

## CASE REPORT

**Appendiculopyelostomy: A Surgical Accident**

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**Abstract:**

Open pyeloplasty is a commonly performed surgical procedure for Pelviureteric Junction (PUJ) obstruction. It can be associated with many complications. Anatomical structures with similar appearance may at times be confused for each other (eg. right ureter and appendix). The appendix may rarely lie parallel to the upper ureter when it can be confused with later. We report a case of accidental anastomosis of the appendix with the renal pelvis during open pyeloplasty. The patient was re-explored, the appendix was removed, the ureter was identified and spatulated ureteropyelostomy splinted internally with double J stent. Patient is asymptomatic at a two-year follow-up.

**Keywords:** Pyeloplasty, Pelviureteric Junction Obstruction, Appendix, Renal Pelvis

**Introduction:**

Open pyeloplasty has been associated with a multitude of complications including urinary leakage, recurrent stenosis, injury to other organs, infection; etc [1]. Appendix lies in close proximity to the distal portion of upper ureter. There are multiple variations in the location and length of the appendix. Appendix may rarely lie parallel to the upper ureter when it can be confused with later. We report one such case of long appendix running parallel to the ureter. It was mistaken for ureter and accidental anastomosis of renal pelvis to the appendix done.

**Case Report:**

A 26 year old male presented with loose motions

and fever with chills for the previous 3 days. He had undergone open pyeloplasty surgery for congenital Pelviureteric Junction (PUJ) obstruction 5 days back. Operative notes mentioned gross hydronephrotic kidney with dilated renal pelvis. Ureter was identified lying just beside and adherent to peritoneum with atretic upper end (5F feeding tube could not be negotiated through the upper end) which was cut and sent for histopathological examination which was followed by ureteropyelostomy splinted internally with a Double-J stent (Open modified Anderson Haynes dismembered pyeloplasty). On examination, the general condition of patient was fair. Per abdomen was soft and non-tender. On local examination there was a surgical scar over right flank. Wound infection was present with minimal serous discharge noted in the abdominal drain. Pre-operative blood investigations were within normal limits. Pre-operative ultrasonography of the abdomen and pelvis was suggestive of severe hydronephrosis of right kidney with thin cortical tissue with no evidence of hydroureter. Pre-operative Intravenous Urography (IVU) was suggestive of enlarged right kidney with no opacification of right ureter; features suggestive of right PUJ obstruction. Also, a pre-operative diuretic renogram Diethylene Triamine Pentaacetic Acid (DTPA) scan was suggestive of enlarged, hydronephrotic right kidney with T1/2 more than 20 minutes most likely due to significant PUJ

obstruction. Split function or right and left kidney being 32% (GFR=20ml/min) and 68% (GFR=44ml/min) respectively. Fresh blood investigations were within normal limits. Fresh ultrasonographic examination of the abdomen and pelvis revealed moderate to gross right hydronephrosis with internal echoes. X-ray KUB revealed a D-J stent in situ with its lower end upturned and pushed medially (Fig. 1).

Abdominal exploration was performed. Intraoperatively, there was evidence of anastomosis of renal pelvis with a long tubular structure which was traced to the caecum and was identified to be appendix (Fig. 2). Renal pelvis was grossly dilated with hydronephrosis. Ureter was identified behind the grossly dilated renal pelvis with narrow PUJ with visible peristalsis. Appendix was disconnected from renal pelvis (Fig. 3) and appendicectomy was done. Narrow PUJ was excised and pyeloureterostomy was performed with internal splinting over D-J stent. Abdominal drain was kept intra peritoneally in the right iliac fossa and the incision was closed in layers. Postoperative course was

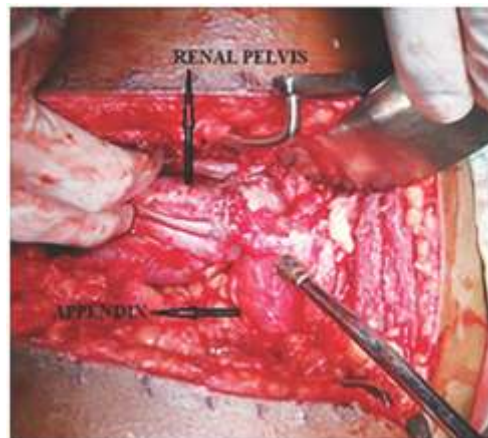
complicated by wound infection which subsided over a week. Histopathological report of the stricturous PUJ was chronic non specific inflammation with marked fibrosis. Patient was discharged after 2 weeks and stent removal was done after 4 weeks. Post operative DTPA scan was done at 3 months with split function or right and left kidney being 29% (GFR=18ml/min) and 71% (GFR=44ml/min) respectively. Patient is doing well after a follow-up of 2 years.

**Discussion:**

There is no doubt that the appendix is still the bete noire of surgery. This organ is of particular interest



**Fig. 1: X-Ray KUB showing Upturned Lower End of the D-J Stent**



**Fig. 2: Showing Renal Pelvis Anastomosed to the Appendix**



**Fig. 3: Long Appendix after Disconnection from Renal Pelvis**

to the urologist since it is often confusing condition to rule out urological pathology. There are many abnormalities of the appendix. Occasionally one finds a failure of descent of the caecum. Here the appendix is high up in the abdomen and may lie directly in front of the right kidney or its pelvis [2]. Monks and Blake found after examining 656 cadavers that in a certain number of instances the appendix, directed up behind the caecum, passed over the anterior surface of the right kidney to within one centimeter of its upper margin. In 4.4% cases, the appendix tracked cranially and to the right of caecum [3]. If a long appendix is positioned adjacent to ureter and the tip is free, it can be easily misidentified as ureter.

Successful management of PUJ obstruction is a challenging job to the urologist. The first PUJ reconstruction was described by Trendelenberg 100 years ago. Amongst the various techniques described for pyeloplasty, the dismembered Anderson-Hynes pyeloplasty is most widely practiced followed by the Foley's Y-V plasty and the flap procedures performed in selected cases [1]. The need to delineate the exact anatomy of the

PUJ and the occasional detection of a megaureter has been cited as compelling reasons for performing Retrograde Pyelogram (RGP). Although indications for retrograde pyelography are fewer today with the various modern imaging modalities in current use, a retrograde examination should be performed before pyeloplasty if the ureter has not been well shown by other means (IVU, CTIVU) [4]. With reference to index case, in which the ureter was not visualized on the right side on IVU, a RGP would have been helpful in avoiding misinterpretation of long appendix as an atretic ureter.

### Conclusion:

The position of the appendix is highly variable and it may lie adjacent to the right ureter where it can be confused with the latter. Cases in which the ureter was not visualized on the right side on IVU/CT IVU, a RGP would have been helpful in avoiding misinterpretation of long appendix as an atretic ureter. Cases where dense fibrosis is expected, pre-placement of ureteric catheter may aid its intra operative identification.

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