

Outcomes of Visual Internal Optical Urethrotomy for Bulbar Urethral Strictures Less Than 1 cm: A retrospective review of 200 cases at MTI, Lady Reading Hospital, Peshawar.

Introduction

This study comprehensively evaluates the clinical outcomes of visual internal optical urethrotomy (VIU) in the management of bulbar urethral strictures measuring less than 1 cm at Lady Reading Hospital, Peshawar. VIU is a minimally invasive endoscopic procedure widely utilized for short-segment urethral strictures. The primary objective was to assess the procedural success rate, complication profile, and stricture recurrence rate within this specific patient cohort. Secondary objectives included evaluating improvements in urinary flow parameters and patient-reported symptom relief over a 12-month follow-up period.

Objectives

This study aims to evaluate the outcomes of VIU specifically for bulbar urethral strictures less than 1 cm at Lady Reading Hospital, Peshawar, providing localized data to inform clinical decision-making in this setting.

Methods

This study employed a retrospective review of 200 cases diagnosed with bulbar urethral strictures less than 1 cm in length, managed at the urology department of Lady Reading Hospital from January 2023 to December 2024. Inclusion criteria encompassed adult patients presenting with symptomatic bulbar urethral strictures confirmed by retrograde urethrography. Exclusion criteria included strictures longer than 1 cm, multiple strictures, and patients with previous urethral reconstructive surgery. All patients underwent VIU under spinal or general anesthesia, utilizing either the cold knife. Preoperative assessment was done through detailed history, examination and imaging studies including ultrasound kidney, ureter, bladder (KUB) with post void residual urine in bladder, retrograde urethrography (RUG) and ante grade urethrography (AUG) was performed in patients having suprapubic catheter to delineate stricture characteristics. Postoperative follow-up was systematically conducted at intervals of 3, 6, and 12 months, during which symptom resolution was assessed clinically and through post void residual urine in bladder and stricture recurrence was evaluated through clinically and imaging when indicated. Complications were documented according to standardized criteria.

Results

A total of 200 patients with bulbar urethral strictures less than 1 cm in length were included in the study. The mean age of the cohort was 42.5 ± 12.3 years (range: 18–68 years). The majority of patients presented with obstructive lower urinary tract symptoms, including decreased urinary stream and straining. The overall success rate of visual internal optical urethrotomy (VIU), defined as complete symptom resolution without the need for repeat intervention at 12 months, was 78% (156/200 patients). The mean peak urinary flow rate (Qmax) improved significantly from a preoperative value of 7.2 ± 2.1 ml/s to a postoperative value of 18.4 ± 3.6 ml/s at 12 months follow-up ($p < 0.001$). Complications were minimal and included minor bleeding in 5% (10/200) of cases and urinary tract infections in 7% (14/200), all of which were managed conservatively without long-term consequences. No major adverse events or procedure-related mortality were reported. Stricture recurrence was observed in 22% (44/200) of patients within the 12-month follow-up period. Among these, 30 patients underwent repeat VIU, while 14 were referred for alternative surgical management such as urethroplasty due to multiple recurrences or complex stricture characteristics. Subgroup analysis revealed that patients with idiopathic strictures ($n=90$) had a slightly higher success rate of 82% compared to those with traumatic or iatrogenic strictures ($n=110$), who had a success rate of 75%, though this difference was not statistically significant ($p = 0.12$). Overall, the data indicate that VIU is an effective and safe intervention for short bulbar urethral strictures less than 1 cm, with a favorable balance between symptomatic relief and a low incidence of complications and recurrence.

Conclusion

Visual internal optical urethrotomy represents a reliable, minimally invasive treatment modality for bulbar urethral strictures less than 1 cm in length, offering significant symptomatic relief and improved urinary flow with a favorable safety profile. While the procedure demonstrates high initial success rates, long-term surveillance remains critical to detect and manage stricture recurrence effectively. These findings support the continued use of VIU as a primary therapeutic approach in appropriately selected patients at Lady Reading Hospital, Peshawar, and provide a foundation for further research to optimize management strategies in this clinical context.