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Urinary Incontinence and Urosepsis due to Forgotten Ureteral Stent

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ABSTRACT

Case report of a patient who, while being under study due to total urinary incontinence and multiple urinary tract infections, interoccurs with urosepsis due to a forgotten and encrusted double-J stent. An open surgery is performed with two surgical approaches, suprapubic and minimal lumbotomy, in which a nephrectomy of the atrophic kidney, a resection of the urether with a calcified double-J in its interior and a cystolithotomy were conducted with the resulting favorable resolution of the pathology.

Introduction

Due to the great usefulness of double-J stents as a resource for different pathologies, we have chosen to present the case of a patient who presented an encrusted double-J stent, which led to total urinary incontinence and urosepsis. It is critical to take into account that this type of stents is not extent of complications and therefore the importance of their correct and periodical control and replacement.

Case presentation

Female patient, 73 years old, obese and hypertensive, who consults due to repeated urinary tract infections and total urinary incontinence which requires the use of 4 diapers a day. The patient presented multiple lower urinary infections and pyelonephritis. Surgical history: hysterectomy, umbilical hernioplasty, and the insertion of a ureteral stent 3 years ago in another medical center due to ureteral lithiasis.

Patient is referred to urology department by her primary care doctor. Blood tests present hypercalcemia and renal function within normal values. A urine culture and an ultrasound of the urinary tracts were performed, which resulted in a positive urine for proteus. It was not possible to visualize the bladder during the ultrasound and it was confirmed the patient suffered a moderate uronephrosis on the left kidney with gallstones in the renal pelvis.

As a next step, an abdomen X-ray is requested, in which the following is observed: a big calcified stone in the bladder, a calcified double-J ureteral stent, a pielic renal stone of 0.7 inches and another one in a middle calyx (Fig. 1).

It is then decided to start an antibiotic treatment following an antibiogram, but the total urinary incontinence did not improve. A renal scintigraphy is performed, where a 5% of left kidney function is confirmed.

After two weeks, the patient goes to ER presenting clear signs of a wide-spread sepsis with urinary focus. Once the patient is stabilized and an antibiotic treatment is established, it is decided to perform surgery.

An open sky surgery with two surgical approaches (suprapubic and minimal lumbotomy on the left kidney) is performed. A cystolithotomy is performed and the calcified urether is resected. This procedure is followed by the nephrectomy of the atrophic kidney with the double-J stunt catheter inside (calcified), and pielic stone and in middle calyx.

The post-surgery and anatomopathological findings were compatible with uropyonephrosis. The left kidney presented evidence of effects of pyelonephritis, congestive pararenal fat,

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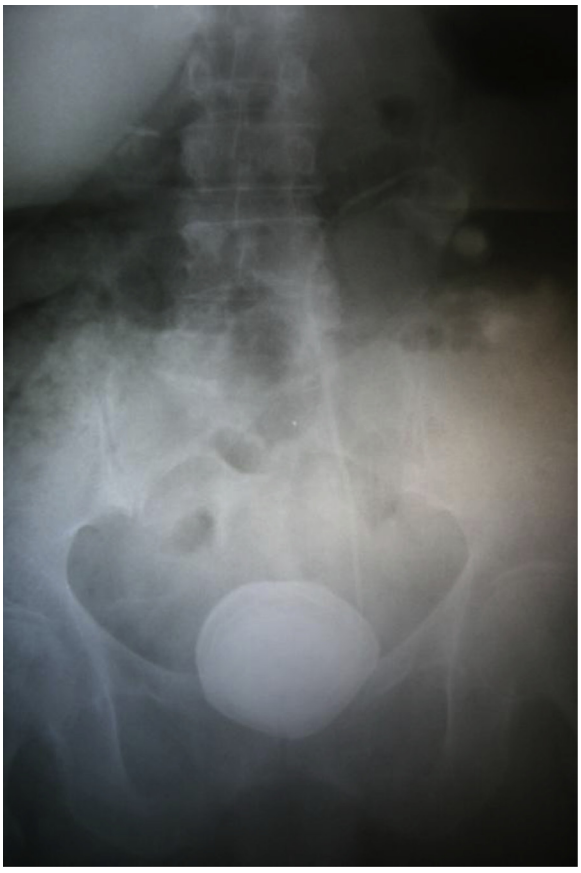

Figure 1. Plain abdominal X-ray showing the bladder and kidney stones.

thinning of the parenchyma of the renal cortex, thickening of the renal pelvis wall, perinephritis, uronephrosis and calcified lithiasis of less than 0.7 inches of diameter. In the left urether it was observed dilatation with periureteral fibrosis and double-J stent encrusted and calcified inside. The vesical stone was firmly adhered to the mucosa. It presented an approximate size of 2.7 inches of diameter with a phenomenon of nucleation surrounding the double-J stent (Fig. 2).

Discussion

The double-J stent ensures a correct urinary drainage from the kidney to the bladder. Generally, it is safe and well tolerated by patients. However, this type of stents can present several complications, including hydronephrosis, urinary tract infections, and its migrations, fragmentation and incrustration.[1] This last phenomenon is more prone due to different factors. In the first place, due to the fact that all material placed on the urinary tract will end up encrusted if it is left for a sufficient amount of time since it can be observed that urine crystals get adhered to the surface of the catheter with consequent calcification.

It has been published that the incidence of incrustation increases proportionally with the presence of the catheter in the urinary tract, which can reach levels of 9.2% after 6 weeks and 76,2% after 12 weeks.[2,3]

The calcification and incrustation of the catheter favors a variety of complications, including urinary obstruction, persistence of infections and even injuries of the urinary tract.

This kind of phenomenon has led to the creation of a classification system for the forgotten, encrusted, calcified double-J ureteral stent: FECal Ureteral Grading System, created in 2009 by the Department of Urology at the Loyola University Medical Center, in Maywood, Illinois, USA, together with a resolution protocol with the most effective methods.[4]

Grade 1: Minimallinear incrustation in any of the J-ends.

Grade 2: Circular incrustation that completely encloses any of the J-ends.

Grade 3: Circular incrustation that completely encloses any of the J-ends, with linear incrustation sections in the ureteral section of the stent.

Grade 4: Circular incrustation that completely encloses both J-ends.

Grade 5: Wide-spread and swollen incrustation that completely encloses both J-ends and the whole ureteral section.

Among the treatments suggested, we find the endoscopical with lithotripsy, the laparoscopical and the open surgery.[2,5]

In our patient, the grade 5 incrustation of the double-J stent associated to multiple infections derived in the uncommon presentation of a diagnosis of total urinary incontinence, which interocurred with urosepsis. Due to the seriousness of the interocurrence, it was decided to proceed with an open surgery, which allowed a complete approach of the pathology with its definitive resolution and good evolution on the patient's side.

Figure 2. Surgical piece. We can observe: Left kidney with calcium gallstone, left urether with double-J stent inside and vesical gallstone with nucleation of the distal extreme of the double-J stent.

Conflict of interest

None.

Acknowledgment

To conclude, the treating physician must have knowledge of the therapeutical resources available for the treatment of this kind of pathology, but, most importantly, they must know how to prevent it. A variety of different methods have been suggested, such us keeping track of the patients with this kind of stents using an electronic record, so that the treating physician receives reminders that allow them to monitor and replace the ureteral stents in an orderly manner.

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