



A RETROSPECTIVE COMPARATIVE STUDY ON BLADDER NECK RESECTION SURGERY USING 22 FR AND 26 FR RESECTOSCOPE SHEATH

Arun R	Apollo Hospitals, Chennai.
Daripally Babu	Apollo Hospitals, Chennai.
Nitesh Jain	Apollo Hospitals, Chennai.
Nandyala Penchala Reddy	Apollo Hospitals, Chennai.

ABSTRACT

Background: Primary Bladder Neck Obstruction (PBNO) is a condition characterized by lower urinary tract symptoms resulting from a narrowing or insufficient opening of the bladder neck during urination. Surgical treatment, such as bladder neck resection (BNR), is often performed when medical management is unsuccessful. This study compares the postoperative outcomes of BNR using a 22F resectoscope sheath versus the standard 26F resectoscope sheath. **Methods:** A retrospective observational study was conducted from October 2022 to October 2024 at Apollo Hospitals, Chennai, involving 60 patients who underwent BNR. The patients were divided into two groups: Group A (22 Fr sheath) and Group B (26 Fr sheath). Preoperative and postoperative parameters, including AUA score, QOL score, and uroflowmetry, were measured at 3 and 6 months. Complications such as urethral stricture and postoperative bleeding were also noted. **Results:** Both groups had similar preoperative characteristics, and there was no significant difference in symptom improvement as measured by AUA score and QOL score. However, the 26 Fr group had a higher incidence of postoperative urethral strictures (5%) compared to the 22 Fr group, which had no strictures. Additionally, one patient in the 26 Fr group experienced significant postoperative bleeding, requiring relook cystoscopy and fulguration. **Conclusion:** BNR using a 22 Fr resectoscope sheath offers comparable symptom relief to the 26 Fr sheath but with a lower risk of postoperative complications, particularly urethral strictures.

KEYWORDS :

INTRODUCTION:

Primary Bladder Neck Obstruction (PBNO) is a condition characterised by dysfunction of the bladder neck (BN), leading to a narrowing or insufficient opening of the collum vesicae during urination. This results in obstruction of the bladder outlet [1]. The exact cause of PBNO remains unclear, though various potential explanations have been proposed over time [2]. Turner-Warwick and colleagues proposed abnormal morphologic arrangement of the detrusor/trigonal musculature to be the cause of inefficient opening of the bladder neck [3]. Clinically, PBNO can present with a range of symptoms, including difficulties with both voiding and storage, pelvic discomfort, and, in some cases, issues related to ejaculation [4,5]. Medical management with alpha-adrenergic blockers will be the initial treatment. If medical therapy fails, surgical treatment is preferred. The traditional intervention is a unilateral or bilateral bladder neck incision at the 5 and 7 o'clock positions with or without bladder neck resection [6]. The BNR procedure can be performed using either electrocautery or laser energy. Postoperative stricture, retrograde ejaculation are some of the known complications. This study aims to compare the outcomes of bladder neck resections performed with a 22 Fr resectoscope sheath versus the standard 26 Fr sheath and to determine whether sheath size truly matters and affects postoperative outcomes.

Objective:

To evaluate the postoperative outcomes of bladder neck resections done using a 22 Fr and a 26 Fr resectoscope sheath.

METHODS AND MATERIALS:

Study Design: A retrospective observational study

Study Period: October 2022 and October 2024

Study Setting: Apollo Hospitals, Chennai

Study Population: The study included 60 Patients who underwent a BNR procedure, with 30 patients in each group.

Inclusion Criteria:

- Patients with failed medical management of lower urinary

tract symptoms (LUTS).

- Small prostates less than 30 g in USG and not requiring TURP or resection of lateral lobes during the procedure.

Exclusion Criteria:

Previous history of prostatic surgery

Patients who refused to give consent for the study

Statistical Analysis:

The data obtained was entered into an Excel sheet (MS Office 2007). Continuous variables were expressed as mean $\pm$ standard deviation (SD). Comparison of continuous variables was performed using an Independent sample t-test. Comparison of categorical variables was handled using the chi-square test or Fisher's exact test. All p-values less than 0.05 will be considered statistically significant. Data analysis was carried out using SPSS version 25.0.

Methodology:

The patients were randomised into two groups: Group A and Group B. Group A included patients who underwent BNR using a 22 Fr resectoscope sheath. Group B included patients who underwent BNR using a 26 Fr resectoscope sheath. Informed and written consents were obtained from all the patients included in the study. A detailed history, including the history of LUTS and other urinary symptoms, past history, drug history, personal history and family history, was obtained from all patients. Patients underwent a detailed clinical examination, including a per-rectal examination. Routine preoperative laboratory investigations, including a complete blood count, blood urea, serum creatinine, serum sodium and potassium levels, blood sugar, coagulation profile, and urine analysis, were performed in all patients. Ultrasound KUB to look for prostate volume and to evaluate bladder and upper urinary tract was done in all the patients by a single observer. Uroflowmetry and PVR measurement were also done. Preoperative AUA scores and QOL scores were calculated for all patients. After anaesthetist clearance, patients underwent bladder neck incision with resection surgery. In all the

patients, BNR was done using a 22 Fr or 26 Fr resectoscope sheath. OTIS urethral dilatation was done before the introduction of a 26 Fr resectoscope sheath in group B patients. The BNR was performed using monopolar loop diathermy, and 1.5% glycine was used for irrigation throughout the entire procedure. Operative time, intraoperative and postoperative complications, and hospital stay were collected. Foley removal was done at pod 3; whether the trial without a catheter was successful or not was also noted. Symptom improvement, as measured by AUA score, QOL score, and uroflowmetry, was noted at both 3 and 6 months.

