

A CLINICAL CASE REPORT ON XANTHOGRANULOMATOUS PYELONEPHRITIS WITH STAGHORN CALCULUS

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Abstract

The uncommon condition known as xanthogranulomatous pyelonephritis (XGP) is characterized by renal parenchymal loss and is replaced by solid sheets of lipid-rich macrophages. Most cases affect women in their mid-twenties. A histopathologic analysis provides a precise diagnosis. The only effective treatment is a whole or partial nephrectomy. Nephrostomy is our suggested procedure because it makes microbiological diagnosis and operation easier (nephrectomy). Here we discussed a case of xanthogranulomatous pyelonephritis with staghorn calculus and its surgical management. The present complaints and investigation: A 38-year-old woman who had been experiencing right flank pain for two to three months and a high-grade fever registered with the urology department. She has a history of anemia. Now she has come here for further treatment. The doctor made the diagnosis of xanthogranulomatous pyelonephritis with staghorn calculus following a physical examination and further testing like blood and urine analysis. Inj. Ceftraxone 1 gm BD, Tab. Pantop 40 Mg OD, Inj. Emset 4 Mg SOS, Inj. Tramadol TDS, Calcium, iron, and folic acid supplements were given.

conclusion: Her general condition was good and all treatment was completed.

Keywords: staghorn calculus, Xanthogranulomatous Pyelonephritis, urinary tract infections, total nephrectomy surgery.

INTRODUCTION

In an extremely rare and severe form of chronic pyelonephritis called xanthogranulomatous pyelonephritis (XGPN), the renal parenchymal destruction is replaced by continuous inflammatory infiltration of xanthoma cells, which are lipid-rich macrophages.¹ Chronic obstruction and infection of staghorn calculi can cause xanthogranulomatous pyelonephritis.² Staghorn calculi are enormous, branching stones that can completely obstruct the renal calyceal system.³ Although the exact pathophysiology is still unknown, it appears to be complex and includes aberrant lipid metabolism, recurrent urinary tract infections, genitourinary blockage, nephrolithiasis, and altered immunological abnormalities.⁴ 0.6 to 1.4 % of cases of renal inflammation involve XGPN.⁵ In contrast to chronic pyelonephritis, it can cause fistulas and abscesses to form in the perinephric tissue.⁶

In every instance, antibiotics were given, although medical treatment is rarely enough to eradicate the infection. Nephrectomy is usually used as the final step in correcting X.G.P after antibiotic use and abscess drainage. Total nephrectomy is medically challenging because of significant kidney adhesions to surrounding structures and is the preferred course of treatment (or partial nephrectomy in rare cases of focal XGP).⁷

Background: Less than 1% of chronic pyelonephritis is caused by this uncommon condition. It is an uncommon variant of pyelonephritis that is histologically benign and has an annual incidence of 1.4 per 100,000. In 34.1% of cases, a staghorn calculus is present.⁸ Women are more frequently affected than men by this disorder. It affects people of all ages, with a peak occurrence in the fifth to sixth decade. (ratio: 2.5:1).⁹

In 1916, Schlagenhauser recorded the first case.¹⁰ Very few cases have been documented because of the diagnostic challenges for doctors. Since then, a small number of case series have been published (roughly 47 case series with at least 10 documented cases have been published), but these series have not been collected in reviews. *Proteus mirabilis* and *Escherichia coli* were the most frequently reported pathogens found in urine samples.¹¹

Patient information:

A 38-year-old female patient was referred to the urology department of a tertiary care rural hospital with a complaint of flank discomfort that had been present for two to three months and high-grade fever. She came here to receive additional treatment for it now. Primary concern and symptoms: The patient was alright 3 months ago. Then she started complaining of high-grade fever with chills, flank pain, and recurrent UTI episodes. She also has a history of anemia. Now she came here for further management of that. After the history collection and investigation results, the doctor admitted the patient to the urology ward and diagnosed a case of xanthogranulomatous pyelonephritis with a staghorn calculus. After the correction of anemia, her nephrectomy was done.

Medical, family, and psychosocial history: She was receiving oral medication for her UTI while receiving treatment at a private hospital. She has a history of anemia as well. She gets along well with her family members, and neither she nor any of them has a history of autoimmune, renal, or other diseases, including diabetes, hypertension, asthma, or asthma. The patient comes out stressed and down. Her bowel and urine habits were regular, but the pain was disturbing her sleep.

