



EVALUATION OF RESULTS AND COMPLICATIONS OF URETEROSCOPIC LITHOTRIPSY

General Surgery

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ABSTRACT

Background: There are different therapeutic approaches for ureteral stones depending on stone size, location and anatomical variations of the urogenital tract. Watchful waiting with concomitant medication (i.e., analgesics, antiinflammatory agents, alpha-blockers) is considered an option for smaller stones

Objective:

- To observe and document outcome of procedure.
- To analyse the factors influencing successful outcome of procedure.
- To evaluate and correlate the complications of procedure.

Materials and methods: The study was conducted in Narayana Medical College from December 2020 to October 2022. 54 patients who underwent Ureteroscopic Pneumatic Lithotripsy, attending the Urology Outpatient department at Narayana Medical College were recorded.

Results: Out of 54 procedures, 49 were successful and 5 were unsuccessful which required second procedure which further required Retrograde Intra Renal Surgery in 4 procedures. Revision surgery was performed in 1 unsuccessful case No difficulty was seen in 44 procedures (81.5%) No complications were seen in 88.8% procedures **Conclusions:** Ureteroscopic Pneumatic lithotripsy is a reliable form of treatment for management of ureteric calculi due to its high success rate in middle and distal ureteric calculi, because of its high rate of stone fragmentation.

KEYWORDS

INTRODUCTION :

Ureteroscopy results in stone free rates of almost 95% in a single session. Stone removal may be achieved with forceps and baskets and with or without intraureteral stone disintegration with various lithotripsy devices. Treatment approaches should be individualized in order to achieve optimum outcomes and complications. In case of distal ureteral calculi there is hardly any doubt that retrograde ureteroscopy has a definite edge over Extra Corporeal Shockwave Lithotripsy (ESWL) as it is more efficacious; but when it comes to proximal ureteric calculi the indications for ureteroscopy are less well defined.

AIMS AND OBJECTIVES:

- To observe and document outcome of procedure.
- To analyse the factors influencing successful outcome of procedure.
- To evaluate and correlate the complications of procedure.

MATERIALS AND METHODS

A prospective cross sectional study of 54 patients attending the outpatient department at the Department of General Surgery, narayana medical college and hospital, Nellore, from December 2020 to october 2022

Inclusion Criteria:

1. Patients with Ureteric calculus who are subjected for uretero scopic pneumatic lithotripsy.
2. Patients who underwent ureteroscopic pneumatic lithotripsy who gave consent to participate in study

Exclusion Criteria:

1. Pyonephrotic kidneys
2. Patients Associated with Bleeding diathesis.
3. Patients medically unfit for surgery.

RESULT:

Haematuria is the most common post operative complication seen in 5 procedures out of 54 i.e., 9.25% of study and infection is noted in 4 procedures out of 54 i.e., 7.40% of study. No ureteric perforation and avulsion were noted. No complications were seen in 88.8% procedures

No difficulties are encountered in procedures of stone size less than 10mm, in procedures with stone size 10-20mm out of 20 procedures, 6 procedures i.e., 30% showed mucosal injury, 3 procedures i.e., 15%

showed bleeding/poor vision and 1 procedure i.e., 15% showed fragment migration.

Out of 24 procedures with upper ureteric calculi 7 procedures i.e., 29.16% showed mucosal injury and 5 procedures i.e., 20.8% showed bleeding/poor vision and 0 procedures showed failure to fragment and 4 procedures i.e., 16.66% showed fragment migration

Out of 9 procedures with middle ureteric calculi 2 procedures i.e., 22.2% showed mucosal injury, 1 procedure i.e., 11.11% showed bleeding/poor vision and 1 procedure i.e., 11.11% showed failure to fragment and 0 procedure showed fragment migration

Out of 21 procedures with lower ureteric calculi 1 procedure i.e., 4.76% showed mucosal injury and 1 procedure i.e., 4.76% showed bleeding/poor vision and 0 procedures showed failure to fragment and fragment migration.

Table 1: Difficulties Encountered During Procedure Relation To Size Of Calculus (n=54)

Type of difficulty	Size of calculi		
	<10 mm	10-20 mm	>20 mm
Mucosal injury	0	6	4
Bleeding	0	3	4
Failure of fragment	0	0	1
Fragment migration	0	1	3

Table 2: Complications In Relation To Location Of Calculus (n=54)

Type of complication	Location of calculi		
	Upper 1/3 rd	Middle 1/3 rd	Lower 1/3 rd
Hematuria [6-48 hrs]	3	2	0
Infection /post operative fever	3	1	0
Ureteric perforation	0	0	0
Ureteric avulsion	0	0	0

DISCUSSION

This is a cross sectional observational study of results and complications of ureteroscopic pneumatic lithotripsy in 54 patients in narayana medical college and hospital, Nellore, from December 2020 to october 2022

- Upper 1/3rd is the most common location of the ureteric calculi followed by lower 1/3rd and middle 1/3rd.

- Maximum number of procedures are performed in $n < 10$ mm size group. Mean size of the stone is 12.84 mm in the study.
- Out of 54 procedures, 49 were successful and 5 were unsuccessful which required second procedure which further required Retrograde Intra Renal Surgery in 4 procedures. Revision surgery was performed in 1 unsuccessful case.
- Mucosal injury is the most common difficulty seen followed by bleeding/poor vision.
- Fragment migration occurred most commonly in proximal ureter procedures
- No difficulty was seen in 44 procedures (81.5%) No complications were seen in 88.8% procedures

The results were same as results published by brian et al [1], shah j et al [3], stefanos et al [4], m masarani et al [5], Richard drake et al [6], curhan et al [7]

CONCLUSION:

- Ureteroscopic Pneumatic lithotripsy is a reliable form of treatment for management of ureteric calculi due to its high success rate in middle and distal ureteric calculi, because of its high rate of stone fragmentation.
- More failures were observed in stones in upper third of ureter due to fragment migration. Ureteroscopic laser lithotripsy may be considered for these calculi.
- Ureteroscopic Pneumatic lithotripsy gives rise to a minimal minor complications, and major complications such as upward migration of stones and sepsis can be reduced by proper selection of cases and adequate precautions.
- Owing to its higher fragmentation capability and fewer post-operative complications, Ureteroscopic Pneumatic lithotripsy is a cost- effective modality in management of ureteric calculi

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