

A COMPARISON OF A NOVEL ONE STEP PERCUTANEOUS NEPHROSTOLITHOTOMY SHEATH WITH THE STANDARD TWO STEP DEVICE

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INTRODUCTION AND OBJECTIVE: Percutaneous Nephrostolithotomy (PCNL) is the treatment of choice for large renal calculi. The standard access for PCNL in our institution involves two steps including placement of a high-pressure balloon catheter (HPBC) followed by advancement of a sheath over the balloon. A novel, experimental PCNL balloon/sheath combination (ES) has been developed that allows for both dilation and sheath placement in a single step. Our objective is to compare the safety and efficacy of the ES to the standard high-pressure balloon in a porcine model.

METHODS: Six farm pigs underwent placement of a standard HPBC in one kidney and the ES on the contralateral side. Access was obtained in the upper pole in 2 animals, middle pole in 2 animals, and lower pole in 2 animals. Endpoints studied include insertion time, difficulty of insertion, estimated blood loss (EBL), and ability to visualize the calyces and renal pelvis. Thirty days following placement of the PCNL sheaths the kidneys were harvested and submitted for blinded histopathological review by a genitourinary pathologist.

RESULTS: There was a statistically significant shorter insertion time in the ES group compared with the HPBC group (1:37 vs 2:16 minutes, $p=0.03$). The ease of insertion and ability to visualize the calyces and renal pelvis were similar. In one animal the ES sheath migrated back slightly but not completely out of the kidney with inflation. On histopathologic review cortical scars noted at insertion sites were similar in the ES and HPBC groups.

CONCLUSIONS: The experimental, single step insertion percutaneous sheath appears to be as safe and effective and results in more rapid deployment of the sheath compared with the HPBC. Trials in human patients are currently underway.



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38. A COMPARISON OF A NOVEL ONE STEP PERCUTANEOUS NEPHROSTOLITHOTOMY SHEATH WITH THE STANDARD TWO STEP DEVICE. Lincoln J. Maynes, M.D., Premal J. Desai, M.D., Audley Williams, Medical Student, Neil Kaura, Medical Student, Herbert C. Ruckle, M.D., and D. Duane Baldwin, M.D. Division of Urology, Loma Linda University Medical Center, Loma Linda, CA. Presentation to be made by Dr. Maynes.

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Materials and Methods: 6 farm pigs underwent placement of a standard HPBC in one kidney and the ES on the contralateral side. Access was obtained in the upper pole in 2 animals, middle pole in 2 animals, and lower pole in 2 animals. Endpoints included insertion time, difficulty of insertion, estimated blood loss (EBL), and ability to visualize the calyces and renal pelvis.

Results: There was a statistically significant shorter insertion time in the ES group compared with the HPBC group (1:37 vs 2:26 minutes, $p=0.03$). The ease of insertion, amount of blood loss and ability to visualize the calyces and renal pelvis were the same or better in the ES group when compared to the HPBC group. In one animal the ES sheath migrated back slightly but not completely out of the kidney with inflation.

Conclusion: The experimental, new, single step insertion percutaneous sheath appears to be safe and effective in the porcine model. Trials in human patients are currently underway.