RESULT:

Preoperative parameters, including AUA score, QOL score, and prostate volume, were similar in both groups (Table 1). One patient in the 26 Fr group had significant haematuria, required relook cystoscopy, and needed an electro-fulguration. Patients in both groups experienced a similar improvement in lower urinary symptoms, and the AUA score and QOL score at 3 and 6 months were comparable in both groups (Table 2). Two patients in the 26 Fr sheath group had postoperative urethral strictures requiring subsequent management, and none of the patients in the 22 Fr sheath group developed strictures.

Table 1: Pre-operative parameters among the groups

PARAMETERS	22 F sheath (n=30)	26 F sheath (n=30)	P value
AUA score	23.3+/-4.1	24.1+/-4.3	0.397
Q max	8.9+/-2.6	8.5+/-2.4	0.476
Prostate volume	20.5+/-5.9	20.3+/-6.4	0.884

Table 2: Follow-up parameters among the groups

PARAMETERS	22 F sheath (n=30)	26 F sheath (n=30)	P value
AUA at 3 months	4.2+/-2.1	4.6+/-2.3	0.419
Q max at 3 months	21.6+/-6.8	19.4+/-6.7	0.149
AUA at 6 months	5.2+/-2.6	5.1+/-2.4	0.858
Q max at 6 months	21.1+/-5.4	19.1+/-6.1	0.124
Urethral stricture	0	2 (5%)	

DISCUSSION:

The average calibre of the EUM in Indian males was 23.23 Fr, which is about 3 Fr smaller than the standard 26 Fr transurethral resectoscope sheath [7]. In many cases, OTIS urethral dilatation was required for the insertion of a larger 26F sheath. OTIS urethral dilatation has a risk of postoperative bleeding and urethral damage [8]. In this study, one patient in the 26 group had significant post-operative bleeding, for which relook cystoscopy was done, which revealed urethral bleeding from the OTIS site and subsequently managed with fulguration. Some studies also show that the use of larger-sized sheaths may result in urethral stricture, especially in narrow-calibre urethras [9]. In this study, two patients in the 26 F group developed significant postoperative urethral strictures requiring re-procedure. The use of smaller-sized sheaths may avoid OTIS urethral dilatation and can also decrease the chance of postoperative complications, especially urethral stricture.

Limitations:

This study is retrospective in nature, and patients who did not attend follow-up appointments were excluded from the analysis. Although follow-up was conducted for six months in this study, a longer follow-up could yield more useful information and could identify potential long-term complications.

CONCLUSION:

Bladder neck resection using a 22 Fr resectoscope sheath results in similar postoperative symptom improvement and a

lower stricture rate compared to a 26 Fr sheath. The 22 Fr sheath could replace the standard 26 Fr sheath for such procedures, especially in patients with smaller urethral calibers, offering a safer alternative with fewer complications.

REFERENCES

1. Nitti VW, Lefkowitz G, Ficazzola M, Dixon CM. Lower urinary tract symptoms in young men: Videourodynamic findings and correlation with noninvasive measures. *J Urol.* 2002;168:135-8.
2. Sussman RD, Drain ABB. Primary bladder neck obstruction. *Rev Urol.* 2019;21:53-62
3. Turner-Warwick R, Whiteside CG, Worth PH, et al. A urodynamic view of the clinical problems associated with bladder neck dysfunction and its treatment by endoscopic incision and trans-trigonal posterior prostatectomy. *Br J Urol.* 1973;45:44-59.
4. Kaplan SA, Te AE, Jacobs BZ. Urodynamic evidence of vesical neck obstruction in men with misdiagnosed chronic nonbacterial prostatitis and the therapeutic role of endoscopic incision of the bladder neck. *J Urol.* 1994;152:2063-5.
5. Schifano N, Capogrosso P, Matloob R, Boeri L, Candela L, Fallara G, et al. Patients presenting with lower urinary tract symptoms who most deserve to be investigated for primary bladder neck obstruction. *Sci Rep.* 2021;11:4167.
6. Orandi, A. Transurethral incision of the prostate. *J. Urol.* 1973, 110, 229-231.
7. Arora A, Ahmed MHS, Hambarde P, et al. Calibre of the External Urethral Meatus in Indian Population: A Cross-sectional Study. *J Clin of Diagn Res.*2022; 16(6):PC13-16.
8. Mete UK, Deshpande RS. Confronting urethrorrhagia after Otis urethrotomy: a case report. *J Med Case Rep.* 2023;17(1):522. Published 2023 Dec 7.
9. Yildiz A, Akdemir S, Anil H, Guzel A, Arslan M. Comparison of Perioperative Outcomes and Urethral Complications Between Using 24-French and 26-French Resectoscope Sheaths in Holmium Laser Enucleation of the Prostate. *Med Bull Haseki.* 2022 Mar;60(2):127-132.