

Laparoscopic Coagulum Pyelolithotomy

Introduction and Objective: Laparoscopic ureteropyeloplasty is a widely accepted treatment option for the obstructed ureteropelvic junction (UPJ). Though often a straightforward surgical procedure, there may be technical difficulties in the case of concomitant stone burden, with multiple calicial, small, mobile stones. The authors describe a modification to the classic coagulum pyelolithotomy, using a mixture based on commercial available fibrin sealant, first used in the laparoscopic era.

Materials and Methods: During a laparoscopic transperitoneal dismembered ureteropyeloplasty complemented with coagulum pyelolithotomy, the following steps are suggested: 1. Exposure of the UPJ; 2. Ureter clamping with a vessel loop 2 cm distal to the UPJ (to allow pelvis filling); 3. Transabdominal puncture of the pelvis with a 18G, 20cm needle (under laparoscopic vision) and urine aspiration; 4. Record the volume of urine aspirated; 5. Preparation of an equal volume of fibrin sealant (to avoid overdistention of the pelvis); 6. Injection of the sealer protein solution through that needle + 1 ml of methylene blue (color the coagulum and facilitate its identification in the removal procedure); 7. Insertion of another needle to inject the thrombin solution; 8. Wait 5 minutes, to allow coagulum cast formation; 9. Circumferential excision of the UPJ; 10. Coagulum removal; 11. Pelvis plastic reduction (if needed) and ureter spatulation; 12. Double J stent placement; 13. Tension free anastomosis completion.

Results: The procedure results in the extraction of a tenacious coagulum containing more stones than had been anticipated from the x-ray studies. The postoperative imaging shows complete stone removal.

Conclusions: This technique reduces the:

- incidence of incomplete stone removal, when there are small, free stones lying in a large renal pelvis,
- complexity of in site preparations, by the use of a commercial available fibrin sealant mixture,
- risk of thromboembolism, with a low concentration of thrombin used and the care to not overdistend the collecting system.

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