Fibrin sealant enables tubeless percutaneous stone surgery.

Authors: Noller M.W., Baughman S.M., Morey A.F., Auge B.K.

Publication Date: 2004

Abstract:

Purpose: Fibrin sealant has been demonstrated to be safe and effective as a hemostatic agent and urinary tract sealant. We assessed the ability of fibrin sealant to facilitate tubeless management after uncomplicated percutaneous nephrolithotomy (PCNL). Materials and Methods: Eight consecutive patients underwent single access tubeless PCNL for renal calculi in a total of 9 renal units in a 2-month period. An additional patient with distal ureteral obstruction underwent antegrade ureteroscopy for an 8 x 8 mm distal ureteral stone. Average patient age was 47 years and mean stone size was 3.37 cm² (range 0.64 to 9.90). Following complete stone clearance a Double-J (Medical Engineering Corp., New York, New York) ureteral stent was placed antegrade and 2 cc HEMASEEL APR (Haemacure Corp., Sarasota, Florida) fibrin sealant was injected under nephroscopic or fluoroscopic visualization into the parenchymal defect just within the renal capsule. Preoperative and postoperative hematocrit (HCT) was determined. Computerized tomography was performed on postoperative day 1 or 2 to evaluate retained stone fragments, perinephric fluid and urinary extravasation. Results: In the 10 renal units treated via this tubeless technique no intraoperative or postoperative complications were noted. Average hospital stay was 1.1 days. All patients were discharged home on postoperative day 1 except 1 undergoing asynchronous bilateral PCNL on consecutive days. The mean intraoperative change in HCT was 2.8%. There was no significant change in HCT on postoperative day 1. No patient required transfusion. Seven renal units and 1 ureteral unit had no residual stone fragments for a complete stone-free rate of 80%. No gross leakage was observed on dressings and postoperative computerized tomography failed to demonstrate urinary extravasation. Conclusions: Tubeless PCNL using fibrin sealant at the renal

parenchymal defect appears to be safe and feasible. Further experience is necessary to determine the role of fibrin sealant in percutaneous renal surgery.