E-ISSN: 2616-3470
P-ISSN: 2616-3462

www.surgeryscience.com
2020; 4(2): 179-181
Received: 26-02-2020
Accepted: 28-03-2020

Sharma Vikas
Department of Urology, Rajiv Gandhi Super Specialty Hospital, Tahirpur, Delhi, India

Sharma Aditya
Department of Urology, Apollo Medica Super Specialty Hospital, Sector - B, LDA Colony, Lucknow, Uttar Pradesh, India

Yadav Rahul
Department of Urology, Apollo Medica Super Specialty Hospital, Sector - B, LDA Colony, Lucknow, Uttar Pradesh, India

Faridi Shazib
Department of Urology, Ram Manohar Lohia Hospital, Type III, Connaught, New Delhi, India

Dr. Singh Dinesh
Rajiv Gandhi Super Speciality Hospital, Tahirpur, New Delhi, India

Agarwal Ankur
Department of Urology, Rajiv Gandhi Super Specialty Hospital, Tahirpur, Delhi, India

Khan Rafey
Department of Urology, Rajiv Gandhi Super Specialty Hospital, Tahirpur, Delhi, India

Corresponding Author:
Sharma Vikas
Department of Urology, Rajiv Gandhi Super Specialty Hospital, Tahirpur, Delhi, India

Experience and outcome of simultaneous bilateral endoscopic surgery (SBES) for patients with bilateral upper tract urolithiasis

Sharma Vikas, Sharma Aditya, Yadav Rahul, Faridi Shazib, Singh Dinesh, Agarwal Ankur and Khan Rafey

DOI: https://doi.org/10.33545/surgery.2020.v4.i2c.416

Abstract
Introduction: 15% of Urolithiasis patients presents with bilateral renal stones. Management of patients with renal stones along with ureteric stones commonly requires staged approach. Simultaneous bilateral endoscopic surgery (SBES) has emerged as more efficient treatment option which allows management of renal and ureteric stone in a simultaneous manner. We report our experience with SBES for patients with bilateral Urolithiasis.
Patients and Methods: From May 2018 to February 2020, 12 patients who would otherwise have been treated in staged or in consecutive manner were planned for Simultaneous Bilateral Endoscopic surgery. Procedures were performed in the FOSML position to achieve both antegrade and retrograde access. Management of renal stones by supine approach and retrograde uretroscopic lithotripsy for ureteric stones under general anesthesia.
Results: A total of 12 patients underwent simultaneous bilateral endoscopic surgery. Among these 12 patients, 2 patients had contra lateral upper ureteric calculus, 4 had mid ureteric calculus and remaining 6 had lower ureteric calculus. 11 patients were discharged on second postoperative day and remaining 1 patient was discharged on 3rd postoperative day due to procedure related complication.
Conclusion: Simultaneous bilateral endoscopic surgery can be performed in FOSML position and is safe and effective procedure with shorter operative time and anesthesia. Procedure is beneficial for patient, healthcare system and surgeon.

Keywords: Renal stones, urolithiasis, uretroscopic lithotripsy and management

Introduction
The presence of bilateral renal stones is not insignificant. Some recent studies showed that among Urolithiasis patients 15% had bilateral renal stones [1]. It is well documented that bilateral single session Endourological surgery for the treatment of stones is effective in terms of safety and efficacy [2]. Management of patients with renal stones along with ureteric stones commonly requires a staged approach as it is not possible to achieve ureteroscopic access during prone percutaneous Nephrolithotomy (PPCNL). If both procedures are done in single-stage, operative time increases as the Uretroscopic procedure is followed by prone percutaneous Nephrolithotomy (PPCNL).
However, simultaneous bilateral endoscopic surgery (SBES) has emerged as a more efficient treatment option that allows the management of renal and ureteric stone simultaneously by allowing two surgeons to work simultaneously. Single session bilateral surgery for Urolithiasis has multiple advantages like single anesthesia for patients, reduced radiation exposure, shorter intra-operative time, and a more cost-effective nature [3]. In this study we report our experience with SBES for patients with bilateral Urolithiasis.

Patients and Methods
This study was conducted with the consent obtained from the university/institutional ethical committee. Patients with both ureteric and renal stones who would otherwise have been treated in staged or in a consecutive manner, were included in the study. All patients underwent preoperative radiological investigation in the form of a non-contrast CT scan KUB along with anesthesia fitness-related investigations.

