Endourology

Videolaparoscopic treatment of total migration of double j stent to renal pelvis as a complication of rigid ureterolithotripsy in a university hospital at Amazon

Roger Arthur da Cunha Alves\textsuperscript{a,}\textsuperscript{*}, Francisco Marcos da Silva Barroso\textsuperscript{a}, Gualter Ferreira de Andrade Junior\textsuperscript{a}, César Dirceu Façanha Neto\textsuperscript{c}, Juan Eduardo Rios Rodriguez\textsuperscript{d}, Cristiano Silveira Paiva\textsuperscript{b}

\textsuperscript{a} Urology service at Getúlio Vargas University Hospital (HUGV), Avenida Apurinã, 4 - Praça 14 de Janeiro, Manaus, Amazonas, 69020-170, Brazil
\textsuperscript{b} Urology Department from Federal University of Amazonas (UFAM), Rua Afonso Pena, 1053 - Praça 14 de Janeiro, Manaus, Amazonas, 69020-160, Brazil
\textsuperscript{c} General Surgery service at Getúlio Vargas University Hospital (HUGV), Avenida Apurinã, 4 - Praça 14 de Janeiro, Manaus, Amazonas, 69020-170, Brazil
\textsuperscript{d} Medical School of Federal University of Amazonas (UFAM), Rua Afonso Pena, 1053 - Praça 14 de Janeiro, Manaus, Amazonas, 69020-160, Brazil

ABSTRACT

The insertion of a double-j catheter in patients with urinary lithiasis is currently important because it reduces the chances of obstructive complications such as hydronephrosis and renal functional loss.\textsuperscript{1,2} However, although performed in a relatively short time, it is not beyond complications both during the catheterization procedure and post-operatively. Catheter migration occurs when there is elevation of the distal portion of the catheter into the ureter, not having direct bladder communication, and may occur during placement or during the post-procedure period due to lack of proper care.\textsuperscript{3} Another complication is related to the permanence of the device inside the urinary tract for long periods of time.\textsuperscript{4} The following case aims to present the patient evolution which presented the complete migration of the catheter to the renal pelvis and how it could complicate its prognosis.\textsuperscript{5}

Introduction

The insertion of a double-j catheter in patients with urinary lithiasis is currently important because it reduces the chances of obstructive complications such as hydronephrosis and renal functional loss.\textsuperscript{1,2} However, although performed in a relatively short time, it is not beyond complications both during the catheterization procedure and post-operatively. Catheter migration occurs when there is elevation of the distal portion of the catheter into the ureter, not having direct bladder communication, and may occur during placement or during the post-procedure period due to lack of proper care.\textsuperscript{3} Another complication is related to the permanence of the device inside the urinary tract for long periods of time.\textsuperscript{4} The following case aims to present the patient evolution which presented the complete migration of the catheter to the renal pelvis and how it could complicate its prognosis.\textsuperscript{5}

Case report

A 75-year-old male patient started severe pain in the right inguinal region and right iliac fossa with irradiation to the groin and right testicle regions for 7 months. There was no significant peritoneal irritation and a common urine examination showed microscopic haematuria. In the emergency department, he underwent analgesia and computed tomography of the entire abdomen, evidencing lithiasis in the right distal ureter with moderate hydronephrosis. Double J stent was placed in the same hospital stay and was referred to our service for rigid ureterolithotripsy. Due to waiting time for surgery, he underwent stent replacement after 3 months. The initial endoscopic procedure occurred 3 months after the placement of a new stent, however, during the right ureter catheterization, there was a migration of the calculus to the renal pelvis. Provided that flexible ureterolithotripsy is not available in the unit, a new stent has been introduced for further treatment of lithiasis. During the insertion, there was complete migration of the catheter to the proximal ureter due to pressure, with no possibility of traction. To avoid extending surgery time, a second catheter was introduced to prevent obstruction of the ureter, without complications at the end. Immediately after surgery, an abdominal x-ray was performed, showing a stent rolled into the renal pelvis, a present calculus in the right renal pelvis and a well-positioned double j stent (Fig. 1).

During postoperative period, the patient presented improvement in pain, without impairment of renal function and diuresis at normal parameters. The new surgical procedure was performed after eight days, which was a laparoscopic pyelolithotomy. After exposure of the renal wire and renal pelvis, a longitudinal incision was made, initially...
finding inside the renal pelvis the distal end of the well-positioned and the excess catheter rolled into itself (Figs. 2 and 3).

There was no visible adherence or perforation and the withdrawal presented no difficulty. The calculus was then sighted and withdrawn. The remaining catheter was maintained in ureter since there was no excessive manipulation of it and its movement during procedure was null. Synthesis and the rest of the procedure was performed without any complications. During the postoperative period, the patient did not present any relevant complaint, since pain was controlled by appropriate analgesia. He was discharged 2 days after the procedure. He was referred to the outpatient clinic to schedule catheter withdrawal with success after 14 days.

**Discussion**

The migration of ureteral stents is mostly associated with the permanence of the same stent for periods longer than 3 months, which may be associated with a failure of postoperative communication or abandonment of the treatment by the patient. These cases also relate to the fragmentation and calculus of the stent itself inside the ureter.

However, the reported case presents an unusual complication, since the catheter had an entire migration during the placement procedure. The ideal conduct at this time is the removal of stent by rigid ureteroscopy, which was not possible due to the proximal location of the catheter and the difficulty of its manipulation, which probably was
imprisoned in the renal pelvis. Migration of the calculi is also associated. Although the ideal treatment after proximal location of calculi was lithotripsy, due to its ease visualization during the surgical procedure, there would be no complication for the removal of the calculus in the same surgical time.2

Renal parenchymal perforation should not be discarded as an associated complication at any time after migration, and physical examination should be performed whenever possible to assess potential signs of peritoneal irritation or another ill.3

Conclusions

Placing a dual-catheter for treatment of lithiasis is a routine procedure in urology services but is not beyond complications during the procedure. Even with exhaustive complementary imaging exams, we must maintain a constant evaluation of the patient in the postoperative period and if there is a migration of stents to the proximal regions of the urinary tract, treatment should be performed as soon as possible to avoid other complications, even with asymptomatic patients.

References

1. Dyer RB, Chen MY, Zagoria RJ, Regan JD, Hood CG, Kavanaugh PV. Complications of ureteral stent placement. Radiographics. 2002;22(5):1005–1022 [Internet]. http://pubs.rsna.org/doi/10.1148/radiographics.22.5.g02se081005.
2. Slaton JW, Kropp KA. Proximal ureteral stent migration: an avoidable complication? J Urol. 1996;155:58–61.
3. Ahalial Y, Khalilouk A, El Fassi MJ, Farih MH. Risk factor analysis and management of ureteral double-J stent complications. Rev Urol. 2010;12(2–3):e147–e151 [Internet]. http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2931292&tool=pmcentrez&rendertype=abstract.
4. Kenan. Simultaneous treatment of upward migrated DJ stent and proximal ureteral stones: a case report. Internet J Urol. 2006;5:1–4.
5. Abdelaziz AY, Fouda WB, Mosharafa AA, Abrelsoul MA, Fayyad A, Fawzi K. Forgotten ureteral stents: risk factors, complications and management. Afr J Urol. 2018;24(1):28–33 [Internet]. Pan African Urological Surgeons’ Association. https://doi.org/10.1016/j.afju.2017.09.005.