Comparison **between ureteroscopy** and extracorporeal **shock wave lithotripsy** in treatment **of** lower **ureteral stones**

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We have different modalities of treatment of lower ureteric stones ranging from ESWL to ureteroscopy and open ureterolithotomy. All over the world, ESWL and ureteroscopy are the first line of treatment for the lower ureteral stones that need intervention, and the option of treatment depends on the favourability of the urologist to perform either ESWL or ureteroscopy.

Both treatment modalities share a high success rate with a low morbidity; therefore, the selection of the optimal surgical treatment for lower ureteral stones remains one of the controversial topics in urology.

Methods and Materials

Since January 2002 until November 2003, 54 patients were treated for lower ureteral stones (that is the stone below the inferior border of sacroiliac joint) after failures of passage of stones spontaneously within three weeks of follow up. Twenty-six patients were treated by ESWL (16 male, 10 females). Whilst 28 patients had been treated by ureteroscopy (20 males, 8 females).

Using Sonolith 4000 & lithotripter ESWL was performed; generally the patients received 3500 to 4500 shocks from 75 to 100 Kv.

Not one patient who had been treated by ESWL needed any type of anaesthesia.

All the ureteroscopies were performed in our institute with rigid ureteroscopy (10F); stones were either removed by Dormia basket or by forceps, while disintegrated by Lithoclast Lithotripter. Patients who had been treated by ureteroscopy were given a general anaesthesia.

All the patients were investigated preoperatively by plain films of kidney, ureter and bladder (KUB); also IVP and sonogram were used to identify the size and location of the stones.

Postoperatively all patients were followed by KUB and/or IVP until they were stone free.

Results

The average procedure time in ESWL was 45 minutes while the stone free rate was 88%. 4 patients (15%) needed two or more sessions of ESWL before they were at a stone Free State.

Three patients required ureteroscopies stone removal three weeks after ESWL. In one patient, ureteroscopic stone removal had been done after stones failed to pass within 42 days after ESWL. There were no complications in the group of patients treated by ESWL.

On the other hand, the average procedure time in ureteroscopy was 40 minutes and the stone free rate was 95%. Two patients needed a balloon dilatation at distal ureter, due to the presence of ureteral stricture while in six patients; the stone could be extracted without disintegration (using Dormia basket or stone forceps).

There was one case where we had failed to pass the ureteroscopy and so was treated by ESWL successfully.

There were two short-term complications (7.1%) in the ureteroscopy group, both were ureteral perforation, one occurred after lithotripsy and forceps extraction while the other one occurred during a balloon dilation of distal ureter. Both cases were treated by insertion of DJC as ureteral Stent for 8 weeks and ureteroscopy was done and the stones were fragmented and extracted.

Discussion

Most urologist recommend either ESWL or ureteroscopy as a primary treatment for lower ureteral calculi and there is a supporting literature for either modalities of treatment, in fact, in all parameters studied no significant difference between the two modalities could be established.

From our study, we found that ESWL is effective and a non-invasive procedure usually done without the need of anaesthesia, unless we used a high-energy source; we use sedations (1).

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Many authors claim that the success rate is not as high as ureteroscopy and that visualization of the stone is often difficult (2).

Modifications on the new lithotripters have been reported to improve the stone localization, treatment and success rate (3).

Although we hadn't faced any complications from ESWL, but they can happen and vary from colicky pain to infection and bleeding and in the literature, the surgical intervention rate after ESWL for stones in all locations is reported to be as high as 7% (4).

The urethroscope is a highly successful, minimally invasive and has minimal morbidity especially if used by trained hands.

Since ureteroscopy is more invasive than ESWL, it is usually performed under general anaesthesia and the need of anaesthesia during ESWL procedure depends on the energy source (5, 6).

Long term complications of ureteroscopy range from 0.5% to 10% (3, 7), and our overall rate of complications was within this range.

In conclusion, to our study, both ureteroscopy and ESWL are highly successful in treating lower ureteral stones and having low morbidity, so we recommend both procedures as a primary treatment for lower ureteral stones.

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