Retrospective Comparative Study of Semi Rigid Ureteroscopy and ESWL for Treatment of Upper Ureteric Calculus

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ABSTRACT
Aim: To compare the stone clearance of upper ureteric calculus by using semi rigid URS & ESWL
Setting & design: Avicenna Medical College and Hospital Lahore, Retrospective case series
Method: Retrospective data of one hundred patients (67 males, and 33 females) subjected to either semi rigid URS or ESWL for treatment of upper ureteric calculus were analyzed. These patients presented to our department from May 2017 to September 2019. Patients were divided in two groups. Group 1 (52 patients) (34 male+18 female) were subjected to semi rigid URS and Group 2 (48 patients) (33 male+15 female) were treated by ESWL. We compared two groups for clearance of calculus.
Results: The stone clearance was observed in 35 out of 52 patients (67%) who were subjected to semi rigid URS and pneumatic lithoclast. In group 2, we observed stone clearance in 34 out of 48 patients (70%).
Conclusion: Both URS with pneumatic lithoclast and ESWL can be a valid option for treatment of upper ureteric calculus.
Key words: Calculus, URS, Pneumatic lithoclast, upper ureter, ESWL

INTRODUCTION
According to European association of Urology stone guidelines ESWL and URS remain the primary treatment modalities for the management of upper ureteric calculi with comparable stone clearance rate. ESWL has been a clear edge over URS because it doesn’t require anaesthesia. Recently introduced flexible URS equipped with LASER lithotripsy has made major changes in the management of upper ureteric calculi with less complications and more stone clearance rate. Flexible URS with laser is not available in all centres. Conventionally semi rigid URS with pneumatic lithoclast is being used in majority of centres in Pakistan. In contrast to ESWL which requires multiple sessions, URS is usually a single procedure.
ESWL was 1st introduced in 1980. It has now become a preferred treatment modality for uncomplicated renal and ureteric calculi as it is safe and non invasive. ESWL efficacy depends upon many factors like stone size, location, composition, skin to stone distance, obesity, ESWL machine type and its efficacy. There are certain indications of intervention in cases of upper ureteric calculi. They include calculus larger than 7mm in size and absence of spontaneous clearance assessed by duration of symptoms more than 30 days, severity of symptoms, sepsis, calculus anuria and patient choice.

METHODS
The record of one hundred patients who underwent URS and ESWL for upper ureteric calculus between May 2016 to September 2019 were investigated retrospectively. Patients were divided in two groups. 52 patients (group 1) were subjected to URS and 48 patients (group2) underwent ESWL. All these patients were meeting the inclusion and exclusion criteria set for this study. All patients had pre-operative work up including detailed history, examination, basic laboratory investigations (renal function tests, urine analysis, urine culture (if necessary)) and radiological investigations (USG KUB, X-Ray KUB or CT KUB). Follow up of patients was done for 3 months after URS, similarly for 3 months after the last session.
Semi rigid URS was performed under spinal or general anaesthesia. Patients were given 200mg intravenous ciprofloxacin one hour before procedure.
Patients were put in lithotomy position. Cystoscopy was done and .038 fr guide wire advanced in ureteric orifice and URS advanced over guide wire under vision, once stone was identified, it was broken with pneumatic lithoclast. At the end of the procedure ureter was inspected for any residual stone which needed further strokes and any ureteral injury. In some cases 6fr DJ stent was passed depending upon operating surgeons preference. ESWL was performed without any anaesthesia. We used electromagnetic source which has both ultrasonic and fluoroscopic display.
Maximum number of shocks used for single session was 3000 n energy was variable depending on the size and location of the calculus. Shock waves were conveyed to the body through water.

RESULTS
Total of 52 patients were enrolled in Group 1, of these 52 patients, 35 achieved stone clearance. This was confirmed by x ray KUB on 1st post operative day. 67% clearance was achieved with URS. In the 17 patients in whom we couldn’t achieve stone clearance was due to the following reasons:
1) Inability to advance the URS to the level of stone (3 patients) either due to ureteral stricture or ureteral edema.
2) Proximal migration of ureteral calculus (9 patients)
3) In 5 patients procedure was declared a failure due to large residual fragments that needed a secondary procedure, either repeat URS or ESWL.
to offer other treatment options to patient because sometime there are contraindications to ESWL as discussed before or the patient is not willing to accept ESWL because of longer duration of treatment and multiple sessions. Most of patients preferred URS as therapeutic option due to early relief of symptoms and faster return to work. Multiple studies showed wide range of success with URS for treating upper ureteric calculus. Tinc et al reported their experience as 80% stone clearance in upper ureteric stone with median stone size of 12.8 mm. Other studies showed higher success but with flexible URS and laser lithotripsy. Sofer et al reported 97% success rate for upper ureteric calculus with mean size of 11.3 mm.

CONCLUSION

Both semi rigid URS and ESWL could be a valid option for treatment of upper ureteric calculus. Both have almost comparable stone clearance rate. In our experience semi rigid URS has an edge over ESWL in terms of quick relief of symptoms, less hospital visits, and early return to work. Quality of life was much better in patients undergoing URS in early 4 to 6 weeks post operatively; whereas in this duration patients in group 2 were undergoing sessions of ESWL and were having off and on pain, haematuria, and absence from work.

REFERENCES
