

Laparoscopic Pyeloplasty

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ABSTRACT

We present a case of ureteric pelvic junction obstruction (UPJO) that was treated by laparoscopic pyeloplasty. To our knowledge, this is the first case done in Bahrain. A twenty-seven-year-old male patient presented with one year history of left sided abdominal pain. The patient was diagnosed with Pelviureteric junction obstruction based on the finding of contrast CT. Laparoscopic pyeloplasty is one of the surgical options for obstruction of Ureteropelvic Junction (UPJ); it is less invasive, less morbid compared with open pyeloplasty.

Pelviureteric junction obstruction (PUJO) most commonly presents with pain, hematuria and recurrent urinary tract infection. Incidental findings of hydronephrosis and atrophic kidney could be seen in these patients. Surgical intervention might be required in indicated cases.

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INTRODUCTION

Pelviureteric junction obstruction (PUJO) is the obstruction of the urine flow from the renal pelvis to the proximal ureter. The condition could be diagnosed in both adult and pediatric populations. This condition might be congenital due to an intrinsic defect within the muscularis layer at the pelviureteric junction or a crossing vessel. However, it may also be acquired following trauma, iatrogenic injury, prolonged stone impaction, infection, Tuberos sclerosi, and tumors of the collecting urinary system or extrinsic compression from a retroperitoneal process. It is a very common urological problem that could be managed surgically; the technique was firstly described by Anderson-Hynes more than 50 years ago^{1,2}.

Following Anderson and Hynes description, open pyeloplasty became the gold standard management of this condition. Endoscopic management was introduced in the form of endopyelotomy in the 1990s; its success rate was 70-90%³.

Laparoscopic pyeloplasty (LP) was firstly described by Schuessler et al in 1993. LP is one of the most common laparoscopic reconstructive procedures performed by urologists; it is now the new gold standard. It has less morbidity compared to open pyeloplasty and superior outcome compared to endopyelotomy⁴.

The aim of this presentation is to highlight the efficacy of laparoscopic pyeloplasty in the treatment of pelviureteric junction obstruction.

THE CASE

A twenty-seven-year-old Bahraini male who presented initially to the general surgery clinic with lower left sided abdominal pain radiating to the back and no urinary symptoms. He was on NSAIDS to control his pain. CBC and urea and electrolytes were within normal limits. CT abdomen and pelvis with oral and intravenous contrast was requested. Marked dilatation of the left pelvicalyceal system with no ureteric dilatation and mild to moderate delay in the excretion were revealed. The possibility of crossing vessel was raised, see figure 1.



Figure 1: CT Abdomen and Pelvis with Oral and IV Contrast Showing Severe Left Hydronephrosis with Cortical Thickening and a Possible Crossing Vessel at UPJ

The patient underwent laparoscopic left pyeloplasty and ante grade insertion of double J stent. A total of three laparoscopic port sites were used.

One month postoperatively, the patient had cystoscopy and left double J stent removal.

Follow-up ultrasound showed mild residual dilation in the left pelvicalyceal system, the renal pelvis measured 3 cm in the maximum dimension, previously 6 cm, no evidence of scarring, stones or focal lesions, see figure 2. The histopathology of the pelviureteric junction pathology revealed irregular muscle hyperplasia.

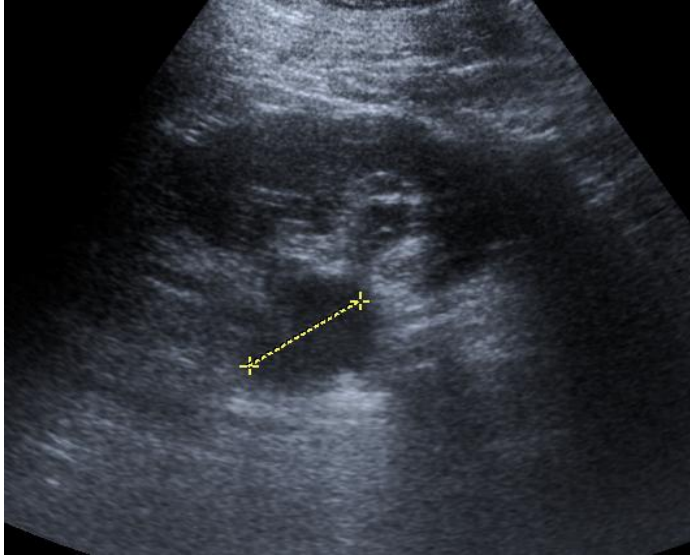


Figure 2: Ultrasound of the Left Kidney Showing Marked Improvement (measuring 3 cm) of the Dilatation in the Left Pelvicalyceal System

The patient has been followed regularly in the clinic with ultrasound; he had no symptoms.

DISCUSSION

Pelviureteric junction (PUJ) obstruction is a blockage of PUJ; male-to-female ratio is 3-4:1. The blockage causes retention of urine in the renal pelvis and calyces leading to increased pressure, flank pain and in some kidney damage.

The most common causes for pelviureteric junction obstruction are ureteral hypoplasia, abnormal or high insertion of the ureter, crossing lower-pole renal vessel, rotation of the kidney and previous surgical intervention⁵.

The primary surgical treatment of ureteropelvic junction (UPJ) obstruction has been open pyeloplasty with more than 90% success rates⁶. The increase in morbidity associated with the flank incision led to development of minimally invasive approaches in treatment for UPJ obstruction in the last decade. Options include laparoscopic pyeloplasty, endopyelotomy, open pyeloplasty, endopyeloplasty and robotic-assisted laparoscopic pyeloplasty⁷.

Tan et al showed increased in the number of American urologists who have been performing laparoscopic pyeloplasty for the management of UPJO in adults in the past 5 years⁵.

Gallo et al compared the three main treatment modalities: open pyeloplasty (OP), endopyelotomy, and laparoscopic pyeloplasty (LP); the success rates reported was 94.1 for OP, 62-83 for endopyelotomy and 95.9%-97.2% for LP. The study concluded that LP had better outcome and the quick postoperative recovery⁸.

Laparoscopic pyeloplasty (LP) is considered a reliable treatment option for ureteropelvic junction obstruction (UPJO); the success rate is equivalent to the classic open procedure⁹⁻¹². In fact, LP offers minimally invasive technique, such as less pain, shorter hospitalization and better cosmesis^{11,13,14}.

In our reported case, endopyelotomy was contraindicated given the presence of crossing vessel. Our patient was discharged on the third post-operative day.

Previous study' findings concluded that the laparoscopic pyeloplasty should be considered the first option for the treatment of ureteropelvic junction obstruction¹⁵.

CONCLUSION

We present the first laparoscopic pyeloplasty reported in Bahrain. One should consider the laparoscopic approach rather than the open pyeloplasty.

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