

48% reduced risk for reintervention (HR: 0.52; 95% CI: 0.31-0.89)¹⁸; of those who underwent urethrotomy, 39% experienced recurrence versus 19% in the urethroplasty group ($P = .001$). Participants in the urethroplasty group had 2.6 times greater odds of experiencing an improvement in their maximum flow rate at 12-24 months compared to the participants in the urethrotomy group (OR: 2.6; 95% CI: 1.1–6.1; $P = .024$).¹⁸

The ROBUST III multicenter RCT¹⁹ compared endoscopic treatment combined with paclitaxel-coated urethral balloon versus DVIU/dilation in patients with recurrent anterior urethral strictures <3cm in length. Those who underwent endoscopic treatment combined with drug coated balloon had improved freedom from intervention at 1 year compared to DVIU/dilation alone (83.2% versus 21.7%).¹⁹ The 3-year outcomes for the same drug-coated balloon from the Robust I trial demonstrated a 67% functional success.²⁰ Although drug-coated balloons are approved by the FDA for anterior urethral strictures, the trial was not powered to assess results patients with penile urethra strictures; therefore, the Panel recommends that drug-coated balloons are restricted to treat patients with recurrent bulbar urethral strictures. Furthermore, the efficacy of repeated use of the drug-coated balloon has not been ascertained and is not recommended.

12. Surgeons who do not perform urethroplasty should refer patients to surgeons with expertise. (Expert Opinion)

When evaluating a patient with a recurrent urethral stricture, a physician who does not perform urethroplasty should consider referral to a surgeon with experience in this technique due to the higher rate of successful treatment compared to repeat endoscopic management.

Anterior Urethral Reconstruction

13. Surgeons may initially treat meatal or fossa navicularis strictures with either dilation or meatotomy. (Clinical Principle)

First-time presentation of an uncomplicated urethral stricture confined to the meatus or fossa navicularis can be treated with simple dilation or meatotomy with or without guidewire placement as long as it is not associated with previous hypospadias repair, prior failed endoscopic manipulation, previous urethroplasty, or LS. There is some evidence that extended meatotomy in conjunction with high-dose topical steroids may decrease the risk of recurrence as compared to meatotomy alone in strictures in the setting of LS.²¹

14. Surgeons should offer urethroplasty to patients with recurrent meatal or fossa navicularis strictures. (Moderate Recommendation; Evidence Level: Grade C)

Urologists have a variety of options at their disposal for the surgical treatment of meatal and fossa strictures, including meatoplasty, extended meatotomy, and several variations of urethroplasty. Meatotomy and extended meatotomy have been employed with success rates up to 87%.²² One-stage urethroplasty for recurrent meatal and fossa navicularis strictures has been reported with acceptable outcomes.²²⁻²⁴ Strictures related to LS are more likely to be reconstructed successfully using oral mucosal grafts.²³

15. Surgeons should offer urethroplasty to patients with penile urethral strictures given the expected high recurrence rates with endoscopic treatments. (Moderate Recommendation; Evidence Level: Grade C)

Strictures involving the penile urethra are unlikely to respond to dilation or urethrotomy, and these patients should be offered urethroplasty at the time of diagnosis. Success rates of single stage urethroplasty using penile fasciocutaneous flaps and oral mucosal grafts appear similar regardless of technique used.²⁵

16. Surgeons should offer urethroplasty as the initial treatment for patients with long (≥2cm) bulbar urethral strictures, given the low success rate of direct visual internal urethrotomy or dilation. (Moderate Recommendation; Evidence Level: Grade C)

Longer strictures are less responsive to endoscopic treatment, with success rates of only 20% for strictures >4cm in the bulbar urethra,²⁶ while the success rate for buccal mucosa graft urethroplasty for strictures of this length is >80%.²⁷ Given the low efficacy of endoscopic treatment, urethroplasty should be offered to patients with long urethral strictures. Urethroplasty may be performed using substitution or augmentation of the narrowed segment of the urethra.

17. Surgeons may reconstruct long multi-segment strictures with one-stage or multi-stage techniques using oral mucosal grafts, penile fasciocutaneous flaps, or a combination of these techniques. (Moderate Recommendation; Evidence Level: Grade C)

Multi-segment strictures are most commonly defined as strictures >10cm spanning both the penile and bulbar urethra. Treatment options include long-term endoscopic management, urethroplasty, or perineal urethrostomy. Panurethral strictures are unlikely to be treated successfully endoscopically, which offers only temporary relief of obstruction.^{10,12} Urethroplasty is also more complicated, time-consuming, and has a higher failure rate as compared to urethroplasty for less complicated strictures.²⁸ Thus, some patients may choose repeat endoscopic treatments, with or without a self-dilation protocol, or a perineal urethrostomy, in order to avoid complex urethral reconstructive surgery, which should only be