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Inflammation and infection

Xanthogranulomatous pyelonephritis: A case report

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Introduction

XPN is a rare form of chronic pyelonephritis. It is more common in middle age women. Clinical presentation involves malaise, fever, flank pain, weight loss, and is usually associated to urinary calculi or UTI. Usual laboratory findings include anemia, high CRP and liver dysfunction. As for images, both computed tomography and magnetic resonance imaging can show characteristic findings and the extension of the lesion. Antibiotics may be given in case of acute infection, but the treatment of choice is nephrectomy, with the objective of removing all the compromised tissue.

Case presentation

In February 2016, a 22-year-old women with a medical background of three episodes of UTIs, presents with a history of fever up to 38 °C, anemia and episodes of vomit. She first consulted in October 2015, receiving empirical treatment with Ciprofloxacin for 7 days, referring partial improvement of the symptoms. In November she reconsults due to persisting fever, increasing right flank pain and weight loss. A urine culture was performed in January 2016 which showed *Proteus Mirabillis* sensible to Ciprofloxacin. Nevertheless, the patient did not complete treatment due to vomiting. After multiples consults, she is hospitalized to undergo a full evaluation. On examination, a right flank mass of firm consistency was palpable up to 5 cm below the lower costal edge and medially up to the midline. Computed tomography showed a right kidney with a staghorn calculi, associated to thickening of the renal pelvis wall, obliteration of its lumen and several multilocular cystic formations. Thinning of renal cortex and important inflammatory changes of perirrenal and pararrenal adipose tissue were also visible, as well as multiple lymphadenopathies up to 1.5 cm in the ilium. No excretion of contrast (Image 1)..

Laboratory showed hemoglobin 8.1 g/dl, 630000/mm^3 platelets, 15500/ml leukocytes, CPR 251 mg/dl and a negative urine culture.

The chosen empiric antibiotic treatment regimen was intravenous ceftriaxone and gentamicin, due to local epidemiology and resistance. Two days later the patient underwent urethrocystoscopy for ureteral catheterization and double J stent placement.

Surgery was scheduled 10 days after the onset of antibiotic therapy. Before surgery the patient received two units of red blood cell, CPR was 50 mg/dl, and on examination the palpable mass was smaller and not sensitive to pressure. In surgery, right flank approach was chosen. The kidney was increased in volume, with several multiloculated purulent collections. Renal pedicle was swollen and fibrotic. Collections were punctured, resulting in 1300 cc of pus. Nephroureterectomy was performed. Four units of red blood cells were transfused postoperatively. Control exams after surgery were a CPR of 292 mg/dl, hemoglobin 11.3 g/dl, platelets 225000/mm,[3] leukocytes 19760/ml, and direct bilirubin 2.06 mg/dl.

Pathological examination (Image 2) confirmed XPN, perirrenal adipose tissue with chronic non-specific inflammation and chronic ureteritis.

Patient had a favorable clinical evolution and 7 days after surgery was discharged with oral antibiotics.

Discussion

Series of cases report up to 91% of women afected,[1] with presence

Abbreviations: XPN, Xanthogranulomatous pyelonephritis; UTI, Urinary tract infection; CPR, *C*-reactive-protein

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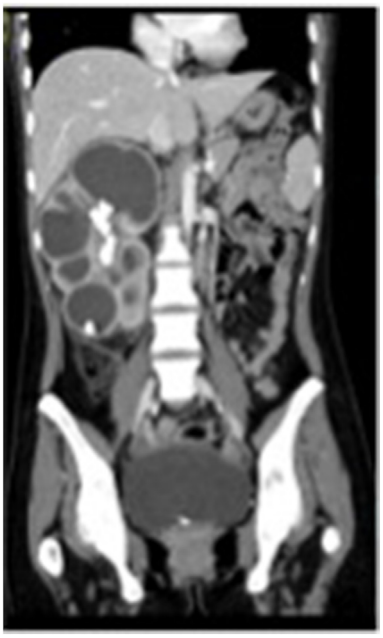

Image 1. Initial computed tomography. Staghorn calculi and cystic multilocular formations.

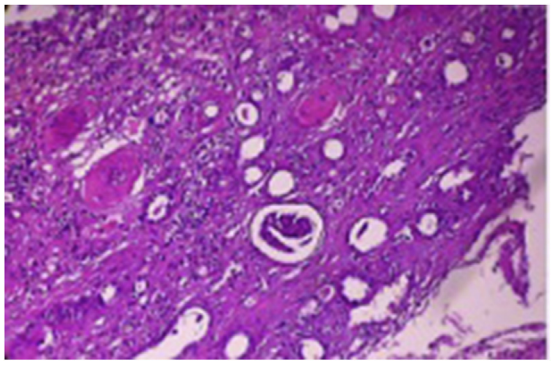

Image 2. Renal parenchymal fibrosis with tubular atrophy.

of calculi in 74%[2] of the cases, and staghorn calculi up to 51%.[2] History of UTI and staghorn calculi was present in this patient, although younger age and with no comorbidities.

Preoperative diagnosis of XPN is not easy,[1] considering diverse differential diagnosis such as pyonephrosis, renal tuberculosis, perinephric abscesses and renal tumors. Computed tomography should always be performed to contribute to preoperative diagnosis and to define the extension of the disease. However, the final confirmation is made by a pathological examination.

Multiples strategies of treatment may be employed. Leoni et al. suggest preoperative percutaneous nephrostomy tube placement, as a way to decrease renal size and allow the obtaining of cultures.[3] The use of antibiotics before surgery has a role in controlling local infection and avoiding septic complications.[3] Total or partial nephrectomy is the treatment of choice, usually utilizing the flank approach to remove all inflammatory tissue, considering that XPN commonly destroys all renal parenchyma.[4] Laparoscopic surgery is an option, but high conversion rates have been reported.[1] An analysis made by Addison et al.,[2] reports post-operative complications like bowel fistula and mortality.[5]

Conclusion

XPN is a rare form of chronic pyelonephritis. A high rate of clinical suspicion is needed. Palpable abdominal mass, malaise, fever and anemia in a patient with history of UTI or nephrolithiasis should orientate. Routine imaging should always be performed.

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