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Left Duplex Collecting System Complicated by Obstructed Stone: A Case Report

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Abstract **Case Report**

Pyeloureteral duplication is a duplication of the excretory system of a renal unit. Renal duplication is a congenital anomaly, estimated in the general population at 1/125. Familial forms have been described and estimated at 1 in 8 in the siblings. Upper urinary tract malformations are not uncommon in adults and can lead to destruction of the renal parenchyma if diagnosis and management are delayed. Recurrent back pain is the most common symptom. It may also be due to infectious complications of the upper pyelo in stasis or due to ectopy. Urinary lithiasis is found in 26% of cases according to some series. Endoscopic incision in the context of ureteral duplicity, completed by ureteroscopy with drainage of the Upper excretory tract, may be the treatment of choice in adults. Simple, minimally invasive and with low morbidity, it allows an efficient drainage.

Keywords: Duplicity; lithiasis; treatment, case report.

INTRODUCTION

Pyeloureteral duplication is a duplication of the excretory pathway of a renal unit. Renal duplication is a rare congenital anomaly, estimated in the general population at 1/1200, familial forms are described and estimated at 1 in 8 in siblings. There are few case reports in the literature documenting a patient with multiple stone obstruction in the bifid ureter, resulting in severe hydronephrosis. Here we present a case of unilateral complete ureteral duplication complicated by stone obstruction in a bifid ureter in a 48-year-old woman [1-3].

PATIENT AND OBSERVATION

Patient information: It is a 48-year-old patient, with the history several episodes of isolated fever treated symptomatically, has moderate chronic left lower back pain for more than 15 months with urinary frequency, no vomiting, abdominal or flank pain or other associated urinary symptoms; an CBEU (cytobacteriological examination of urine) was asked and which objectified a urinary infection with E. coli; the patient was put under antibiotic therapy, with a good evolution (CBEU of the control is sterile).

Clinical findings: Clinical examination found a conscious patient, well oriented in time and space, hemodynamically and respiratory stable (normotensive at 110/70 euphemistic at 20cpm SaO2: 92%); normocolored conjunctiva; apyretic at 37°C, on physical examination, we found left lumbar sensitivity, no left lumbar contact., Giordano's sign negative, the rest of the somatic examination is unremarkable.

Paraclinical assessment: An CBEU was done twice; the first one showed a urinary infection with E. coli, the control CBEU was sterile.
The creatinine level was 0.9 mg/l and urea 0.26 g/l with a glomerular filtration rate of 75 ml/min. An abdominopelvic CT scan was performed which showed a moderate left ureterohydronephrosis with preserved cortical index with two stones, the first one pyelic of 18 mm and the second one upper caliciel of 15 mm.

Therapeutic intervention: On the operating table: Patient in supine position, after general anesthesia in gynecological position. The patient underwent an endoscopic exploration which revealed two left and one right ureteral meatus. A retrograde ureterography of the 2 ureteral orifices on the left side was requested which

showed 2 ureters with an upper and a lower pyelone (Figure 1). Subsequently catheterization of both meats with hydrophilic guides.

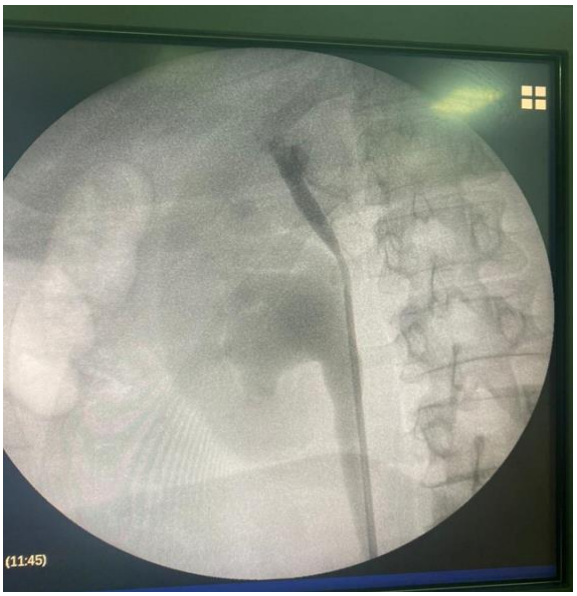

Figure 1: Scopic image of a ureteral duplicity after retrograde opacification

A flexible ureteroscopy CH 7 is placed under visual control. A pyelography is performed by injection of contrast medium in the operating channel to check the correct position of the endoscope. The focus is obtained and the zoom is optimized. A flexible ureteroscopy of the upper pyelone revealed a 2 cm stone; complete fragmentation of the stone with laser (Figure 2), the endoscopic exploration of the lower pyelone found a 1.5 cm stone.

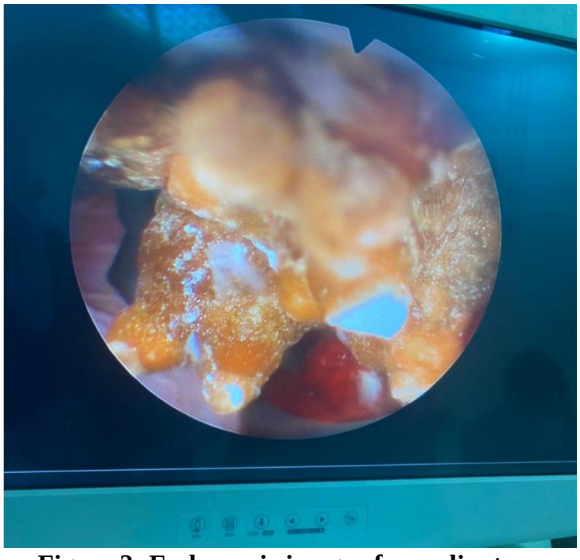

Figure 2: Endoscopic image of a pyelic stone

The laser fiber used is 200 or 365 microns. The stones are fragmented to a size of less than 2 mm. and placement of tow Double J CH 7 urethral stents on the left side. The operating time was 120 min (Figure 3).

