CASE REPORT
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Giant Size Xanthogranulomatous Pyelonephritis: A Case Report

Dev Boyutlarda Ksantogranülomatöz Piyelonefrit Olgusu

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Abstract

According to the literature, differential diagnosis of xanthogranulomatous pyelonephritis (XGP) can mostly not be recognized preoperatively and is frequently confused with kidney tumor. A 46-year-old female patient was admitted to our urology department with the sole complaint of swelling of the left side of her abdomen and, following her examination and tests, her left kidney was found to turn into a giant size, painless, hydronephrotic mass with stones. However, since a giant solid mass was observed during the operation, it was thought that the mass could be XGP. I would like to report such a case, which may not pre-operatively be considered as XGP on the basis of the complaints, history, and physical examination and imaging findings.

Keywords: Giant size, xanthogranulomatous pyelonephritis, stone

Öz

Literatürde ksantogranülomatöz piyelonefritin (KGP), ameliyat öncesi ayırıcı tanısının çoğunlukla yapılamadığı ve sıklıkla böbrek tümörü ile karıştırıldığı vurgulanmaktadır. Sadece karnının sol yanında şişlik yakınması ile hastane üroloji polikliniğine başvuran 46 yaşındaki kadın hastanın, muayene ve tetkiklerinde, sol böbreğinin dev boyutlarda, ağrısız, taşlı, hidronefrotik bir kitle halini aldığı anlaşıldı. Ancak ameliyat sırasında dev boyutlarda solid bir kitle ile karşılaşılınca, bu kitlenin KGP olabileceği düşünüldü. Yakınmaları, öyküsü, fizik muayene ve görüntüleme bulguları ile ameliyat öncesi, KGP olabileceği düşünülmeyen böyle bir olguyu paylaşmak istedim.

Anahtar Kelimeler: Dev boyut, ksantogranülomatöz piyelonefrit, taş

Introduction

Xanthogranulomatous pyelonephritis (XGP) is a rare chronic bacterial infection of the kidney (1,2,3). The involved kidney almost all the time involves stones and is hydronephrotic. It is more prevalent among the female and the middle-age group. The disease is rarely focal but mostly the entire kidney is involved and the involved kidney is generally dysfunctional.

There is diffuse obstructive infection, accumulation of lipid-laden macrophages associated with impairment of local immunity and granulomatous infiltration (4,5). Such cases may be confused with neoplastic or inflammatory renal parenchymal diseases. Since pre-operative differential diagnosis is mostly not likely, definitive diagnosis is made based on histopathology (6,7).

Case Presentation

A 46-year-old female patient was admitted to our urology department with the sole complaint of painless swelling of the left side of her abdomen. She had abdominal swelling, which grew in the course of time, for the last 1.5 years, but did not previously consult a medical doctor as she had no any other complaint.

A cystic painless mass with a smooth surface, which was covering the left upper, middle and partly the lower quadrant of the abdomen, was detected during physical examination. The costovertebral angles were not tender. She reported not to pass any stone before, had fever or any urination complaints. There was nothing specific about her history or family history.

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During abdominal ultrasound, advanced left hydronephrosis, a 22 mm stone in the pelvis and a solid mass lesion measuring 67x48 mm which entirely covered the dilated calyx at the mid-segment of the kidney were detected and, thus, advanced imaging tests were suggested. There was nothing specific in her urine analysis and no culture growth as well. Her complete blood count results were as follows: White blood cell count: 12.200/mL, hemoglobin: 8.7 gr/dL and hematocrit: 28.9%. Biochemical test results were within the normal range. As a result of complete abdominal computed tomography (CT) and abdominal magnetic resonance imaging (MRI), an advanced enlargement in the size of the left kidney (extended to the pelvis), advanced stage hydronephrosis, advanced thinning of the parenchyma (Figures 1, 2), a 3 cm stone at the pelvis and a 2 cm stone at the lower pole and retraction through the adjacent structures were observed (Figure 3). Informed consent was obtained from the patient.

