



“CAUGHT BETWEEN A ROCK AND A HARD PLACE” – UNTIL THE PATTERSON FORESTER EXTRA-ANATOMIC STENT BAILED US OUT

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ABSTRACT

Impassable ureteric obstruction (benign or malignant) can cause a real challenge to every endoluminal endourologist. Usually a percutaneous nephrostomy is the initial approach to drain the obstructed kidney and often becomes the long-term option if reconstruction is not possible. We describe the case of a patient awaiting cardiovascular repair for severe valvular disease who was denied surgery due to his long-term nephrostomy for an impassable ureter. His nephrostomy was internalized via an extra-anatomical subcutaneous tract into the bladder using a Patterson-Forrester stent ridding him of the tube and allowing him to be listed for lifesaving heart surgery. Following heart surgery his fitness will be reassessed and definitive treatment will be planned accordingly.

It is not uncommon for an endoluminal endourologist to be faced with an obstructed ureter that does not allow ureteric stenting. Causes of obstruction could be benign (strictures, pelvi-ureteric junction [PUJ] obstruction, stones) or malignant (mainly due to extrinsic compression by pelvic malignancies). Usually antegrade stenting is attempted under local anesthetic and occasionally a rendezvous procedure succeeds to internalize the stent but this requires a complex approach by a team of experienced endourologists and interventional radiologists. Failing that, the patient remains with a long-term nephrostomy with all its inconveniences. We report a case in which antegrade and retrograde stenting failed in a patient which needs to rid of his nephrostomy to allow for lifesaving cardiac valvular repair. A Patterson-Forrester Extra-anatomical stent was inserted, successfully bypassing the obstructed ureter rendering the patient nephrostomy free and re-listed for heart surgery.

CASE PRESENTATION

A 78-year-old patient attended the Emergency Department with right loin pain and a mass in the right flank. He had a severely hydronephrotic, poorly functioning right kidney secondary to PUJ obstruction which was compressing his inferior vena cava. Previously he had multiple presentations to the Emergency Department with pain and urinary tract infection (Figure 1). To decompress the kidney, a percutaneous nephrostomy was performed which led to immediate amelioration of symptoms, and drainage of a high volume of a hypotonic, unconcentrated urine. A dimercaptosuccinic acid scan was performed which showed a non-functioning right kidney and normally functioning left kidney.

A discussion with the patient was undertaken regarding nephrectomy, stenting, or permanent percutaneous drainage. To complicate matters the patient had severe aortic stenosis and mitral valve

regurgitation and signs of left heart failure. Antegrade and retrograde ureteric stenting were attempted but were unsuccessful (Figure 2). The patient was assessed by our anaesthetists who determined he was too high risk for any major surgery (nephrectomy).

The patient was returned for nephrostomy changes every 3 months but had multiple admissions due to infections and leakages/bypassing. To further complicate matters the cardiothoracic surgeons refused to offer aortic and mitral valve replacements until after internalization of the nephrostomy, given the significant increased risk of endocarditis with these in situ due to contamination with skin pathogens. This proved to be a serious clinical conundrum for us, the patient was unfit for major surgery (nephrectomy) secondary to his valves and nephrostomy in situ hindered his chances to undergo his cardiac surgery. We believed that the only other option was diverting urine from his kidney via a tunnelled extra-anatomical approach using Patterson Forrester stents (Figure 3). This was

inserted with no peri-operative complications and the patient has been seen in clinic at 6 weeks with no issues. He has now been listed for his cardiac surgery. Once recovered, consideration will be given for right laparoscopic benign nephrectomy and or Detour extra-anatomic stenting.

DISCUSSION

Patterson-Forrester extra-anatomic stents (EAS) are long double J stents without sideholes along their length. They are used to drain urine from the kidney to the bladder. The scope of EAS is essentially to bypass any obstructed ureteric system into a functioning bladder. This usually involves benign or malignant and stable ureteric strictures anywhere along the length of the ureter from the PUJ downwards. Its practical use is as an alternative to clinical situations when standard ureteric stenting fails and where percutaneous nephrostomy has become the permanent solution to de-obstruct the patient.

FIG. 1 Abdomen/pelvic contrast tomography scan showing severe right hydronephrosis and inferior vena cava compression.

