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Research Paper

Primary Ureterocalicostomy For A Patient With Giant Hydronephrosis

Medical Science

KEYWORDS : Hydronephrosis, Ureterocalicostomy, Pelvi-ureteric junction obstruction, Pyeloplasty

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ABSTRACT

We report a case of primary UPJ obstruction with pyonephrosis with scarred UPJ and renal hilar area treated with primary ureterocalicostomy.

INTRODUCTION

Ureterocalicostomy is one of the treatment options in a patient with difficult, recurrent ureteropelvic junction (UPJ) obstruction and a scarred or intrarenal pelvis, significant lower pole calicectasis and an adequately functioning kidney, especially when routine pyeloplasty is believed to be unsuitable or has been unsuccessful [1]. Ureterocalicostomy was first described by Neuwrit in 1932, and involves excision of the hydronephrotic lower renal pole parenchyma and anastomosis of the dismembered ureter directly to the lower pole calix, thereby, providing unobstructed urinary drainage [2]. Ureterocalicostomy completely excludes the renal pelvis and the stenotic UPJ area, and establishes urinary drainage from the lower calix directly into the ureter. Technically a successful ureterocalicostomy includes a generous spatulation of a healthy ureter, adequate excision of lower pole renal parenchyma and a tension-free, precise, mucosa-to-mucosa ureterocaliceal anastomosis.

We report a case of primary UPJ obstruction with pyonephrosis with scarred UPJ and renal hilar area treated with primary ureterocalicostomy.

CASE REPORT:

A 25 year old, 24 weeks pregnant woman was earlier admitted at our hospital with history of undergoing laparotomy for a giant hydronephrosis which was mistakenly diagnosed as an ovarian tumor [3]. On admission she underwent ultrasonography, which revealed a hydronephrotic left kidney. Serum creatinine was 1.4 mg% and urine showed plenty of pus cells. After counseling the patient underwent left sided double J stent insertion. Patient was stabilized and discharged 3 days later with an advice to return after delivery.

The patient had a normal delivery and gave birth to a healthy 2800 grams female baby. The patient was admitted 4 weeks after delivery for the definite management of UPJ obstruction. Preoperative ultrasonography revealed a hydronephrotic left kidney, with a DJ stent in-situ and turbid urine in the renal pelvis (Figure 1). Urine examination revealed plenty of pus cells and urine culture revealed no growth of organisms. DMSA scan showed split renal function of left kidney as 20% (Figure 2). Patient was taken up for open pyeloplasty. On exploration the left ureter was easily identified due to the presence of DJ stent. The UPJ was severely scarred and the pelvis had become small and intrarenal. Due to the above mentioned findings, ureterocalicostomy was performed (Figure 3). The urinary catheter was removed after 72 hours and patient discharged on the 5th post-operative day. Six weeks after the surgery, DJ stent was removed and a DTPA radioisotope scan was done after another week. The renal function of the left kidney showed improvement and also there was improved drainage on the left side.

DISCUSSION:

Following Newer, other surgeons too, subsequently made efforts to reproduce similar outcome with varying success. Hawthorne *et al.* [4] reported three patients of whom one required re-operation after developing intrarenal obstruction at the site of the anastomosis. In the light of their experience, Hawthorne *et al* [4] modified their technique to excise the lower pole parenchyma, achieving good results using this modification in a further two patients. Mollard and Braun [5] described the successful use of ureterocalicostomy as a primary procedure in 14 children, of whom seven had horseshoe kidneys. Kelalis [7] was subsequently instrumental in popularizing the procedure and highlighting the key technical aspects of success, namely extensive excision of lower pole tissue to expose the calyx and a stented non-circumferential anastomosis, with care being taken to ensure continuity between the urothelial lining of the ureteric lumen and the luminal surface of the opened calyx.

Ureterocalicostomy can be a viable operation of choice for the management of most cases of recurrent PUJ obstruction as a result of scarring and stenosis at the site of a previous pyeloplasty. In addition to its role as a salvage procedure, ureterocalicostomy also offers distinct advantages over conventional Anderson–Hynes pyeloplasty for the primary surgical management of PUJ obstruction, notably for obstruction secondary to complicating anatomical anomalies of the kidney, such as horseshoe kidney [7]. In this anomaly, the aberrant vasculature and the interconnecting isthmus of parenchyma may make it difficult to create an anastomosis capable of ensuring dependent drainage [7].

Gill *et al* [1] introduced the technique of laparoscopic ureterocalicostomy .They performed laparoscopic ureterocalicostomy in 2 patients, of whom 1 had UPJ obstruction and multiple secondary calculi in a dilated, dependent lower pole calix , and 1

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had surgically failed UPJ obstruction with a scarred pelvis and significant hydronephrosis. They concluded that laparoscopic ureterocalicostomy was feasible and it effectively duplicated established open surgical principles. Korets *et al* [8] reported a case of robotic-assisted laparoscopic ureterocalicostomy using the da Vinci robotic system in a patient with proximal ureteral stricture refractory to endoscopic management, and concluded that it was a feasible alternative to open or laparoscopic techniques for treating refractory proximal ureteral stricture or ureteropelvic junction obstruction.

Figure 1. Ultrasound of left kidney showing DJ stent in situ and turbid urine in the renal pelvis.

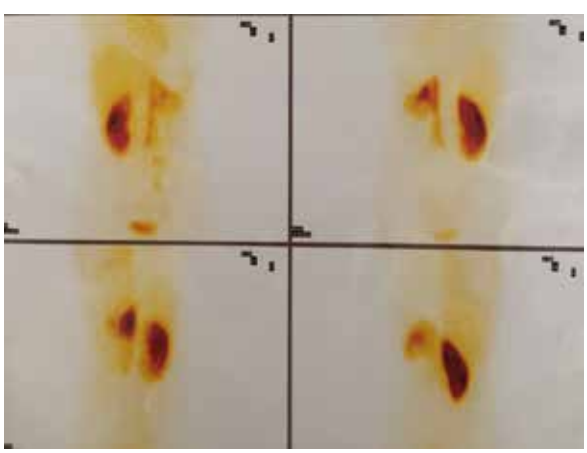

Figure 2. DMSA scan showed split renal function of left kidney as 20%.

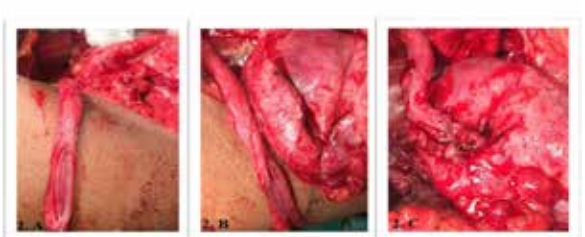

Figure 3.A. The upper ureter disconnected from the UPJ. B. The left lower polar partial nephrectomy being performed. C. Completed ureterocalicostomy.

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