Clinical findings:

During the physical examination, the patient was awake, cooperative, and well-oriented. She appears anxious and depressed, and febrile, and all vital parameters are normal and thin-built. Her BMI is 14.42 kg/m². Her neurological, and chest assessments were normal. Abdominal pain was present.

Timeline: The 38-year-old female patient was alright 3 months ago. Then she started complaining of high-grade fever, and right-sided flank pain. The patient's medical history revealed recurrent urinary infections, which were treated with antibiotics in a private hospital. Now she came here for further management of that. After admission, the necessary investigation was carried out, and a case of xanthogranulomatous pyelonephritis with staghorn calculus was initially treated with antibiotic therapy. Then her right-sided total nephrectomy was successfully done.

Diagnostic assessment: Blood investigations: hemoglobin 6.9 gm was decreased, total protein was 11g/dL was dropped, total RBC count 3.11 also dropped, WBC count 12200 cu mm was raised, albumin 3.3 g/dl was decreased, urine test was normal. CT UROGRAPHY: Impression: F/S/O Right-Sided Xanthogranulomatous Pyelonephritis With right upper ureteritis and no excretion? nonfunctional right kidney. Multiple enlarged right renal hilar and upper para-aortic lymph nodes, ureterovesical fistula. Possibility of uretero-duodenal fistula on the right side, ascites. The right adrenal gland appears enlarged and shows heterogenous post-contrast enhancement. minimal right-sided pleural effusion.

Diagnostic challenge: During the diagnostic evaluation, there were no difficulties.

Diagnosis: The doctor identified a case of Xanthogranulomatous pyelonephritis and a staghorn calculus based on the patient's medical history and diagnostic test results.

Prognosis: The prognosis was satisfactory.

Therapeutic Interventions: The patient was started on an intravenous antibiotic with Inj Ceftriaxone 1 Gm Bd, Inj Pantop 40mg Od, Inj Emset 4 Mg Sos, and Inj Tramadol In Drip for three days. Intravenous fluid was administered as per order. A folic acid supplement was given to treat anemia. The doctor also advised drinking plenty of water, protein, and an iron-rich diet.

Follow-up and Outcomes: Patient status is acceptable following surgical care. The doctor then prepared for discharge. The patient regularly took all of the prescribed drugs. She also acted on the dietician's recommendations. Dietitians advised

following a high protein and iron diet, getting frequent physicals, keeping up with personal hygiene and sanitation, and taking the right medications as prescribed by a physician.

Discussion:

A 38-year-old woman with Xanthogranulomatous Pyelonephritis With Staghorn Calculus and also a history of anemia was brought to our hospital for tertiary treatment. Successful right-sided total nephrectomy surgery was used to treat the condition. She was in good general health.

The renal parenchyma is affected by this chronic, uncommon infectious inflammatory sickness, and the renal architecture is diffusely replaced by lobulated masses.¹² Research indicates that XGPN is a granulomatous reaction to very severe obstruction caused by a calculus, stricture, or, in rare circumstances, tumor. ¹³ 83% of the time, a calculus is found, and 50% of the time it is a staghorn calculus.¹⁴ Even though both kidneys are typically affected equally by XGPN, bilateral variations have been reported. ¹⁵

Some researchers claim that a rare form of pyelonephritis called XGPN affects less than 1.5% of cases of renal inflammation. a nephrocutaneous fistula exists. Nephrocutaneous fistulas, an unexpected side effect of XGPN, are rare; only 5% of instances have been observed. A renocolic fistula has also been mentioned. The most crucial issue is the challenge of diagnosis. The non-pathognomonic radiologic features of XGPN and its diverse clinical presentation can make this diagnosis challenging for doctors. Even in industrialized nations with access to advanced medical technologies like CT and MRI scans, misdiagnosis before a histopathological investigation has been documented.¹⁶⁻⁴¹

Informed consent: The patients' and their families' informed consent was obtained before attending this case.

Conclusion:

It is a persistent granulomatous inflammation of the renal parenchyma that is damaging. In this case study, we talk about a 38-year-old woman who visited our hospital for additional care for Xanthogranulomatous Pyelonephritis. After the required investigation, her right-sided total nephrectomy was performed in this case. Her general condition improved following surgery.

Conflict: No conflict of Interest

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