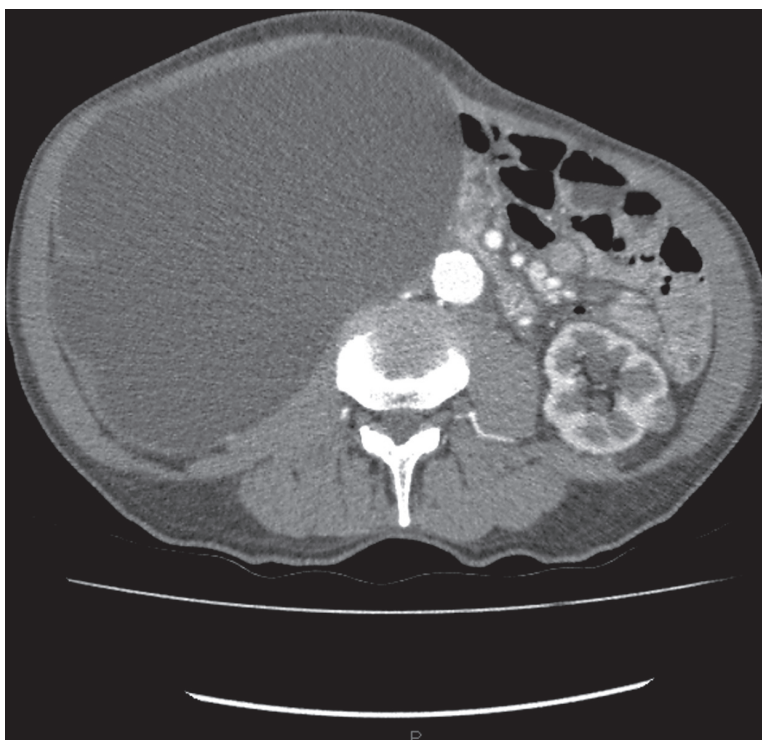


FIG. 2 Retrograde stent inserted but upper part of the stent was in the upper ureter not kidney and failure of contrast of wires to get access via the pelvi-ureteric junction into the ureter.

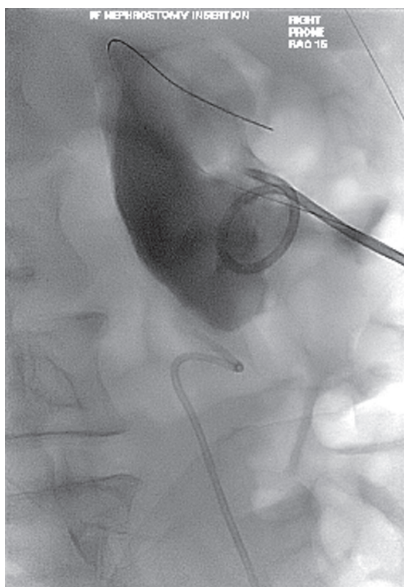
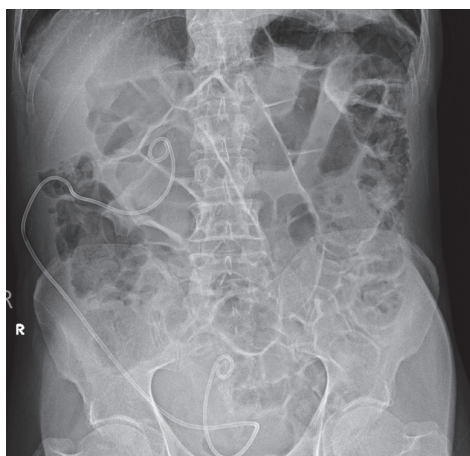


FIG. 3 XR KUB of extra-anatomic (Patterson Forrester) stent.



This is a simple procedure that requires a pre-existing nephrostomy which gets tunnelled under the skin with metal dilators directed down to the bladder where the stent is finally inserted via a suprapubic puncture (peel-away sheath). Further exchanges of the stent can be done under local anesthetic using a cut down to the stent and exchange over a guidewire. Initially this procedure was described to improve the quality of life of palliative patients with chronic nephrostomies for obstructed ureters by pelvic malignancies, but the indications now extend to benign strictures while awaiting definitive reconstruction treatment or Detour stent insertion.

In this case extra-anatomical urinary diversion using a Patterson Forrester stent provided a good temporary solution to rid our patient from his nephrostomy tube. In general terms this is a simple and safe procedure which is aimed to improve the quality of life of nephrostomy patients but in this particular case it allowed the patient to be offered lifesaving heart surgery.

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