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Case Report

Case Report on Bilateral Microlithiasis with Left Staghorn Lithiasis

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Abstract

The lithiasis pathology is frequent and recurrent, it most often affects the upper urinary tract, several types of stones exist. The most frequent are calcium oxalate stones (70%).

In this case a bilateral renal lithiasis with a left coralliform lithiasis the surgeon in front of a diagnostic and therapeutic dilemma.

We report a case of a 39-year-old patient with no particular pathological history who presented bilateral lithiasis (with a 10cm left staghorn microlithiasis) responsible for major bilateral ureter hydronephrosis, who progressed well under surgical treatment. We discuss the modalities of management in front of staghorn lithiasis.

Keywords: Staghorn Lithiasis; Surgical Treatment; Macro Coralliform Lithiasis; Bilateral Renal Lithiasis

Introduction [1]:

The lithiasis pathology is frequent and recurrent (more than 60% at 10 years), it reaches 5 to 10% of the population, mainly between 20 and 60 years old, with a sex ratio of 3 men to 1 woman, which can evolve for a long time. years of low noise as well as requiring emergency treatment and being life-threatening It most often affects the upper urinary tract (pyelocalicular cavities, ureter), but can also develop in the bladder in some special cases.

Several types of calculations exist. The most common are calcium oxalate stones (70%). Knowing the composition of a stone is essential: this influences not only the treatment of the stone but also the risk of recurrence and long-term management.

Coralliform stones designate stones which radiologically have the shape of coral or for Anglo-Saxons, the shape of deer antlers (*staghorn*). This definition will identify very different calculations as coralliforms depending on the number and proportion of stems and calyxes that will be filled by these calculations. According to some authors, it would be more correct to speak of complex calculations. For Rassweiler., *et al*. the parameters which must enter into the definition of complex stones are : the lithiasis volume and its distribution, the composition of the stone, the renal function, the associated urinary tract infections.

Patient and observation

This is Mr AB, 39 years old, with no particular pathological history who has bilateral low back pain accentuated on the right side dating back to 1 year before his hospitalization, associated with obstructive (dysuria) and irritative (pollakiuria) lower urinary tract disorders. and voiding burns) without haematuria or emission of stones without other accompanying signs, all evolving in a context of apyrexia and conservation of the general condition.

On clinical examination

presence of bilateral lumbar tenderness accentuated on the right, on rectal examination : increased prostate size estimated at 50g with flexible bladder base. The rest of the clinical examination is unremarkable.

On the balance sheet

Nfs-plq : Hb = 14.1 g / dl GB = 75000 / mm3

PLQ = 242000 / mm3

BBB: Urea = 0.37 g / l creat = 17.3 mg / l

PSA = 1.4

ECBU: sterile

Uroscan

- UHN major right on lithiasis obstacle at the level of the pelvic and premeiotic ureter measuring 50 * 23.4 mm with an average density of 980UH.
- Left pyelocaliceal coralliform calculus with an overall height of 10 cm and an average density of 740 HU responsible for a major UHN, with the presence of another left meatal calculus of 4.6 mm with an average density of 540 HU.
- Prostatic hypertrophy.

Results of the spectrophotometry of the surgical cure of the left coralliform lithiasis

- 86% carbonated calcium phosphate (Carbonatite)
- 11% calcium oxalate monohydrate (Whewellite)
- 03% protein.

On the right side after flexible ureteroscopy we note the presence of ureteral thickening, a biopsy was performed, then the patient underwent a right nephroureterectomy with good clinical and biological evolution.

The patient had a right nephrectomy with lymph node dissection without urethrectomy (presence of an inextirpable mass at the second stage of the operation) 3 months after the treatment of the left coralliform lithiasis following a suspect thickening of the pelvic ureter.

Discussion

In recent decades, endoscopic treatment, ECL and laparoscopy practically eliminated the indication for Open renal lithiasis surgery, including bivalve nephrotomy [2]. However, some cases still pose a real challenge for minimally invasive surgery, and for which open surgery remains the option of choice. According to the recommendations of the European Association of Urology (EAU guidelines), it is found that in complex stones including partial or complete coralliform stones, the first line treatment is the NLPC or the combined surgery between the NLPC and the flexible ureteroscopy, However, if percutaneous approaches are not likely to be successful, or if several endourological approaches have been performed without success.

open or laparoscopic surgery may be a valid treatment option [3].

A study [4] carried out in the urology department at Ibn Sina University Hospital on 53 cases of coralliform stones during a period of 7 years, from January 2011 to January 2018. These patients are divided into 31 women and 22 men, the average age was 49 years old. A history of urolithiasis was noted in 16 patients. The average time to diagnosis was 3 years. The clinical symptomatology was dominated mainly by pain then by manifestations Infectious urinary tract. The coralliform was located on the right in 28 cases, bilateral in 3 cases. The stone was radiopaque in 46 cases. It was complete in 15 cases (28.3%), partial in 38 cases (71.6%), parts caliceal were associated in 21 cases (39.6%). The average size calculations were 61 mm (40-78 mm).

