

Case report

The surgical technique of subcutaneous renovesical bypass



Ali Barki^{1,&}, Mohammed Aynaou¹, Amine el Houmaidi¹, Mehdi Chenoufi¹, Tarik Mhanna¹

¹Department of Urology, Mohammed VI University Medical Center, Mohammed First University, Oujda, Morocco

[&]Corresponding author: Ali Barki, Department of Urology, Mohammed VI University Medical Center, Mohammed First University, Oujda, Morocco

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Abstract

The long-term drainage of the urinary tract of patients with unresectable ureteric stenosis, remains a major challenge for urologists. For decades, researchers experimented with different alternatives to the prosthetic ureter with minimal success. However, these patients are offered a minimally invasive procedure in the form of percutaneous nephrostomy or reconstructive surgery. Percutaneous nephrostomy, although minimally invasive, is far from ideal for long-term use. We report the case of a 43-years-old woman who was followed for obstructive renal failure secondary to locally advanced cervical cancer, for which she has benefited a right JJ stent and left nephrostomy. Renal-bladder bypass was indicated as an alternative to nephrostomy. We report on the established implantation procedure and the experiences collected in our service with the Detour® system the various application areas.

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Introduction

Nephrostomy is often indicated for the palliative stage of cancer. Sometimes, the decision to drain is delicate because of the significant operative risk and the high morbidity in fragile patients with limited life expectancy. In a 1975 study, 40 to 50% of derivative patients did not leave the hospital before their death [1]. If since the results are better thanks to the use of double J probes, but the management often remains unsatisfactory. Since the main objective is to ensure the best quality of life for patients, we prioritize novel methods, such as double J stent. Nevertheless, it happens that double J stent is ineffective or impossible to implement [2]. Percutaneous nephrostomy is then the last solution and also far from ideal, due to the high number of occlusions, encrustations and infections [3,4]. Besides, percutaneous nephrostomy impairs the quality of life by its posterior position which is disabling in some cases, which leads to the loss of the autonomy. Several teams have developed an extra-anatomical ureteric prosthesis, for patients who still have functional bladder and also to improve the quality of their lives [5-8]. This process is highly efficient even for the difficult cases [9,10].

Patient and observation

Case report: Mrs. FS, aged 43, under concomitant radiochemotherapy for locally advanced cervical cancer. During her treatment, she developed renal insufficiency with bilateral ureterohydronephrosis, which was followed by a JJ stent on the right with a left-sided failure. We performed a subcutaneous renal-vesical bypass, to prevent the patient from definitive percutaneous nephrostomy.

Device: the Detour® system consists of an internal silicone tube (17 car) with 27 open-pore squares. Dacron® measuring sheath, reinforced with plastic rings. The kidney end is perforated and carries a radiopaque ring for optimal

intraoperative placement. The surgical kit also includes an implantation sleeve and a tunneler for establishing the subcutaneous canal (Figure 1).

Implantation technique: under general anesthesia, the patient is placed in an oblique lateral decubitus position of 45 degrees (Figure 2). On the posterior axillary line and with the aid of a needle 18, an echo-guided puncture is performed on the lower calyx (Figure 3). The dilatation of the path is achieved, by the introduction on the guide of various dilators progressive up to carrier 30 under fluoroscopic control. The Amplatz sheath is introduced, under fluoroscopic control, ensuring that the radiopaque marker which is located at the outer edge of the renal cavities (Figure 4, Figure 5). A tunneling device then makes it possible to carry out the subcutaneous route ensuring the progression of the prosthesis to the suprapubic region where a short incision makes it possible to approach the bladder (in repletion) and to set up the distal end of the bypass after intersected at the appropriate size (Figure 6). The last few centimeters of the outer tube should be excised, so that only the inner silicone tube is left in the bladder. The length of the tube is thus adjusted by leaving a 3cm portion of the inner silicone tube protruding into the bladder. The prosthesis is attached to the bladder by 4 separate points (Figure 7) and the ureterovesical catheter is left in place for 5 days.

Discussion

Most often, the subcutaneous pyelovesical bypass used in palliation ureteral splints or percutaneous nephrostomies for urinary diversion in tumor-related urinary obstruction kidneys [11,12]. Especially with the use of ureteral splints, it is possible, even in the correct position, for externally recurrent urinary obstruction due to the small lumen or internal occlusion or obstruction [13]. Here in the short term, it is often complicated and painful for the patient to change the result.

Also permanent endoluminal stents ZB. Metal stents cannot safely prevent recurrent congestion, as they can be overgrown by urothelial hyperplasia [14]. In most cases, the patient is treated with a percutaneous nephrostomy due to a frustrated internal urinary diversion. The quality life of patients with a long-term percutaneous or endoluminal urinary diversion with regular changes is severely deteriorated [11]. The Detour® system can be a useful alternative not only in the palliative situation [15,16]. Open-operative measures such as ileal ureter interpositions or intra-peritonealization of the ureter, as well as reconstructive ureteral surgery are in many cases out of the question, in multiple pre-operated or irradiated patients with "scar bellies". Ureteral iliac interim episodes show similar results in the long term.

