

Radiological Aspects Of Multiple Bladder Stones: A Case Report

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Citation

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Abstract

The authors report a case of bladder diverticulum containing multiple calcic oxalate nephrolithiasis with repercussions on the upper urinary tract in a patient aged 44 years, Followed for epilepsy in psychiatry for 12 years and under phenorbital. The Diagnosis was made by imaging.

At the surgical intervention, 14 stone of different sizes were extracted.

Physical examination of the bladder stone by infra-red spectrophotmetry found calcic oxalate nephrolithiasis.

The aim this work is to study the epidemiological, clinical and radiological (ultrasound, Plain Film, CT scan) aspects and to define mechanism of occurrence of multiple stones in the bladder depending on the kind of calculations.

INTRODUCTION

Multiple bladder stones is the presence of more than three concretions in the bladder. Urolithiasis is a common condition in our regions. It can remain asymptomatic for a long time allowing the discovery of large or multiple bladder calculi. The aim of this work is to describe epidemiological, clinical and radiological aspects of the bladder stone, and to define mechanism of occurrence of multiple calculi in the bladder depending on the type of calculations.

OBSERVATION

It was a patient aged 44, psychiatric follow-up for epilepsy for 12 years, treated by phenobarbital 100mg.

He was received in an unencrypted progressive emaciation table and incomplete chronic urinary retention lasting for 7 months, in which the review was, objectified a large distended bladder which required the establishment of an indwelling catheter.

Laboratory objectified a high creatinine amounted to 24 mg/l, normochromic normocytic anemia with a hemoglobin rate amounted to 7.9 g / dl.

The urine culture isolated pneumoniae Klebsiella infection.

The phospho-calcic balance objectified calcemia amounted to 99 mg/l and seric phosphorus to 31 mg/l.

Abdominal Plain Film showed many calcifications projecting into the bladder area (Figure 1).

Figure 1

Abdominal plain film. Multiple radiopaque gall bladder projecting into the bladder area.



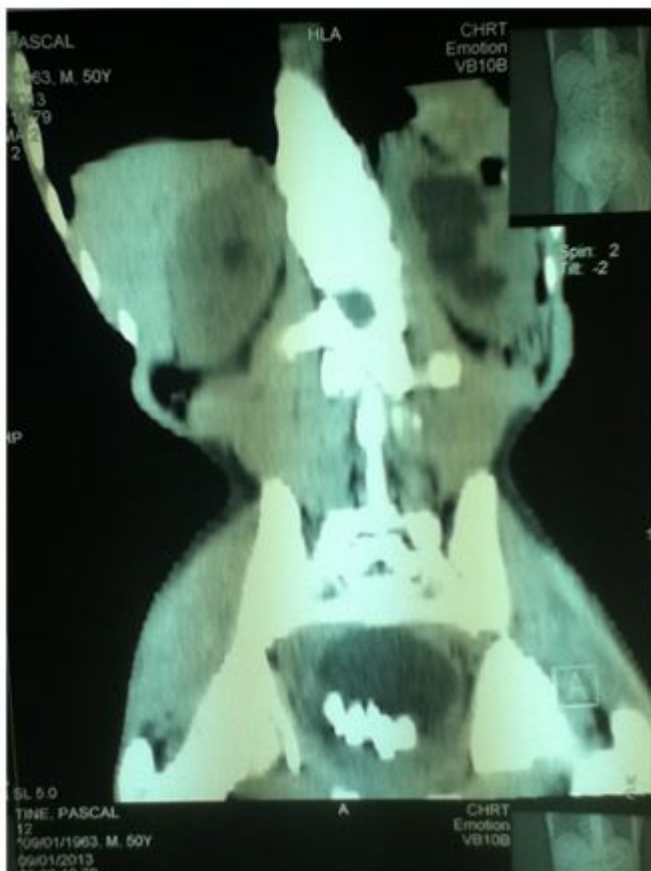
Ultrasound showed diverticular bladder containing multiple

bladder stones responsible for bilateral and symmetrical ureterohydronephrosis with loss of cortico-medullary differentiation.

At the ultrasound, bladder stones occur as multiple arcuate pictures hyperechoic generating a posterior acoustic shadow. CT scans performed without injection due to acute renal failure had confirmed the presence of the multiple bladder stone with spontaneously high density and ureterohydronephrosis bilateral stage III (Figure 2).