In our case, the patient is almost in the same age group, with a symptomatology which goes back to 1 year dominated by bilateral low back pain accentuated on the right.

He presents a right lithiasis of 5 cm corresponding to the stones found in this study with a left coralliform lithiasis of 10 cm (Figure 1 and 4). The extraction was complete on the left with no residual fragment.

NLPC was first introduced in the 1970s to treat small kidney stones. Its subsequent role in the management of coralliform stones was facilitated by the availability of ultrasound and electrohydraulic lithotripsy. In a large series, NLPC for coralliform stones has revealed 98.5% complete stone removal rate. The overall com-

Figure 1: Uroscanner.

Figure 3: AUSP.

Figure 2: Uroscanner.

Figure 4: lithiases of the right pelvis ureter.

plication rate in this study was as low as 4%. Although very popular, surprisingly, there is only two randomized controlled trials (RCTs) evaluating the therapeutic value of NLPC. The first RCT has been

published in 2005 and concluded that the NLPC was superior to Extracorporeal shock wave lithotripsy in the management of coralliform stones. Therefore, NLPC is recommended as the first-line treatment for struvite stones.

The second RCT examined the role of NLPC in the treatment coral stones compared to open surgery and showed comparable clearance of stones, less bleeding, shorter operating time, fewer operating complications, and a shorter hospital stay in the case of NLPC.

The latest studies have also shown that the mini-NLPC is a feasible option for treating patients with complex kidney stones, including coralliform stones. Mini-NLPC can be used as a one-step or two-step procedure in the management of coralliform kidney stones [5].

The pathophysiology of these coralliform stones is well known and has been summarized as follows by Healy and Ogan [6]. Coralliform stones are most often formed against a background of urinary tract infection with urease bacteria. The germs which produce the most urease are *Proteus, Klebsiella*, *Pseudomonas* and staphylococcus.

Urease breaks down urea into ammonia and carbon dioxide, which then breaks down further into ammonium ions and bicarbonates. These products subsequently bond to available cations to create ammoniac magnesium phosphates (struvite), carbonate calcium phosphates (carbonatite), or a combination of the two (carbonatite).

Carbonatite begins to crystallize at a pH greater than or equal to 6.8 and struvite at a pH greater than or equal to 7.2. Citrate normally has a protective effect against the formation of these stones by complexing with calcium and magnesium, but high concentrations of bacteria metabolize citrate and prevent the formation of these complexes. In our case the carbonated calcium phosphate (Carbapatite) was 86% of the components of lithiasis, without notion of urinary tract infection with a sterile ECBU.

All patients with coral stones should undergo a complete metabolic assessment, as most will have identifiable and potentially treatable metabolic abnormalities. This assessment should include, at a minimum, 24-hour urine tests on a random diet, serum chemistries including calcium levels, a complete urinalysis and culture, and analysis of stones when is available. Any identified metabolic abnormalities should be identified and treated with directed medical treatment. After starting medical treatment, a further 24 hour urine sample within 3 to 4 months is helpful to assess the adequacy of treatment. All patients should further be carefully counseled regarding conservative dietary measures of high water intake, low sodium and low animal protein intake [7].

The surgical management of coralliform stones was marked by the appearance of robot-assisted pyelolithotomy

Rene Sotelo*., et al.* [8] Provides the place of robot-assisted pyelolithotomy, of which two male patients with complete coralliform stones underwent robot-assisted pyelolithotomy.

Patient characteristics, stones and surgical techniques were analyzed. The average age was 63.5 years. The average size of the coral stone set was 8 cm (range 7 - 9 cm). One patient had a history of percutaneous nephrolithotomy, and the other patient underwent radical prostatectomy concurrently with surgery both were correct calculations.

All the procedures were technically successful with the robot assistance and without the need for conversion to open surgery. The estimated mean blood loss was 175 ml (range 50-300 ml), and no patient required intraoperative blood transfusion. The mean operating time was 150 min (range 120–180 min). A perinephric drain was placed in one patient and was maintained for 5 days. The mean hospital stay was 4.5 days (range 2-7 days). Complete stone removal was achieved in both patients on the basis of computed tomography imaging obtained 6 weeks postoperatively.

Conclusion

The coralliform calculus is a frequent calculus, it is serious by its impact on the kidney, associated urinary tract infection and the risk of significant recurrence. Its open treatment has many complications, it is not recommended in the first line, but it is important to recognize patients in whom a open nephrolithotomy could be a choice valid processing.

Conflicts of Interest

The authors do not report any conflict of interest.

Contributions From the Authors

Authors: All have read and approved the final version of the manuscript.

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