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Giant Calculus in the Ureteropelvic Junction: A Case Report

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Abstract

Urinary lithiasis is an affection of high social impact associated with high costs. Its incidence varies from 1 to 15% in the general population and has a recurrence chance of 26-50%. We report one rare case of giant ureteral calculus in the ureteropelvic junction in a patient with complaints of left lumbar pain and recurrent urinary tract infection diagnosed in the outpatients' Urology clinics. Antibioticotherapy was instituted and complementary tests were done. The abdomen x-ray showed a large opacity in the left kidney topography, and the computed tomography evidenced a giant left ureteral calculus associated with a large ureteropelvic junction dilation and grade III hydronephrosis. An ureterolitothomy was performed and evidenced a calculus of 9.5x6.5cm and weighting 347g. The patient became well after the surgery, and a pyelogram evidenced dilation of both caliceal groups and left ureter, without any calculus. Urinary lithiasis should be early diagnosed and treated in order to avoid severe complications as the presented here.

Key words: *Urine lithiasis; Urine calculus; Ureteropelvic junction; Lithotomy.*

Introduction:

Urinary lithiasis is an affection of high social impact associated with high costs.[1] Its incidence varies from 1 to 15% in the general population and has a recurrence chance of 26-50%.[2] The peak of incidence is between the 3rd and 5th decades of life, and obesity is an isolated risk factor for urinary lithiasis. With population aging and the advent of more sensitive diagnosis methods, it is observed an incidence increase in the elderly.[2-7] In the occidental hemisphere the majority of calculi are composed by calcium, uric acid, cystine and struvite.[4]

Renal colic generally occurs when there is obstruction in some portion of the urinary tract by the calculus, and ureterolithiasis is responsible for approximately 56% of renal colic cases.[1]

After patient's consent we report one case of ureteral lithiasis with large dimensions in the left ureteropelvic junction diagnosed in the Urology outpatients' clinics in the city of Caxias, MA, Northeast Brazil.

Case report:

A 47 years-old female, farmer, from the city of Caxias, MA, Brazil, seek for medical attention in the Urology outpatients' clinics in February 2012 with complaints of intense left lumbar pain, which had suddenly started, type colic, becoming insidious, with periods of relieve and exacerbation, without relation to physical exercise, since 18 months ago.

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The pain had increased in the last months and was followed by vomiting and recurrent urinary tract infection. At the physical examination the patient was in good general health, pale, normotensive, with normal cardiopulmonary auscultation, semi globus abdomen, unpainful at palpation and with nor palpable masses. Antibioticotherapy was started with ciprofloxacin, and complementary tests were done. The initial laboratory tests showed Ht 35.3%, Hb 11.2g/

Fig.-1: *Abdominal x-ray showing a radiopac image in the left kidney topography.*

Fig.-2. *Giant urinary calculus.*

dL, white blood count 11870/iL, platelets 371,000/mm^3, urea 27mg/dL, creatinine 0.8mg/dL, potassium 4.1mEq/L, sodium 138mEq/L. The abdominal x-ray showed a large opacity in the left kidney topography (Figure 1). The computed tomography evidenced a giant left ureteral calculus associated with a large ureteropelvic junction dilation and grade III hydronephrosis. An ureterolithothomy was then performed and evidenced a giant calculus of 9.5x6.5cm and weighting 347g (Figure 2) in the left ureteropelvic junction, with purulent collection. A ureteroplasty and ureterostomy was done. The patient was transferred to the medical ward and it was started gentamicin 800mg/day and ciprofloxacin 400mg/day. She presented serous secretion through the operatory wound until the 5th day post-surgery. The ureterostomy was closed in the 10th post-surgery day, and hospital discharge was done in the 15th post-surgery day. One month later a pyelogram was performed and showed dilation of both caliceal groups and left ureter, with contrast elimination 15 minutes after infusion (Figure 3). The patient became clinically stable and had no symptoms in the last medical consultation.

Fig.-3: *Pyelogram showing caliceal and left ureter dilation, with contrast elimination 15 minutes after infusion.*

Discussion:

Urinary lithiasis is a common disease that affects a considerable number of individuals all over the world[4]. It is one of the most frequent urinary tract diseases, whose existence was documented since seven thousand years ago through anthropologic studies.[3] The present case evidences a rare complication of urinary calculus: a giant ureter calculus diagnosed due to lumbar pain and recurrent urinary tract infections.

People who work in warm places present a high incidence of urolithiasis[3]. The investigation of lithiasis among different workers showed that those who worked in external places present a five times higher prevalence of urinary lithiasis than those who work in indoor places.[3]

The urine supersaturation is fundamental to the occurrence of calculi. There is crystal formation, with posterior nucleation and aggregation of new particles.[2] It is described that vitamin A, magnesium, phosphate and vitamin B6 deficiency, along with a diet poor in carbohydrates and rich in proteins, are

involved in the pathogenesis of urinary lithiasis in childhood.[5] Our patient was a farmer, working in a very warm weather and referred low water intake, facts that contributed to the development of urinary lithiasis. Chronic dehydration is the mean risk factor for urinary lithiasis among workers from tropical areas, and prevention is easy to achieve with the increase in water consumption.[3]

The calculi that cause urinary tract obstruction generally manifest with lumbar pain secondary to the distention.[3] The pain usually gradually increases, and there is no comfortable position, and most patients says that this is the worse pain they have ever felt[8]. The pain generally irradiates to flanks, iliac region, medial face of lower limbs or pelvic region. Lower urinary tract symptoms and hematuria can also be present.[1] The main clinical manifestation observed in our patient was chronic lumbar pain with no relation to physical exercise.

From the clinical suspicion and in face of a symptomatic episode of renal colic, the complementary investigation is essential to diagnose urinary lithiasis[1]. One of the best methods is computed tomography (CT) without contrast, with 96% sensitivity and 100% specificity[1]. The definitive diagnosis, in our patient, was done with abdominal CT. X-ray can be used as initial assessment, when CT is not available.[1]

The treatment of ureteral calculi depends on its location, size and composition.[6] The methods used in the treatment of urinary lithiasis are extracorporeal shock wave lithotripsy (ESWL), endourology and open surgery.[3] For proximal ureter small calculi, ureteroscopy and ESWL are good options, while for those larger calculi (>1.0cm), therapeutics options include ureteroscopy, ESWL, percutaneous anterograde treatment or laparoscopic/open surgery[1]. Due to the large dimensions of the calculus, our patient underwent open surgery. Ureteroplasty was done due to the enormous dilation and ureterostomy to try to decrease the tension caused in the ureteral suture. After the surgery the patient became stable, with no symptom and remains in follow-up.

Conclusion:

This case illustrates a rare occurrence of giant ureteral calculus in a patient who have the diagnosis and treatment delayed due to the lack of medical access in a poor region of Brazil. Urinary lithiasis must be early diagnosed to avoid the associated morbidities and complications, such as urinary tract obstruction, sepsis and renal insufficiency.

Conflict of Interest : None

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