Patient Position: (Figure 1) before positioning the patient, marking of important Surface landmarks (Ribs, Iliac crest, and Posterior axillary lines) were done. The patient is turned lateral (90°) towards the contralateral side and upper back is rested against padded support. Both Lower limbs are supported and fixed on lithotomy stirrups and ipsilateral buttock rests on soft Pad. The ipsilateral lower limb is slightly extension on hip with knee partially flexed and goes down below the level of the table. The contralateral lower limb is kept in a conventional lithotomy position with flexion abduction, external rotation at the hip, and flexion at the knee [4].

Fig 1: Flank Free Oblique Supine Modified Lithotomy position to achieve retrograde and antegrade access.

Surgical technique: After positioning the patient in a fosml position. Cystoscopy was performed (Figure 2), ureteric catheter was advanced over the wire into the pelvic calyceal system and retrograde pyelography was done through the ureteric catheter to delineate calyceal anatomy. Renal access is achieved by the triangulation technique under fluoroscopic guidance and tract was dilated up to 24 fr. fluoroscopic guidance can take for both sides at the same time without changing position (Figure 3). After achieving the desired amplatz position, nephroscopic lithotripsy is done by one surgeon and another surgeon performs opposite side ureteroscopy procedure (Figure 4). Both stones could be visualized at the same time (Figure 5). Pneumatic energy was used for lithotripsy as it was the only available equipment. After completion of nephroscopic lithotripsy all Dj stent insertion was visualized through a cystoscopic vision which in this setting has the additional advantage of confirming the stent position and extraction of any blood clots in the bladder which prevents bladder clot-related complications in the postoperative period (Figure 6). All patients underwent bilateral DJ stent placement after lithotripsy or stone fragment removal along with nephrostomy tube placement for 24 hours.

Fig 2: Cystoscopy for ureteric catheter placement.

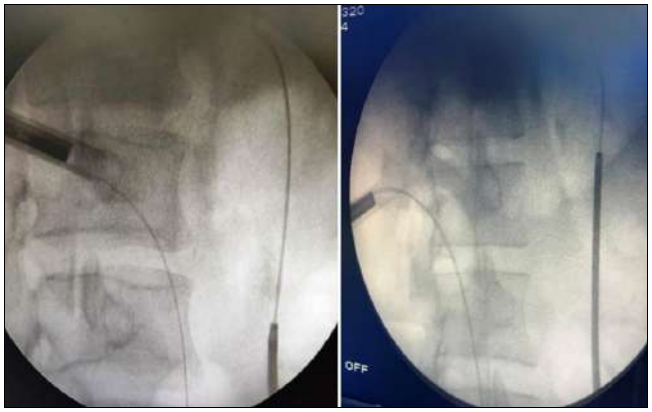

Fig 3: Fluoroscopic visualization of both rental units.

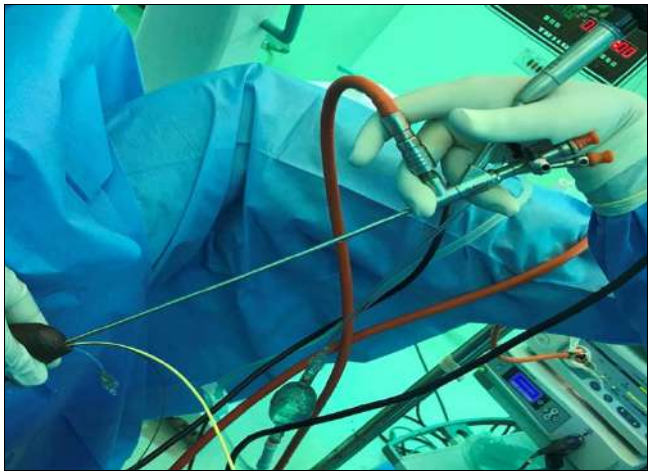

Fig 4: Ureteroscopic insertion in opposite system of renal stone for Ureteroscopic lithotripsy.

Fig 5: Simultaneous visualization of both ureteric and renal stone.

Fig 6: Cystoscopic confirmation of antegrade DJ stent placement.

Results

A total of 12 patients underwent simultaneous bilateral endoscopic surgery. Among these 12 patients, 2 patients had contralateral upper ureteric calculus, 4 had mid ureteric calculus and the remaining 6 had lower ureteric calculus. All punctures were in fracostal and renal stones were managed with a single renal access tract. Nephrostomy tube was removed on the first post-operative day and per urethral catheter removed on the second post-operative day. 11 patients were discharged on the second postoperative day after meeting institutional discharge criteria. One patient had retention of urine due to intra-vesicle blood clots and required clot evacuation and was discharged on postoperative day 3.