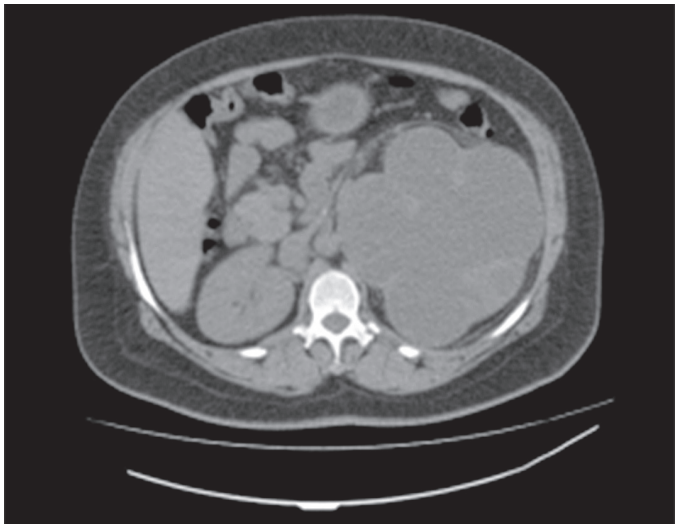

Figure 1. Abdominal computed tomography transverse section. The homogenously dense mass with smooth lobulated margins is covering left half of the abdomen

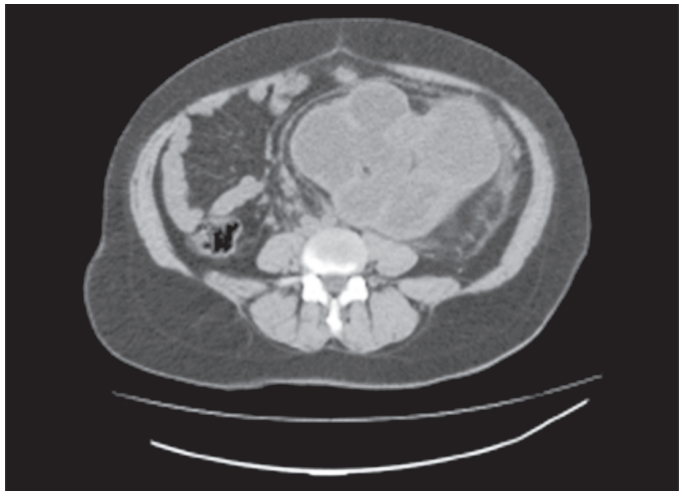

Figure 2. Homogeneously dense mass is extended to the right side of the abdomen

Surgical Intervention

The patient was operated under general anesthesia with the preliminary diagnosis of advanced stage left hydronephrosis and kidney stones. Left flank incision was performed. It was perioperatively observed that the kidney together with the Gerota's facia was adhered to the anterior and posterior abdominal walls, there were hydronephrotic areas (thinning of the parenchyma) only at the upper pole, the other areas had hard granulomatous tissue, and the kidney turned into a large well-circumscribed mass (extended to the pelvis). It was decided to remove the kidney. The purulent exudate at the hydronephrotic areas of the upper pole was discharged to mobilize the kidney. The left adrenal gland was spared and mobilized using blunt dissection. The pedicles were tied and the kidney mass in the size of 28x18x9 cm and weight of 3.045 kg was removed (Figure 4). Small peritoneal gaps at the anterior abdominal wall adjacent

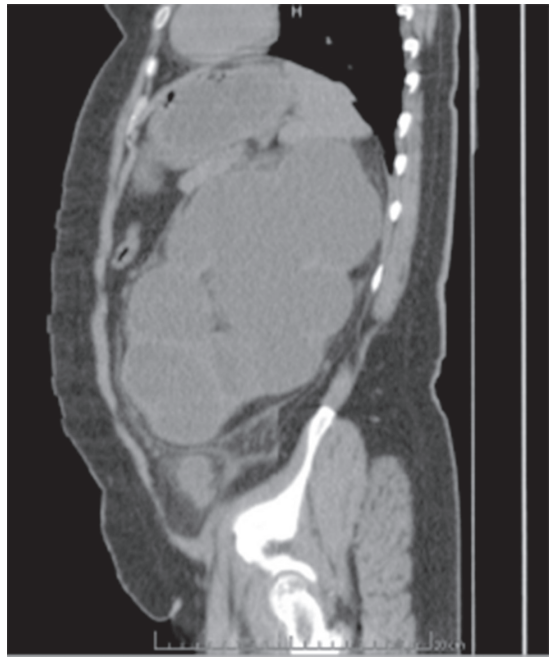

Figure 3. Homogeneously dense giant size mass at the vertical section of multi-slice abdominal computed tomography

