Bilateral endoscopic ureteroneocystostomy in a patient with obstructive uropathy secondary to prostate cancer invading the bladder trigone

Rodríguez-Esqueda M, De-La-Rosa-Barrera H, Castro-Marin M, Montalvo-Uscanga I.

ABSTRACT

Objective. This report describes the case of a patient presenting with obstructive uropathy secondary to prostate cancer that had invaded the bladder trigone.

Clinical case. A male patient in the sixth decade of life who presented with previously diagnosed prostate cancer developed obstructive uropathy resulting from invasion of the cancer into the bladder. Endoscopic ureteroneocystostomy was performed by resecting the compromised ureteral meatuses and placing a double-J catheter. Obstruction was resolved and patient progress was adequate.

Key words: Prostate cancer, obstructive uropathy, endoscopic ureteroneocystostomy

RESUMEN

Objetivo del estudio: Describir el caso de un paciente con uropatía obstructiva secundaria a invasión del trigono vesical por cáncer prostático.

Caso clínico: Paciente masculino de 60 años de edad, con cáncer prostático previamente diagnosticado, con uropatía obstructiva por invasión vesical de la neoplasia, a quien se le practicó ureteroneocistostomía endoscópica mediante resección de meatos ureterales comprometidos y colocación de catéter JJ. Cursó con evolución adecuada y resolución de la obstrucción.

Palabras clave: cáncer de próstata, uropatía obstructiva, ureteroneocistostomía endoscópica, México.
INTRODUCTION
Complete obstruction of a third of the lower ureter at the ureterovesical junction is rare. Its origin is usually neoplastic or iatrogenic due to endoscopic procedures such as transurethral prostate resection, bladder tumor resection and even endoscopic management of lithiasis (1). Definitive management of ureteral obstruction can be a challenge for the urologist if it presents in the intramural segment whether from a stone, a scar or from tumor activity (2).

Stenotic segment diversion is not always possible with a double-J catheter. Percutaneous diversions with nephrostomies may not be acceptable and open diversions such as ureteral reimplant, ureterocutaneostomy, ileal conduit and ureterocolonic anastomosis may be contraindicated due to the condition of the patient (1,2).

Various endoscopic techniques have been described for managing obliterated ureterovesical junction such as dilatation with ureteral balloon, electrocauterization, cold incision and transurethral resection of the compromised ureteral meatuses (3-8). Motivated by these reports we have described the endoscopic management of a patient presenting with obstructive uropathy secondary to prostate cancer invasion of the bladder trigone.

CLINICAL CASE
The patient is a 59-year-old man with a history of hyperuricemia and high blood pressure for which he receives treatment. He was diagnosed with prostate cancer one year prior to hospital admittance by sextant prostate biopsy that reported poorly defined Gleason 9 (5+4) in the 6 cylinders. Digital rectal examination (DRE) referred to a stony fixed prostate with an irregular surface. Bone gammagram showed hypercaptating lesions in the ribs and lumbosacral column initially classified as T3 N0 M1b. Patient began with total androgen blockade treatment.

The patient was referred to the hospital due to bilateral hydronephrosis and nitrogen retention. Serum creatinine was 2.0mg/dl, kidney ultrasound showed bilateral hydronephrosis, transrectal ultrasound of the prostate showed a total volume of 30 cc, transitional zone of 10 cc, thickened mucosa on the bladder floor and 50-70 ml residual urine. Uroflowmetry reported 5.4ml/sec. maximum flow.

Cystoscopy was carried out under anesthesia revealing prostatic urethra with coapting bilobular growth and irregular surface. The bladder trigone presented with irregular tumor invasion involving the ureteral meatuses. Grade II bladder trabeculation was found. Double-J ureteral catheter (Sofflex®) was put in place on the left side after various unsuccessful attempts to pass the metallic guidewire in order to place it on the right side. Surgery was completed with transurethral resection of the prostate and bilateral simple orchiectomy. There was adequate postoperative progression.

