethral reconstruction. Hence fascia lata graft was harvested, with the aim to avoid overlapping of urethral and skin suture lines. None of the patients had any postoperative complications, either related to urethral or graft donor site. The occurrence of postoperative urethrocutaneous fistula was not experienced in any of the patients and the cosmetic results were satisfactory.

DISCUSSION

Among the different surgical procedures advocated in hypospadias repair, urethrocutaneous fistula remains the most frequent encountered complication and a serious problem, even in experienced surgical hands. The different techniques recommended in the available literature with the aim to reduce the incidence of this inherent complication includes: avoidance of a opposing urethral and skin sutures, use of fine scalpel for skin incision, minimal tissue trauma by use of fine forceps or hooks and an inverting watertight mucosal suturing. But the prevention of overlapping of urethral and skin suture lines by use of interposition flap, appears to be the most important factor in success of primary repair.
and re-operative hypospadias repair.\[1,2,4,8\] In clinical practice, the subcutaneous dartos pedicle flap harvested from dorsal foreskin has the widest application, as apart from acting as an interposition flap, it promotes healing of neourethra by supplying additional blood flow.\[2,5,12\] Similarly, tunica vaginalis interposition flap, buccal mucosa and de-epithelized penile skin, has been used especially in patients undergoing re-operative hypospadias repair.\[1,2,4,7,8\] However, as experienced in the present series, achieving an adequate interpositional flap remains a problem and a surgical challenge in patients with paucity of dorsal foreskin or tunica vaginalis due to previous urethral or inguinoscrotal surgery. To achieve satisfactory results in such cases, we evaluated the efficacy of fascia lata graft.

Although fascia lata has been exploited in reconstructive genitourinary surgery mainly in Peyronie’s disease, vaginal sling operations etc. but its role as interposition graft in primary and re-operative hypospadias repair, has scarcely been evaluated in available literature.\[1,13,14\] Kargi et al., first evaluated the efficacy of fascia lata graft in patients undergoing re-operative hypospadias surgery for urethral fistula and experienced an absence of recurrence of fistula in all their cases.\[1\] Similarly, urethrocutaneous fistula was not experienced in the present series with the use of fascia lata blanket wrap, even in patients with a long neourethral suture line, thereby highlighting the success of fascia lata as interposition graft, in primary and re-operative hypospadias repair.

The anatomical properties of fascia lata graft, facilitates harvesting of fascia lata graft of required size from lateral aspect of mid thigh i.e. iliotibial tract with a small incision aided by adequate traction, thereby avoiding potential injury to large superficial venous tributaries on the posterior and medial aspect of thigh.\[1\] The graft is then used to reinforce the neourethral suture line as a blanket wrap, thereby preventing the overlapping of urethral and skin sutures and hence reducing the incidence of urethrocutaneous fistula. Moreover, as experienced in the present study, the fascia lata being a strong fibrous structure, provides an additional support to neourethra, thus providing an additional advantage in preventing other complications like urethral diverticulum, urethral ballooning, etc. which are primarily associated with posterior hypospadias repair. Among the other evident advantages of fascia lata graft, includes its autogenous availability, which obviates concerns about its antigenicity and the need for graft preservation and storage.\[1,15\] Moreover, as an autogenous material, fascia lata remains viable for months after grafting to a vascular bed.\[1,15\]

The need for second incision appears to be the only disadvantage associated with use of fascia lata blanket wrap. However, an absence of complications associated with healing of donor site in the present and the reported series, further justifies the use of fascia lata graft in hypospadias repair.\[5\]

Our series appear to be limited by a small patient group, so in order to reach a definite conclusion, accurate results of larger series may be required. But in all the patients managed in the present study, urethral fistula was not encountered on a follow up of 12-15 months.

Thus, we conclude that our surgical approach using fascia lata blanket wrap as interposition graft, can be successfully performed with technical ease, low morbidity and favorable results, in patients undergoing primary and reoperative hypospadias repair, especially when there is paucity of dartos pedicle and tunica vaginalis vascularized interpositional flaps.

REFERENCES