

Use of Inline Doppler ultra-sound in targeting juxta-vesical calculi for ESWL

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Introduction: Although the clearance rate of the stones treated via ureteroscopy is still higher than ESWL, ureteroscopy has higher rate of complications and requires hospital admission. The advances in the technology of Lithotripters made the localization of lower ureteral stones easier and improved the outcome of ESWL.

Purpose: To assess the benefits of using inline Doppler ultra-sound for targeting lower ureteric stones during ESWL.

Materials and Methods: Prospective randomized study on patients undergoing ESWL for lower ureteric stones during the last 3 years using electromagnetic Lithotripter.

(Group I) 81 patients in whom the stone was localized by inline Doppler ultra-sound.

(Group II) (Control group) 81 patients in whom the stone was localized by Flouroscopy.

Both groups were treated in prone position. In group I real time follow-up through-out the treatment session via inline ultrasound (B mode & Doppler).

Patients were assessed weekly regarding; stone fragmentation and clearance, the need for further ESWL, and the need for endoscopic intervention.

Results: See Table 1.

Table 1. Comparison between the outcome in G.I & G.II

	GR I (81 Pts) In-line Doppler U/S localization	GR II (81 Pts) Flouroscopic localization
Average age	37 years	38 years
Average stone size	9.7mm.	9.3mm.
Stone clearance after one ESWL session	84% (68 Pts)	48% (39 Pts)
Need for further ESWL (Retreatment)	16% (13 Pts)	52% (42 Pts)
Average number of ESWL sessions/Pt.	1.2	1.5
Average number of shock waves	4700	6100
Overall clearance following ESWL	97.5% (79 Pts)	93.7% (76 Pts)
Need for URS	2.5% (2 Pts)	6.2% (5 Pts.)
Average fluoroscopy time for initial localization	41 Sec.	57 Sec.
Average fluoroscopy time per session	47 Sec.	153 Sec.
Average Total fluoroscopy time	55 Sec.	230 Sec.
Average session time	59 min	63 min

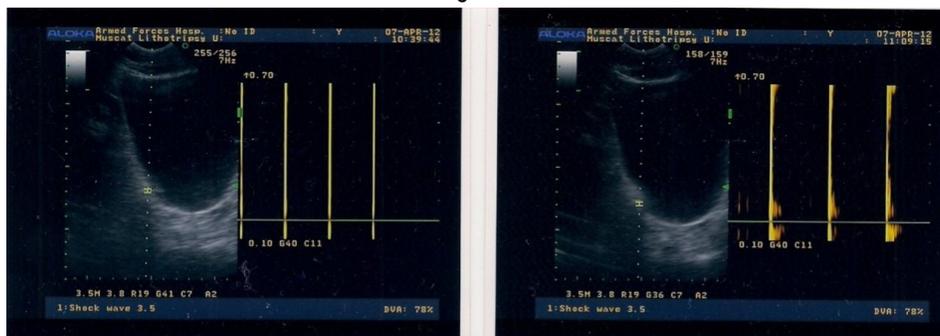
Conclusions: In juxta vesical ureteric stones; ESWL is an effective treatment modality.

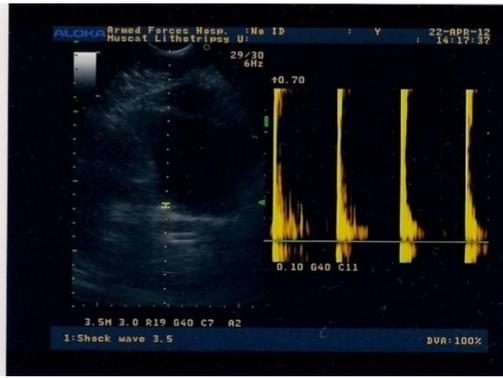
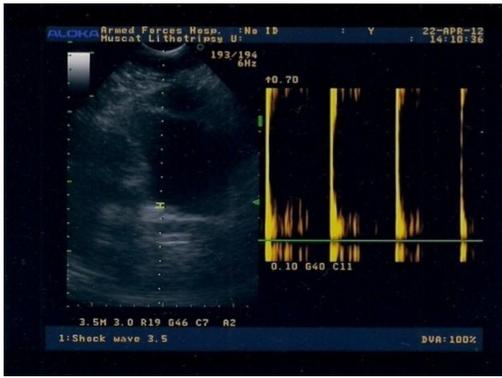
Inline Doppler ultrasound assures proper targeting of the stone and helps in detecting its fragmentation (Figure 1).

Stones localized by inline Doppler ultrasound for ESWL have lower retreatment rate in comparison with stones localized by Flouroscopy.

Inline ultrasound localization of the lower ureteric stones for ESWL reduces the radiation exposure time and reduces the need for ureteroscopy.

Figure 1.





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