

POSTER SESSION MP28
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DOES A STENT AFFECT SHOCK WAVE LITHOTRIPSY OUT-COME? AN IN VITRO STUDY

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Introduction :

The aim of our study was to evaluate in vitro the effect of a stent on shock wave lithotripsy efficacy.

Method :

Forty-five round ceramic stones (mean diameter 9.5 mm) were placed in a net-like basket (hole size 2.2 mm) and immersed in a water bath coupled with the Econolith 2000™ lithotripter (Medispec Ltd., Israel). The stones were equally divided into three groups: Group 1 = no stent, Group 2 = a double pigtail stent (Cook Urological, IN, USA) positioned adjacent and between the energy source and the stone, and Group 3 = a stent positioned behind the stone. Electrohydraulic shock waves with an intensity of 22.5 kV were delivered at a rate of 90 shocks per min. The number of shocks required for complete fragmentation, i.e., when all fragmented particles fell through the basket holes, was recorded.

Result :

More shock waves (20%) were required for complete fragmentation in Groups 2 and 3 ($207.8 \pm SD93$ and $190.4 \pm SD98$, respectively) than for Group 1 ($167.5 \pm SD54$).

Conclusion :

The presence of a stent in the vicinity of a stone diminished the efficacy of shock wave lithotripsy in an in vitro study. The need for more shocks for complete fragmentation in the presence of a stent may have clinical implications by prolonging treatment time and reducing the effectiveness of SWL in patients with internal stents.

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USE OF URETEROSCOPIC AND EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY IN TREATING URETERIC CALCULI. 3 YEARS OF EXPERIENCE

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Introduction :

The aim of this study is to compare the frequency of use of Extracorporeal Shock Wave Lithotripsy and Ureteroscopic lithotripsy versus open surgery in treating ureteric stones and to describe the changes occurred regarding the use of different methods in our clinic during the last three years.

Method :

Two hundred and fifty five patients were treated for ureteric stones in this study which was conducted during the period from July 2000 to June 2003. Ureteroscopic lithotripsy and ESWL had been introduced for the first time in our clinic as well as in Aden, the economic capital of the Republic of Yemen, by the year 2000 and 2001 respectively. Till June 2000, the options in the treatment of ureteric stones were either conservative or surgical treatments. Records of all patients admitted to our clinic during the period July 2000 and June 2003 with ureteric stones were reviewed.

Result :

In the second half of the year 2000 open ureterolithotomy ratio to ureteroscopic and extracorporeal lithotripsy was 41.6%, while in 2001 was 18.3%. This percentage decreased to 7.8% in 2002 and to 5.9% in the first half of 2003.

Conclusion :

While most patients with ureteric calculi can be rendered stone free with ESWL and Ureteroscopic lithotripsy open stone surgery continues to represent a necessary alternative for a small segment of population. However, our results in treating ureteric calculi showed much improvement by using the new methods.

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EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY: OUR EXPERIENCE WITH DORNIER LITHOTRIPTER S

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Introduction :

Extracorporeal Shockwave Lithotripsy (ESWL) is the less invasive treatment for renal and ureteral calculi and is the most accepted by the patients. We assessed the results of ESWL for renal and ureteral calculi with Dornier Lithotripter S.

Method :

Between January and December 2003, 156 urinary stones (63 renal and 93 ureteral calculi) were treated. Stone clearance was assessed at 1 and 3 month (after a single treatment of ESWL) with KUB and ultrasound scan. Stone-free condition was defined as complete stone clearance or the presence of residual fragments with a diameter of 3 mm or less. Analysis was carried out according to stone size, location, number of shock waves per stone, complications, analgesia requirement during each treatment and stone free-rate. The treatments were performed in all patients by means of a Day Hospital base.

Result :

The average stone size was 10,8 mm (Range: 5-20 mm) for ureteral calculi and 12 mm (Range: 3-40 mm) for renal calculi. The stone free rate for ureteral calculi was 52,4% at 1 month. The stone free rate for renal calculi was 54,8% at 1 month. The stone free rate for all calculi was 70,6% at 1 month. The stone free was 87,3% rate for ureteral calculi and 83,9% for renal stones at 3 month. The stone free rate for all calculi was 85,3% at 3 month. Intravenous analgesia (Ketorolac) was necessary in 31 (19,9%) of treatments. No intra or post operative complications were seen, excluding one steinstrasse solved by pharmacological treatment.

Conclusion :

Dornier Lithotripter S represents an effective noninvasive treatment for renal and ureteral calculi that can be achieved with minimal analgesia and a low complication rate. Moreover, ultrasound and X ray allowed urologist to treat all type of stones.

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EFFICACY OF THE DORNIER LITHOTRIPTER S MACHINE FOR 100MM2 - 400MM2 RENAL CALCULI.

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Introduction :

Little has been written with regard to the efficacy of third generation extracorporeal shock wave lithotripsy (SWL) machines in the treatment of renal calculi between 100 to 400mm2. We present retrospective data on the Dornier Lithotripter S, specifically looking at safety, efficacy, and the influence of pre-treatment stenting on the incidence of complications.

Method :

Of 699 patients with renal calculi who had undergone SWL, 100 were identified with single stones between 100mm2 and 400mm2 and utilised for further analysis. 22 had ureteric stents inserted prior to SWL with a further 2 having a nephrostomy.

Result :

The median number of treatments per calculus was 2 with a mean number of shocks per treatment of 2844 at an average power of 67%. 72% of treatments were successful (defined as stone free [n = 42], or residual fragments less than 4mm in diameter [n = 30]). Failure was observed in 28% of cases where ancillary therapies (flexible ureterorenoscopy or percutaneous nephrolithotomy) were required. Whilst no statistical difference could be demonstrated between the outcome and size or site of calculus, the mean area of stone undergoing successful treatment was 155mm2 compared to 171mm2 in those where treatment failed. Two patients required nephrostomies for an infected obstructed system and two for steinstrasse. There was no statistical difference in either success or complications between patients with ureteric stents and those without (P-value 0.11). The mean size of calculus in patients without complications was 157mm2 compared to 188mm2 in those with (P-value 0.16).

Conclusion :

The Dornier S lithotripter provides safe and effective first line treatment of renal calculi between 100mm2 to 400mm2. Whilst the stone-free rate is relatively low, the low complication rate supports our use of SWL compared with more invasive treatments. Pre-treatment placement of a ureteric stent does not appear to confer a benefit.