Figure 2

Coronal CT scan reconstruction showing multiple bladder calculi and bilateral ureterohydronephrosis.



The patient was treated by antibiotic as ofloxacin for 21 days with a negative control urinalysis, blood transfusion and surgery had showed sclerosis of the bladder neck, diverticular bladder and many blackish calculi (14 in number calculations) of variable size ranging from 1.20 cm of diameter 5 mm (Figure 3).

Figure 3

Fourteen calcic oxalate stones of varying size.



The postoperative course was uneventful. Infrared spectrophotometry allowed highlight of calcium oxalate stones. The patient was followed up for 24 months, with a marked improvement of the general condition and a normalization of renal function.

DISCUSSION

The prevalence of urolithiasis is high up to 12% in some regions [1].

It is considered endemic in poor areas where the plan is to carbohydrate-based and animal protein [2], [3].

The stones may sit at any level of the urinary tract, causing a heterogeneous clinical picture. Bladder stones are in the majority and may be kidney or bladder origin [4]. Few authors were interested in the number of bladder stones, because usually the bladder calculi tend to be unique and large and small sizes and not many.

Despite progress in the treatment of urolithiasis, there is little data on their formation mechanism and multiple calculi favorite area development calculations.

On predisposing factors for lower urinary tract calculi, obstructive uropathy, recurrent urinary tract infections germs urease (*Escherichia coli*, *Klebsiella pneumoniae* ...) are in the foreground. [5]

In our case, the patient had a bladder neck sclerosis and repeated urinary tract infections due to *Klebsiella pneumoniae*.

Abarchi and al. found the germ staphycoque as dominant [6].

The analysis of calculations by physical methods such as infrared spectroscopy and X-ray diffraction are used to determine the precise composition calculations.

The calcium oxalate calculi (struvite) are the most frequent and is favored by recurrent urinary tract infections caused by urease-positive bacteria and a diet rich in calcium [1].

The mechanism that explained the origin of these multiple calculi remains unknown, however, hypotheses have been linked to the specificity at urodynamic bladder [7].

Indeed, lithogenesis could be toward the formation of large calculations or to the fragmentation into multiple small stones.

Urolithiasis may remain asymptomatic for a long time, which would promote the development of large or multiple stones.

The diagnosis is mainly posed by imaging based on ultrasound, radiography of the abdomen without preparation and scanner [8, 9, 10].

The advantage of ultrasound is its accessibility and no radiation exposure.

Ultrasound can highlight the calculations in about 50% of cases showing calcifications with posterior shadow cone and especially to assess their impact (dilation of pyelo-caliceal cavities) [8,9].

Although it is now rivaled by spiral CT scan without injection of contrast, the plain film has a place in the exploration of the urinary tract, including stone disease. [8, 9,10].

The plain film also has a place in the diagnosis and monitoring of urinary stone disease that results in the presence of radiopaque stones in 90% of cases.

Failures of the diagnostic at plain film are related to the technical shortcomings of the review, the radiolucent or radiopaque few calculations, non-calcic nephrolithiasis images located in the projection area of the urinary tract (risk of false positives). [8, 9].

The use of spiral CT scan without injection has emerged in many hospitals in the exploration of urinary stone disease, especially in acute flank pain suggestive of renal colic in place of the conventional approach combining ASP and ultrasound.

In principle, all urolithiasis should be visible on CT, regardless of their biochemical composition.

Only non-mineralized calculi, made of a protein matrix are not identifiable (but extremely rare) and lithiasis secondary

to the treatment with indinavir in HIV patients.

Apart from these rare cases, the visualization of bladder stones will depend on the one hand to their size relative to the slice thickness, on the other hand to the signal-to-noise ratio depends on the dose.

CT urography also allows a complete exploration of the urinary tract in both the morphological and functional assessment in the secretion and renal excretion. [8, 9,10].

In our case, the CT scan without injection of iodinated contrast due to impaired renal function confirmed the presence of multiple bladder calculi but also highlighted the impact of the upper urinary tract.

CONCLUSION

Bladder stones is the most common urinary locations. They may remain asymptomatic for a long time to detect multiple calculations. Recurrent urinary tract infections should be investigated gallstone origin in our context.

Imaging based on ASP, ultrasound and CT plays an important role in the diagnosis and monitoring of urinary stone disease.

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