Discussion

Guido Giusti *et al*. study was the first prospective series of simultaneous bilateral endoscopic procedures for renal stones combining supine PCNL and FURS in tandem fashion. Study showed promising results in terms of SFR which was 74% at 1 month and there were no major complications reported and, no patients experienced renal complications, and there was no change in serum creatinine was reported [5]. With our experience with BSES it is noticed that advantages of shortening operative and anesthetic times as one renal unit does not have to wait for others to complete. Despite the simultaneous nature of procedure on both kidneys, there was no change in serum creatinine and no patients experienced renal complications.

The prone position is the most common approach for renal access but achieving retrograde ureteroscopic access is not possible in the same position. Michael Grasso *et al*. [6] achieved simultaneous antegrade and retrograde renal access in Prone Split Leg and Flank Roll Positioning only through the use of flexible instruments. Flexible instruments are more fragile and expensive compared to rigid ones. In the FOSML position there is no need for dependency on flexible instruments as the same was achieved with rigid instruments. Valdivia *et al*. introduced a supine position for PCNL and demonstrated surgical and anesthesia-related advantages [7]. Over the period other positions like the Galdakao-modified Valdivia position [8] and Bart's Modified Lateral Position [9] also tried to achieve similar outcomes.

The disadvantage of performing simultaneous procedures was the need for additional instruments like camera head, light source, lithotripsy equipment, and two operating surgeons. Compared with the prone position SPCNL has been reported to save 30-40 minutes of surgery time when compared with PPCNL [10]. Simultaneous nature of performing ureteroscopic procedure with SPCNL as and when required further saves operative time and reduces surgical and anesthesia-related morbidity.

Conclusion

Simultaneous bilateral endoscopic surgery can be performed in the FOSML position and is a safe and effective procedure with shorter operative time and anesthesia. The procedure is beneficial for patients, healthcare systems and surgeons.

Conflict of interest: Declared as None

References

1. Lee SL, Koh LT, Ng KK, Ng FC. Incidence of Computed Tomography (CT) detected urolithiasis. Suppl. AFJU 1 st ESD Experts in Stone Disease Conference, 2012, 60.
2. Proietti S, de la Rosette J, Eisner B, Gaboardi F, Fiori C, Kinzikeeva E *et al*. Bilateral endoscopic surgery for renal stones: a systematic review of the literature. Minerva Urologica e Nefrologica. The Italian Journal of Urology and Nephrology. 2017; 69(5):432-45.
3. Bagrodia A, Raman JD, Bensalah K, Pearle MS, Lotan Y. Synchronous bilateral percutaneous nephrostolithotomy: analysis of clinical outcomes, cost and surgeon reimbursement. The Journal of urology. 2009; 181(1):149-53.
4. Adittya Sharma K, Rahul Yadav: Supine PCNL in Flank-Free Oblique Supine Modified Lithotomy (FOSML) Position: Our Point of Technique. Journal of Urology & Nephrology. 2018; 3(2):000139.
5. Giusti G, Proietti S, Rodríguez-Socarrás ME, Eisner BH. Reply to Luca Boeri and Emanuele Montanari's Letter to the Editor re: Guido Giusti, Silvia Proietti, Moises E. Rodríguez-Socarrás, *et al*. Simultaneous Bilateral Endoscopic Surgery (SBES) for Patients with Bilateral Upper Tract Urolithiasis: Technique and Outcomes. Eur Urol 2018; 74: 810-5. European urology. 2019; 75(6): e173.
6. Grasso M, Nord R, Bagley DH. Prone split leg and flank roll positioning: simultaneous antegrade and retrograde access to the upper urinary tract. Journal of endourology. 1993; 7(4):307-10.
7. Valdivia JG, Valer J, Villarroya S, López JA, Bayo A, Lanchares E *et al*. Why percutaneous nephroscopy still is performed with the patient prone? Journal of End urology. 1990; 4(3):269-77.
8. Ibarluzea G, Scoffone CM, Cracco CM, Poggio M, Porpiglia F, Terrone C *et al*. Supine Valdivia and modified lithotomy position for simultaneous anterograde and retrograde endourological access. BJU international. 2007; 100(1):233-6.
9. Moraitis K, Philippou P, El-Husseiny T, Wazait H, Masood J, Buchholz N. Simultaneous antegrade/retrograde upper urinary tract access: Bart's modified lateral position for complex upper tract Endourological pathologic features. Urology. 2012; 79(2):287-92.
10. Rana AM, Bhojwani JP, Junejo NN, Bhagia SD. Tubeless PCNL with patient in supine position: procedure for all seasons?-with comprehensive technique. Urology. 2008; 71(4):581-5.