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INTRODUCTION & OBJECTIVES: To present the first robotic-assisted approach to anatrophic nephrolithotomy with early unclamping and controlled hypotension with the aim of improving collecting system exploration.

MATERIAL & METHODS: Robotic assisted laparoscopic anatrophic nephrolithotomy was performed in one patient with complex staghorn calculi.

RESULTS: The procedure was completed in 180 minutes with a warm ischemia time of 26 minutes. The estimated blood loss was 1600 ml. The patient received 1 unit of packed red blood cells. The hospital stay was 4 days. Non-intraoperative or postoperative complications in the first month were detected. A residual 1cm stone was identified. Right renal uptake (Tc99-DTPA) decreased by 10% in the first postoperative month.

CONCLUSIONS: Robotic-assisted laparoscopic anatrophic nephrolithotomy avoids the morbidity of an open flank incision, while achieving acceptable warm ischemia time and stone-free rates. It facilitates a better calyceal exploration than standard laparoscopic technique due to endowrist instruments. This minimally invasive technique should be considered for complex stones that would necessitate multiple renal access tracks and secondary procedures. Robotic-assisted laparoscopic anatrophic nephrolithotomy is feasible in highly selected patients. Longer follow-up and a larger number of patients are required to confirm the advantages of this procedure. Prospective comparative studies with PNL are also needed.