The Clinical Case for ESWL

Anesthesia & ESWL: Performance with a third generation lithotripter

October 2017

Dornier MedTech
Editorial

Dear Doctor,

Extracorporeal Shock Wave Lithotripsy (ESWL) has been the cornerstone of non-invasive kidney stone management for over four decades. As the Medical Officer of Dornier MedTech, I would like to take this opportunity to introduce to you a series of articles, which together comprise “The Clinical Case for ESWL.” This article is a very interesting and important peer-reviewed article published on ESWL.

As the innovators of ESWL technology, we at Dornier MedTech continuously strive to improve and enhance the efficacy and safety of our ESWL devices. These studies utilized Dornier Delta I and Delta II devices, and continuing this rich tradition, it gives me immense pleasure to introduce to you the latest Dornier Delta® III lithotripter.

The Dornier Delta® III offers even more powerful imaging for improved stone visualization, greater penetration depth to treat more stones in more patients, and greater efficiency with time saving features. This semi-integrated lithotripter has everything you need to best manage your patients’ stones, and perhaps our most important feature, Opticouple® technology—Optical Coupling Control (OCC) which significantly improves stone free rates and lowers retreatment rates.

It is only prudent that we have a look at some of the important recent evidence published on ESWL, especially with Dornier devices. We have made a sincere attempt to present the most relevant information in a concise and lucid manner with figures where appropriate. I am sure you will find this article very useful for your clinical practice. To read other articles, please visit us at www.dornier.com.

Happy reading!

Yours sincerely,

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Anesthesia & ESWL: Performance with a third generation lithotripter

Background

Newer lithotripters require a lesser degree of anesthesia or no anesthesia and they are also more mobile as compared to the Dornier HM3 lithotripter, the world’s first commercially available lithotripter. However, they may not be as effective as the Dornier HM3 lithotripter.

Objective

To study the effectiveness of a third generation lithotripter, Dornier Compact Delta, in treating renal and ureteral stones under anesthesia.

Methods

A total of 502 patients with symptomatic renal and ureteral stones were treated from January 1, 2003 to December 31, 2005. All patients were treated using the Dornier Compact Delta lithotripter by a single surgeon who recorded all preoperative, intraoperative and postoperative data to avoid inter-operator variability. Treatment success was defined as residual stone fragments less than 4 mm on radiography. Postoperative follow up was conducted at 1 and 3 months to determine success. Stones were classified by location and size using the Japanese Urological Association criteria.

Treatment Protocol

Patients were treated in the supine position. Seventy percent of patients were given general anesthesia using midazolam. Remaining patients received epidural anesthesia with or without intravenous analgesia. Shock waves were applied at a mean intensity of 5 and an average 3,471 shocks were applied. Patients with treatment failure were treated with repeat extracorporeal shock wave lithotripsy (ESWL) or alternative procedures.
Results

There were 334 male and 168 female patients. About 37% of stones were located in the kidney and 63% stones were located in the ureters. A total of 61.8% (310) patients had stones <1 cm, 29.7% (149) had stones from 1 to 2 cm and the remaining 8.6% (43) had stones larger than 2 cm. A total of 459 (91.4%) patients completed the 1 and 3 month follow up. Treatment success rate was 95.9%; 83.9% (385) were stone free and 12% (55) had residual fragments smaller than 4 mm.

Fragmentation by Stone Location

Treatment success by stone location is shown in figure 1 below. Stones smaller than 2 cm had a greater success rate.

Fragmentation by Stone Size

Treatment success by stone size is shown in figure 2 below. Treatment of ureteral stones had a better success rate irrespective of stone size.
The efficiency quotient (EQ), based on stone free rate, retreatment rate and auxiliary procedures, of Dornier Compact Delta in this study was 0.65 which was similar to the EQ of 0.67 of Dornier HM3 published previously.

**Conclusion**

This third generation lithotripter was found to be effective in treating renal and ureteral stones. Treatment efficacy can be improved by performing lithotripsy under anesthesia.

**Reference**


The full article can be accessed after purchase by [clicking this link](#):