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### **Can the Accordion Stone Device assist in upper Ureteral ESWL? Pilot clinical experience with a novel use of the device.**

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**Background:** Extracorporeal shock wave lithotripsy (ESWL) of proximal ureteral stones has limited success rates. Our objective was to determine whether an Accordion stone device might facilitate ESWL by tenting urothelium adjacent to the stone and creating an expansion chamber to increase fragmentation.

**Methods:** With IRB approval and patient consent, five patients were evaluated for stone fragmentation during ESWL with a 10mm Accordion stone device (PercSys) positioned either bracketing (2 patients) or immediately distal to the stone (3 patients). Stones ranged in size from 5 to 8 mm. After ESWL treatment (2000 shocks), the extent of fragmentation noted with fluoroscopic imaging was ranked as either low (minimal fragmentation), moderate (>60% of fragments >2mm), or extensive (<40% fragments >2mm).

**Results:** In all five patients, the radiopaque Accordion device assisted targeting the stones. It held contrast above the stone throughout the procedure, and swept fragments from the ureter afterwards. Bracketing the stone with the film occlusion resulted in one moderate and one extensive stone fragmentation; positioning the occlusion distal to the stone resulted in one moderate and two extensive fragmentation rankings. There were no patient complications nor damage to the devices employed. All 5 patients cleared their stones.

**Conclusions:** The Accordion device appears to have assisted stone fragmentation whether bracketing or just distal to the stone. The Accordion provided guidance in localizing stones, did not interfere with the application of shock waves, and reduced residual stone volume by sweeping fragments out of the ureter after effective fragmentation in 5 of 5 patients. These results warrant further clinical investigation.

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