However, such an operation carries a much higher risk of both acute and late complications. In particular, kidney performance may deteriorate despite such surgery. The authors recommend this treatment option, only in a highly selected patient population, due to associated complications and morbidities [17,18]. There is pronounced renal insufficiency, chronic inflammatory bowel disease, as well as previous resections of longer bowel segments [19]. In the case of significant stone occlusion, the system can be changed without complications. In retrospect, surgical interventions are not necessary even with perioperative hemorrhage of the system, as this is freely permeable again in the short-term course with transient urinary diversion [20]. The quality of life of patients and their social integration improve considerably [16]. The minor complications are related to intravesical implantation of the prosthesis. Thus, we select specific patients, those with a functional bladder. In the case of radiation cystitis, the patient must be informed about the risk of fistula, which may require reno-vesical shunt transformation into cutaneous nephrostomy, before skin contact of the distal end of the prosthesis. This minimally invasive technique is therefore accessible to any urologist [16].

Conclusion

The diversion by subcutaneous pyelovesical bypass improves the quality of life compared to percutaneous nephrostomy. This subcutaneous prosthesis can be considered as an alternative, minimally invasive, palliative drainage by percutaneous nephrostomy.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: the operating table with an arrow on Detour™ ureteric prosthesis

Figure 2: position of the patient: oblique lateral decubitus position of 45 degrees

Figure 3: the guided ultrasound puncture of the lower calyx on the posterior axillary line

Figure 4: progression of the Amplatz sheath on the dilators

Figure 5: fluroscopic control of the location of the Amplatz sheath at the renal cavities

Figure 6: progression of the prosthesis by a subcutaneous tunnel to the supra pubic region

Figure 7: fixation of the prosthesis to the bladder

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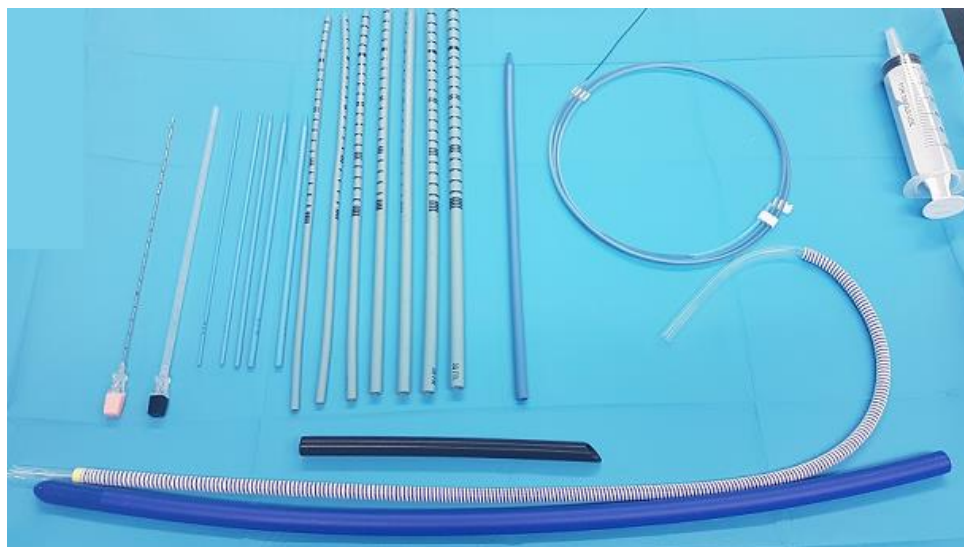


Figure 1: the operating table with an arrow on Detour™ ureteric prosthesis



Figure 2: position of the patient: oblique lateral decubitus position of 45 degrees

