Percutaneous stone surgery using a tubeless technique with fibrin sealant: report of our first 107 cases.

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Abstract:

UNLABELLED: Study Type--Therapy (case series) Level of Evidence 4. What's known on the subject? and What does the study add? Small case series support the safety and efficacy of tubeless PCNL with fibrin sealant. However, there is a paucity of data from larger case series supporting this approach. To our knowledge, this is among the largest tubeless PCNL series. We found the use of fibrin sealant for tubeless PCNL was associated with excellent stone-free rates (approaching 90%), short hospitalisation, and low complication rates. Tubeless PCNL with nephrostomy tract fibrin sealant appears to be viable option for appropriately select patients.

OBJECTIVE: * To report on our first 107 cases of tubeless percutaneous nephrolithotomy (PCNL) using fibrin sealant as a haemostatic agent within the access tract. PCNL is the preferred treatment for patients with large renal stones, and the tubeless technique with the use of fibrin sealant has recently gained popularity.

PATIENTS AND METHODS: * We performed a retrospective review of single-access, PCNL cases performed without a nephrostomy tube from January 2002 to July 2008. * Nephrostomy tracts were sealed at the conclusion of each procedure with fibrin-containing haemostatic agents. * We evaluated demographic variables, tracked complications, and compared pre- and postoperative haemoglobin, haematocrit and creatinine levels. * On postoperative day 1 computed tomography was used to determine stone-free rates. * Student's t-test calculations were used to determine

statistical significance at P <= 0.05.

RESULTS: * In all, 59 men and 48 women with a mean age of 43 years were included in the analysis of 107 cases. The mean stone size was 2.9 cm(2) and the average hospital stay was 1.07 days. * Pre- and postoperative changes in serum haemoglobin and serum creatinine were not statistically different. Postoperative haematocrit declined by a mean of 4.5% (P <= 0.05), but no patients required a transfusion. * Stone-free rates were 72% overall, and 90% when excluding patients with residual fragments of <4 mm. * Complications included seven asymptomatic subcapsular haematomas, one pseudoaneurysm requiring selective embolization, one urine leak, and five return visits to the emergency room for pain.

CONCLUSIONS: * The use of fibrin sealant in this large tubeless PCNL series was associated with favourable stone-free rates, short hospital stays, and low complication rates with no significant bleeding. * Tubeless PCNL with nephrostomy tract fibrin sealant appears to be a viable option for appropriately selected patients, but future randomised trials are warranted.