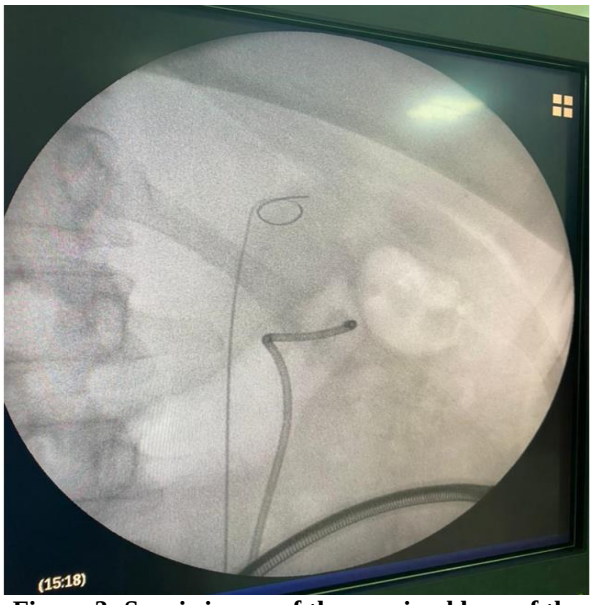

Figure 3: Scopic image of the proximal loop of the first double J urethral stents

Follow-up and outcomes: The postoperative evolution was marked by an improvement of the symptomatology. After 4 weeks, the patient was was seen again in the department with a control abdominopelvic CT scan without any stones objectified on the upper excretory tract. She benefited from an ablation of the two double J urethral stents. The short and medium term follow-up was without particularity.

Patient's perspective: During her hospitalization after the surgical treatment, the patient appreciated the functional results and the quality of care she received.

DISCUSSION

Duplicity is a splitting of the excretory tract, the part of the renal parenchyma and the corresponding excretory tract is called pyélon and the 2 ureters are totally separated. Its frequency varies between 0.5 and 1%. Ureteral duplicity can be discovered either incidentally or on the occasion of a complication related to the pathology of duplicity [4, 5].

In our case, the diagnosis of duplicity was made by abdominopelvic CT scan in the context of a complementary work-up of a UPC dilatation with pyelocalic lithiasis on ultrasound.

The most frequent symptom is recurrent back pain [6]. It can also be an infectious complication of the upper pyelon in stasis or due to ectopy. Pollakiuria and delayed gout is very suggestive, during the post-micturition phase [7].

Urinary lithiasis is found in 26% of cases according to some series. With localizations at the renal level estimated (50%), at the ureteral and renal level (20%) and at the ureteral level (30%). The ureteral

lithiasis was in all cases at the pelvic level. In our case, all the lithiasis was at the renal level without ureteral lithiasis [8]. The Clinical examination rarely shows lumbar contact; it is usually normal apart from pain on palpation of the lumbar fossa or the iliac fossa.

Ultrasound has become the main screening test today, because it is efficient and non-invasive. It will be performed as soon as the examination was pathological or simply suspicious, but also at the slightest clinical suspicion in the patient having presented the symptoms mentioned above. When the duplicity is uncomplicated, it simply shows a kidney slightly larger than normal with a duplicated sinus, which is not always easy to demonstrate. The two ureters are not visible when they are normal. The main purpose of the scan is to assess the impact of the duplicity on the kidney and the upper excretory tract [9].

The abdominopelvic CT scan reproduces the anatomy of the kidneys and provides details of their relationships and vascularization, thus representing essential information on the upper excretory tract. It can help in the classification of the duplication according to the morphology of the pyelons and ureters [10].

The association with a calculus in duplicity makes endoscopic treatment more indicated. Endoscopic meatotomy has the advantage of being simple, effective, with low morbidity and short hospital stay, and it does not cut off the bridges to an endoscopic or surgical revision. A ureteroscopy can be performed at the same time as the operation [11, 12].

CONCLUSIONS

Upper urinary tract malformations are not uncommon in adults and can lead to destruction of the renal parenchyma in case of delayed diagnosis and management. Endoscopic incision in the context of ureteral duplicity to be completed by ureteroscopy with drainage of the ESV may be a treatment of choice in adults. Simple, minimally invasive and with low morbidity with effective drainage.

Current state of knowledge on the subject

- Ureteral duplicity is a rare malformation;
- The management of its complications is poorly codified due to the rarity of the cases reported in the literature.

Contribution of our study to knowledge

- The diagnosis of duplicity should be considered in young adults with chronic low back pain;
- Confirms the place of uroscanner and retrograde opacification in the diagnosis of the pathology;
- Meatotomy with ureteroscopy (stone fragmentation) and drainage of the excretory tract in case of lithiasis complications are therapeutic options in case of these complications.

Conflicts of Interest: The authors declare no conflicts of interest.

AUTHORS' CONTRIBUTIONS

All authors contributed to the conduct of this work. All authors also declare that they have read and approved the final version of the manuscript.

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