



Original Article

# Management of 220 adolescents and adults with complications of hypospadias repair during childhood



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## KEYWORDS

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**Abstract** *Objective:* The goal of hypospadias repair is to achieve normal voiding and good penile cosmesis with minimal complications. Some urethroplasties deteriorate from childhood to adolescence and late stage failures have been reported. We report our experience with adult patients who have had a previous repair during childhood and present with a late complication.

*Methods:* We reviewed the records of 220 patients aged 15–39 years old with a history of hypospadias repair who presented to our clinic. Forty-five patients with chordee, 39 with urethral strictures, 11 urethral fistulae, five with hairy urethras, three with urethral diverticula, and 117 patients with an abnormal glans or subterminal meatus were repaired.

*Results:* Median follow-up was 14 months. Two patients had persistent chordee. Island skin flap urethroplasty afforded one patient with a urethral fistula and another with a recurrent urethral stricture, while the buccal mucosa group had one fistula which healed spontaneously and two recurrent strictures. For the patients undergoing glanular repairs, seven had dehiscence or breakdown of the repair. All other operations were successful.

*Conclusion:* Complications of childhood hypospadias repair may present later in life as some urethroplasties deteriorate with time. We now recommend to parents of children with repaired proximal hypospadias to come for follow-up as their child transitions to adolescence.

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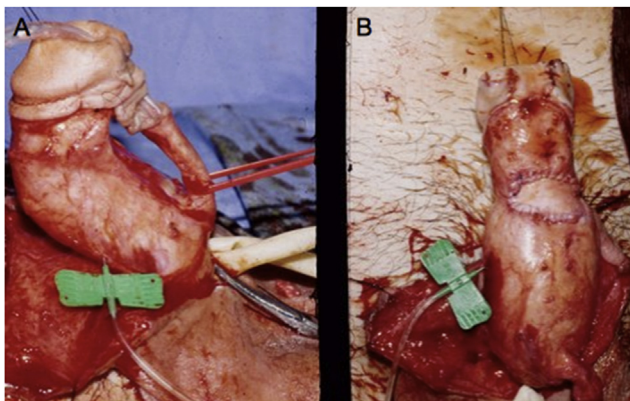
## 1. Introduction

Hypospadias repair in children aims at the creation of a straight penis, an adequate caliber neo-urethra, and a meatus at or near the tip of the glans penis. The goal is to achieve normal voiding and good penile cosmesis with minimal complications. Short-term follow-up reports indicate that 90% success rate can be accomplished with modern surgical techniques. However, some urethroplasties deteriorate from childhood to adolescence and late stage failures have been reported. A three-decade series from 1978 to 2009 by Prat et al. [1] found 4.6% of 820 patients required further revision in adolescence. A study of more than 5000 patients found a 9% secondary surgery rate for distal hypospadias repair and 32.2% for proximal hypospadias repairs [2].

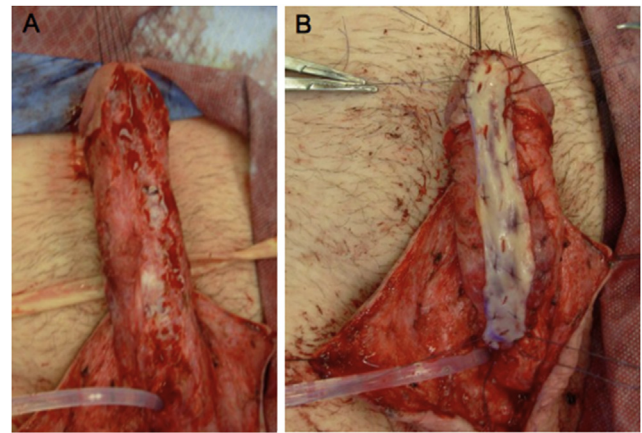
Hypospadias repair in adults can be divided into three groups: the first group are primary cases, the second group include patients who have had a previous repair during childhood and present with a late complication (e.g., urethrocutaneous fistula, persistent curvature, urethral stricture, urethral diverticulum and poor cosmesis), and the third group are patients who have undergone several failed surgeries referred to as "hypospadias cripples". Herein, we report on the management of 220 patients who fall in to the second group.

## 2. Materials and methods

We reviewed the records of 220 patients (15–39 years old) treated between 1981 and 2015. Seventy-two patients out of 220 had their primary surgery by us. Forty-five patients complained of penile curvature of whom 11 had urethral fistula. Their repairs were 16 patients with Nesbitt [3] procedure, 14 with Baskin [4] modification of midline stitch, and 15 patients with corporal dermal grafts (Fig. 1). One hundred and seventy-five patients presented with voiding abnormalities (straining, spraying or leakage and post void dripping) of whom 39 had urethral stricture, and 18 had mild-to-moderate chordee which was corrected in conjunction with the urethral repair. The length of urethral strictures varied between 2 and 12 cm (mean 7.5 cm).



**Figure 1** Chordee. (A) Severe curvature with artificial erection after penile degloving. (B) Penis now straight after placement of a dermal graft.



**Figure 2** Urethral stricture. (A) Excessive scar tissue from Lichen sclerosus causing stricture disease. (B) Buccal mucosa graft placement used during urethroplasty.

Earlier in the series their treatment was one-stage repair using an island local skin onlay flap in 14 patients. Subsequently a buccal mucosa onlay graft was used in 23 and mucosal inlay in two patients. All patients who underwent one-stage repair had an intact residual but narrow urethral plate. The curvature was due to subcutaneous scarring in 27/39 patients and was corrected by penile degloving and excision of scar tissues, and in 12 patients the curvature was corrected by dorsal tunica plication. Eleven patients who had had Lichen sclerosus (LS), underwent two-stage repair. In the first stage they underwent radical excision of the scarred tissues and placement of a neo-plate using a buccal mucosal graft harvested from the inner cheek (Fig. 2), 9–16 months later the graft was tubularized, however 2/11 patients underwent graft revision due to scarring. Five patients presented with hairy urethra of whom two presented with urinary retention due to stone formation. Transurethral laser depilation was tried in two patients but was ineffective, and we had to remove the hairy urethra and replace it with a one-stage buccal mucosal patch in three, and two-stage urethroplasty in the other two patients. Three patients had urethral diverticulum and underwent excision and trimming of the skin lining of the diverticulum and preservation of the peridiverticular tissue to wrap around the constructed urethral tube (Fig. 3). One hundred and seventeen patients presented with abnormal glans penis and/or subterminal meatus and complained of urine spraying and/or aesthetic concerns (Fig. 4).

## 3. Results

Follow-up of 6–48 months (median 14 months) was recorded in 41/45 patients who had chordee repair; the penis was straight in 39/41, and improved in the other two patients (one had Nesbitt, and another had Baskin repairs), none had any sexual functional complaints. The other four patients were seen for few weeks postoperatively then lost to follow-up. All fistula repairs were successful. For urethral stricture disease, a successful outcome was defined as resolution of symptoms, patient observation of his urine

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