Three-month postoperative control cystoscopy and abdominal X-ray for removing ureteral catheter showed cephalic catheter migration. Cystoscopy was then carried out under anesthesia and when the metallic guidewire could not be passed through the ureteral meatus, the decision was made to resect tumor invasion at the left ureteral meatus (Image 1). During the cutting the ureteral opening was visible and so it was cannulated with an open tip catheter, allowing metallic guidewire passage (Image 2). During semi-rigid ureteroscopy the migrated catheter was removed and a new double-J ureteral catheter was put in place after which resection of perimeatal tumor activity was completed. Resection of tumor invasion at the level of the right ureteral meatus was performed and again the ureteral opening was visible after several cuts and double-J catheter was placed. Perimeatal, trigone and retrotrigonal tumor activity was resected. The patient progressed satisfactorily and was released 48 hours after surgery. Catheter was removed after 72 hours. At 3-month follow-up catheter removal did not present with complications. Cystoscopy showed a smooth surface of new urothelium in the trigone and normal insertion and morphology of the ureteral meatuses (Image 3). Control studies at 3- and 6-month follow-up showed normal kidney function and ultrasound of the kidney showed there was no hydronephrosis.

DISCUSSION
When contemplating urinary diversion in patients presenting with cancer and obstructive uropathy, the following factors should be taken into consideration: tumor stage, primary cancer prognosis, probability of additional antineoplastic therapies and patient quality of life (9). However, the best management of malignant ureteral obstruction remains uncertain (10). Endoscopic insertion of ureteral catheters can be technically impossible when there are advanced malignant pelvic processes (11). A high percentage of failure has been reported for double-J ureteral catheters in cases of extrinsic obstruction (12).

Percutaneous nephrostomy is a commonly used alternative as a primary procedure or in cases of failed endoscopic procedures (13). Today the majority of urologists employ percutaneous nephrostomy for treating obstructive uropathy secondary to prostate cancer perhaps because of its low complication rate, its relative simplicity and its low cost (14). However, it is more invasive and is associated with a higher rate of
The advantages of endoscopic procedures over open procedures are well known in urology. Very little has been reported in the literature about ureterotomy, or as some authors call it, ureteroneocystostomy, an endoscopic solution of ureteral obstruction in the intramural segment, and in particular about the technique involving resection of the compromised ureteral meatus. However, this technique is feasible, safe and efficient. In 1987 Banus and cols., reported the cases of 3 patients with good results (8). The present case is bilateral obstructive uropathy secondary to prostate cancer bladder trigone invasion in which the compromised ureteral meatuses were resected and whitish peripheral tumor activity with pink central ureteral mucosa at the intramural segment of the ureter was identified (Image 2). The segment was cannulated with a metallic guidewire and a double-J catheter was put in place. The ureteral tract could then be identified upon completion of resection of tumor activity in the bladder trigone.

In our case and in those reported in the literature (1,2) ureteral catheters were temporary (in control studies after their removal, cystoscopic image showed re-epithelization of the ureteral meatus, kidney function studies were normal and ultrasound revealed there was no hydronephrosis). All this significantly improves patient quality of life. Even though it has been reported that internal urinary diversion with ureteral catheters is superior to nephrostomy, the former is not innocuous. It has a catheter-related complication rate of 11% that includes irritative symptoms, failure to resolve obstruction, urinary infection and urosepsis (10).

Today catheters are available that ensure adequate drainage even in cases of malignant extrinsic compression that require regular catheter change (for example Resonance ® Cook). However, such material was not available to our patient and the reality of the manufacturer’s description of catheter characteristics still remains to be seen in the clinical field.

**CONCLUSIONS**

Although obstructive uropathy is not frequent, it is a complication seen in locally advanced prostate cancer patients (T4). A good diagnosis is of the utmost importance, identifying the site, extent and cause of the obstruction as well as patient preferences so that the best urinary diversion option may be offered the patient on an individual basis. With patient comfort and convenience as the principal objective, an attempt should be made whenever possible (in the case of intramural ureteral obstruction) to change from nephrostomy or endoureteral prothesis to endoscopic ureteroneocystostomy in order to improve patient quality of life. Much research still needs to be carried out in this area of urology.
Rodríguez-Esqueda M et al. Bilateral endoscopic ureteroneocystostomy in a patient with obstructive uropathy secondary to prostate cancer invading the bladder trigone

BIBLIOGRAPHY