

## Pyeloplasty in the Pelvic Kidney: A Step-by-step Video

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### Abstract

Ectopic kidneys, with a prevalence of 1/1000-4000, often manifest in the pelvic region, leading to complications such as ureteropelvic junction (UPJ) obstruction. This video article presents a case of open pyeloplasty in a 15-month-old infant with a pelvic kidney, emphasizing technical details for educational purposes. The patient was prenatally diagnosed with pelvic kidney hydronephrosis at 22 weeks of gestation, progressing to grade 4 postnatally. MAG-3 scintigraphy confirmed UPJ obstruction, warranting open pyeloplasty. A Pfannenstiel incision provided access to the Retzius space. The ureter was dissected, revealing the adhered renal pelvis. Stay sutures facilitated dissection, and 5/0 polyglactin sutures were strategically placed because of anatomical anomalies. Ureteropelvic anastomosis was performed using 6/0 PDS sutures. A 3-Fr Double J catheter preceded the closure of the renal pelvis. The procedure was concluded with meticulous layer closure. The operation lasted for 50 min, with minimal blood loss (10 mL). Postoperative day 2 saw drain removal, and the patient was discharged. Ureteral stent removal occurred at 4 weeks. A 3-month follow-up ultrasound revealed a notable reduction in hydronephrosis, with an anteroposterior diameter of 6 mm. This video article elucidates the nuances of open pyeloplasty in pelvic kidneys and serves as a valuable resource for residents and fellows. The concise procedure, with a brief operative time and minimal blood loss, showcases the efficacy of the surgical intervention.

**Keywords:** Antenatal hydronephrosis, pediatric, pelvic kidney, pyeloplasty, renal anomalies, surgery, ureteropelvic junction obstruction

### Introduction

The incidence of ectopic kidney is approximately 1/1000-4000, and the most common location of renal ectopia is the pelvis (1,2). Ureteropelvic junction obstruction in the pelvic kidney may be observed in as high as 37% (3). Here we report a case of open pyeloplasty in the pelvic kidney in a 15-month-old infant with technical details.

### Patients

The patient was antenatally diagnosed with hydronephrosis in the pelvic kidney at 22<sup>nd</sup> week of gestation. His initial postnatal renal ultrasonography revealed grade 4 hydronephrosis, and MAG-3 scintigraphy revealed an obstructed ureteropelvic junction. The patient was indicated for open pyeloplasty.

A Pfannenstiel incision was used, anatomical folds were opened, and the Retzius space was entered. An 8 Fr feeding tube was inserted to empty the bladder and then taken out. The distal segment of the left ureter was superior-lateral to the bladder. The ureter was then dissected proximally, and the renal pelvis of the ectopic kidney was found where the renal pelvis wall

was adhered to the peritoneum. A stay suture was placed at the ureteropelvic junction to facilitate dissection. Furthermore, 5/0 polyglactin stay sutures were placed on the anteromedial side of the ureter (due to the rotation anomaly) as well as the most dependent and upper part of the renal pelvis. Then, the ureter was cut within the limits of the stay sutures, and the ureteropelvic junction was excised. Moreover, the ureter was spatulate to a few centimeters below the healthy segment. Three 6/0 PDS sutures were placed on the corner of the ureteropelvic anastomosis. Afterwards, the posterior wall was closed with continuous 6/0 PDS sutures over a 5-Fr feeding tube followed by the anterior wall, which was closed in the same fashion. Before closing the renal pelvis, a 3 Fr 12 cm Double J catheter was placed. Anastomosis was completed. After bleeding control, a minivan drain was placed. The operation was concluded after the anatomical layers were properly close.

### Results

The total operative time was 50 min, and blood loss was 10 mL. The drain was removed on postoperative day 2, and the patient

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was discharged on the same day. Ureteral stent was removed after 4 weeks. Follow-up renal ultrasonography at 3 months postoperatively demonstrated regression of hydronephrosis with an AP diameter of 6 mm.

## Conclusion

In this video article, we attempted to highlight the technical details of open pyeloplasty for pelvic kidneys that could be a source for all residents and fellows.

## Ethics

**Informed Consent:** Informed consent was obtained from the patient.

## Authorship Contributions

Surgical and Medical Practices: R.B.E., İ.S., M.G., M.K., M.İ.D., Concept: R.B.E., M.K., Design: R.B.E., O.Z., T.O., Data Collection or Processing: R.B.E., M.K., Literature Search: O.Z., T.O., Writing: R.B.E., M.G.

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## Video 1.

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## Ethics

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