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LIMITING STONE RETROPULSION DURING PNEUMATIC LITHOTRIPSY WITH A NOVEL URETER OCCLUDING DEVICE

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Introduction: Stone retropulsion is common during pneumatic lithotripsy. The objective of this study was to measure the capacity of a novel occluding device to limit retropulsion when used with a typical lithoclast system.

Methods: A ureter model with an internal diameter of 7 mm was used to measure the retropulsion of artificial stones 6.5 mm in diameter with and without the use of the Accordion device (PercSys, Inc). The model was submerged in a container of saline and a pneumatic lithotripter (Swiss Lithoclast) advanced to the stone and the stone hit with a single shot at 70%, 80% and 100% power with and without the Accordion device in place. The distance the stone traveled was measured following each shot; this was repeated 5 times each.

Results: The mean retropulsion distance was 10 mm at 70%, 32 mm at 80% and 33 mm at 100% power without and no measurable retropulsion with the Accordion device in position proximal to the stone. The Accordion device held the stone in a static position during the lithotripsy, but the force applied by the pneumatic lithotripter at times moved the stones into the folds of the film occlusion.

Conclusions: The Accordion device limited stone retropulsion. Our initial clinical use of this novel device has found it easy to engage the film occlusion proximal to the targeted stone. Continued use will determine how well this model correlates to clinical experience.

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