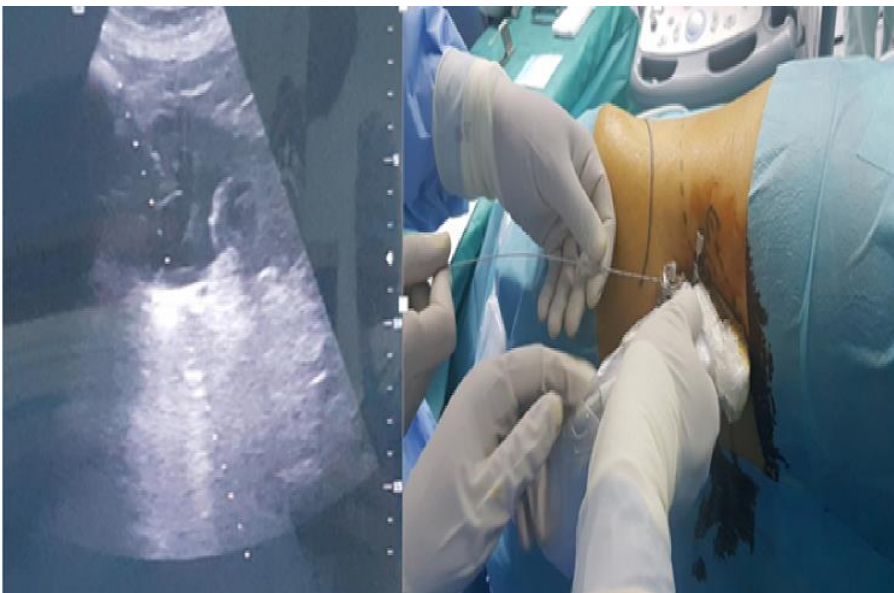


Figure 3: the guided ultrasound puncture of the lower calyx on the posterior axillary line



Figure 4: progression of the Amplatz sheath on the dilators

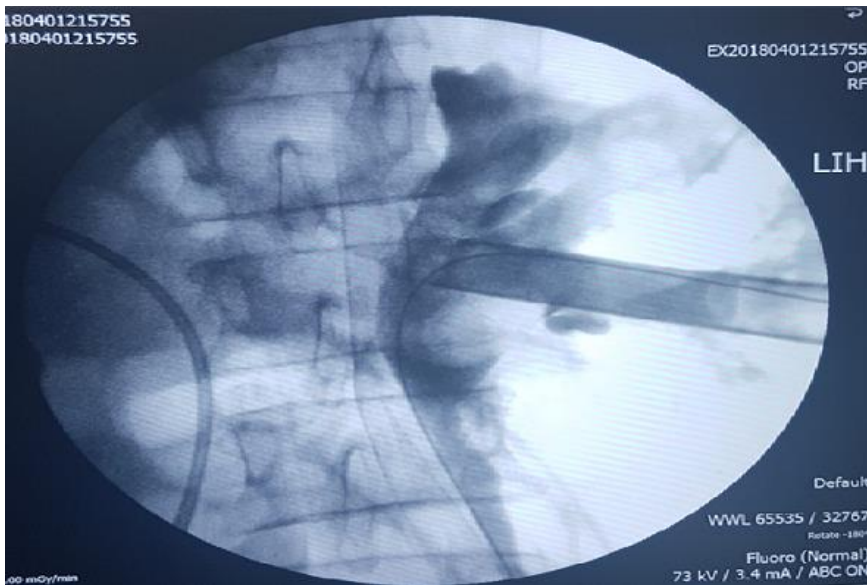


Figure 5: fluroscopic control of the location of the Amplatz sheath at the renal cavities



Figure 6: progression of the prosthesis by a subcutaneous tunnel to the supra pubic region

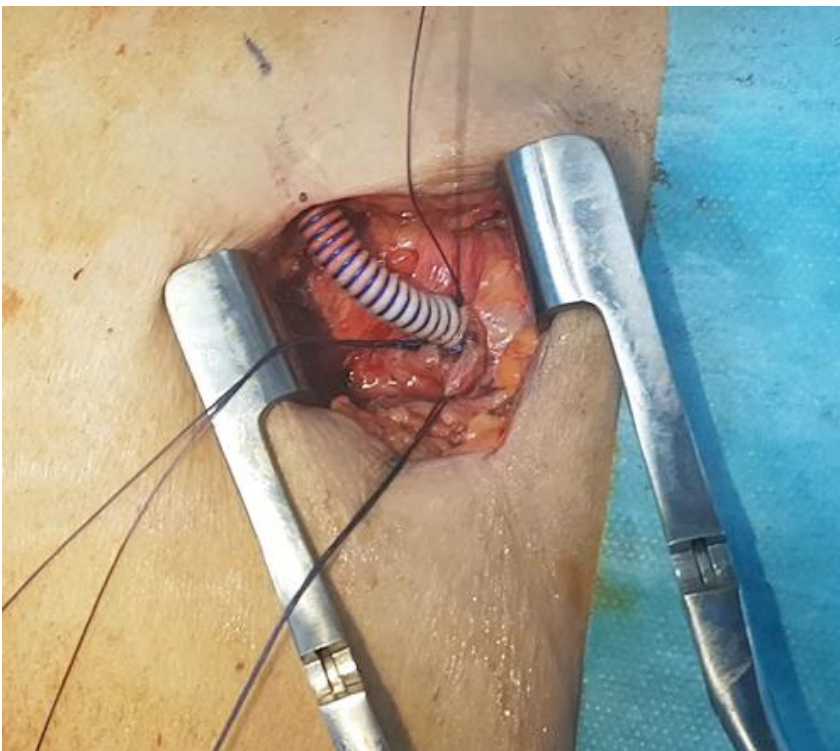


Figure 7: fixation of the prosthesis to the bladder