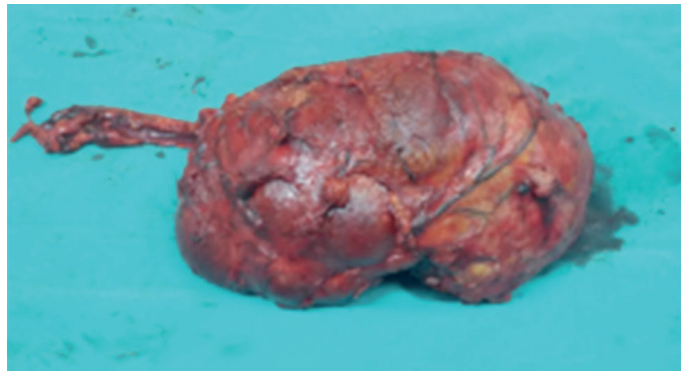

Figure 4. The kidney in the size of 28x18x9 cm and weight of 3.045 kg, as removed operatively

to the spleen were closed. Three units of erythrocyte suspension were perioperatively and postoperatively administered. The patient had no perioperative or postoperative complication and was discharged on day 3 with full recovery.

Histopathological diagnosis of the kidney was reported as "XGP + nephrolithiasis + pyonephrosis".

Discussion

XGP is a chronic suppurative infection in which lipid-laden macrophages replace the renal parenchyma. Although the involvement is mostly unilateral, some bilateral XGP cases have rarely been reported. The etiology of the disease is suggested to be urinary tract obstructions with or without stones, treatment of urosepsis, disorders of lipid metabolism, impaired immunity, chronic renal ischemia, and lymphatic obstructions (4,8,9). Our case had no immune deficiency or any other concomitant disease to impair immunity and had no history of urosepsis.

Kidney involvement in XGP can be local or extended. It is commonly the extended type, which has the tendency to involve the entire kidney and the perirenal tissue and it resembles renal tumors (7). It is difficult to make differential diagnosis preoperatively. The sole complaint of our 46-year-old patient was the swelling of the left side of her abdomen. There was no suspicion of XGP preoperatively since no flank pain, fever or urination complaints were reported and there were signs of stone and hydronephrosis during abdominal ultrasound and multi-slice abdominal CT.

The clinical course of XGP generally varies. Most common symptoms are intermittent flank pain, fever or chills. One or more of signs, such as weight loss, mass, high blood pressure or enlarged liver, may be present (10,11). Among these signs, our case only had a giant mass covering the left half of her abdomen.

Studies, which have assessed XGP from radiological point of view, reported that it was difficult to make diagnosis preoperatively but there still were certain radiological signs. These signs are extended and local enlargement in the kidneys, kidney or ureteral stones, enlarged kidney on ultrasound, pyonephrosis, multiple subcortical anechoic lesions, extended enlarged kidney on CT and multiple sites with abscess density at the parenchyma. Ultrasound findings of our case were advanced enlargement of the kidney, a 22 mm stone in the pelvis and advanced hydronephrosis. Multislice CT and abdominal MRI findings of our case were advanced enlargement in the size of the left kidney (extended to the pelvis), advanced stage hydronephrosis, advanced thinning of the parenchyma, a 3 cm stone at the pelvis and a 2 cm stone at the lower pole. There was slight enlargement of the liver.

Leukocytosis and anemia have been reported in laboratory tests in 83% and 61% of XGP patients (4,12). Leukocytosis and anemia results of the complete blood count in our case did not support these findings. The bacteria, which grow in the urine culture are mainly *Escherichia coli* and *Proteus mirabilis* and *Pseudomonas aeruginosa* to a lesser extent (4,13). Since the left kidney was dysfunctional in our patient, there were no leukocytes in urine and no culture growth as well.

XGP is a rare disease with a varying clinical course, which is difficult to diagnose and treatment of which results in organ loss (nephrectomy).

Ethics

Informed Consent: Informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Financial Disclosure: The author declared that this study received no financial support.

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