Xanthogranulomatous pyelonephritis with colesional actinomycosis in a 63-year-old man

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ABSTRACT

Xanthogranulomatous pyelonephritis is an uncommon chronic destructive granulomatous disease of the kidney. A rare case of xanthogranulomatous pyelonephritis with extrarenal extension that had coexistence of renal actinomycosis is described in this article.

Key words: Actinomycosis, xanthogranulomatous, pyelonephritis

INTRODUCTION

Xanthogranulomatous pyelonephritis is an uncommon chronic destructive granulomatous process of renal parenchyma that occurs in association with long-term urinary tract obstruction and infection. It is most commonly associated with Proteus or *Escherichia coli* infection. It may be complicated by emphysematous pyelonephritis, extrarenal extension and fistula formation. An extremely rare co-existence of renal actinomycosis with xanthogranulomatous pyelonephtitis is described below.

CASE REPORT

A 63-year-old man presented with history of flank pain and fever for the last 2 months. Laboratory findings showed leukocytosis (TLC -14,800/cu mm) with absolute neutrophilia (80%) and anemia (hemoglobin value 8.8 g/dL). Computed tomography revealed features of diffuse xanthogranulomatous pyelonephritis in the left kidney with extension of inflammation to the para-renal tissues. The contralateral kidney was radiologically unremarkable. The patient was seronegative for human immunodeficiency virus and there was no previous history of intravenous drug abuse or sexual promiscuity.

Gross examination showed diffuse cortical scarring with effacement of normal renal architecture [Figure 1]. Several yellowish-orange nodules were seen throughout, which also extended to the perinephric fat. Microscopic examination revealed fibrosing obliteration of most of the glomeruli with marked tubular atrophy. Interstitium revealed dense inflammatory infiltrate comprising of sheets of foamy histiocytes, some being hemosiderin laden,+, many actinomycotic colonies were seen that showed classical sun-ray appearance and stained positive with Gram's and silver methenamine stain [Figure 2]. On the basis of histopathology findings, a diagnosis of xanthogranulomatous pyelonephritis with colesional actinomycosis was made.

DISCUSSION

Actinomycotic infection is caused by *Actinomyces israeli*, which is a gram positive anaerobic bacterium, normally found as commensals in the oral cavity and gastrointestinal tract. The presence of sulfur granules is nearly pathognomic for actinomycosis. Microscopically, these granules are cauliflower like in shape and show intertwined branching filaments that are radially arranged and are positive with both gram and silver methenamine stains. Actinomycosis is a subacute or chronic infection that produces suppurative or granulomatous inflammation in the tissues, whereas xanthogranulomatous disease demonstrates sheets of foamy histiocytes along with other inflammatory cells and multinucleated giant cells.

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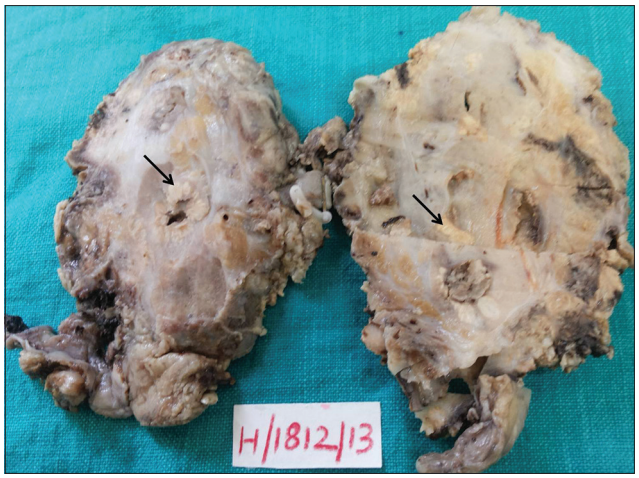

Figure 1: Gross photograph showing marked destruction of renal parenchyma and replacement by fibrotic areas and yellowish nodules (marked with black arrows)

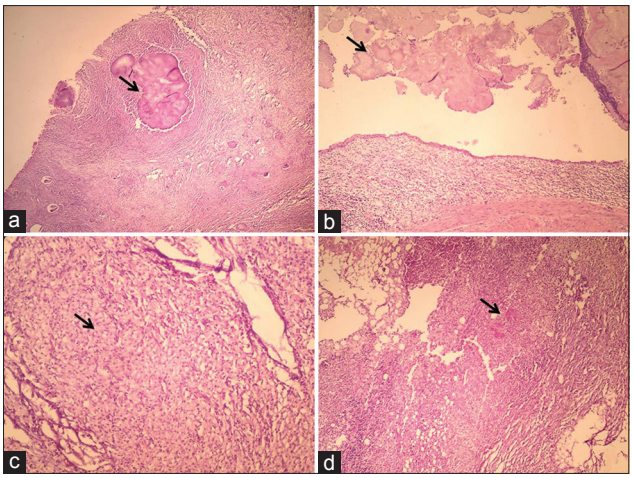

Figure 2: (a) Atrophic renal parenchyma with abortive glomeruli and a large actinomycotic colony (marked with arrow). (b) Pelvicalyceal system showing lumen occlusion by actinomycotic colonies (arrow). (c) Sheets of xanthomatous histiocytes (arrow) in the interstitium. (d) Foamy histiocytes are seen extending to the para-renal tissues along with a small actinomycotic colony (marked with arrow)

Renal involvement is an uncommon form of abdominal actinomycosis that occurs by either direct extension from the bowel or via seeding through the portal vein or systemic circulation.[1] Pathogenic actinomycotic infection usually occurs in immunocompromised individuals or in extensively damaged organs.

Only one such case has been described in the literature, wherein a 6-year-old boy had xanthogranulomatous inflammation of the kidney and abdominal actinomycosis with lesions in the liver and kidney.[2] However, in the present case, actinomycotic infection was limited to the renal and para-renal tissues and did not involve any other organ.

Xanthogranulomatous inflammation with co-existing actinomycosis has also been reported in few other organs such as the spermatic cord and pancreas.[3,4] In the former, a 58-year-old diabetic man with left renal lithiasis presented with a left inguinal mass and in the latter, a 66-year-old man with recurrent intraductal papillary mucinous neoplasm developed actinomycotic infection with xanthogranulomatous changes in the remnant pancreatic body 5 years after whipple's resection.

In an uncomplicated case of xanthogranulomatous pyelonephritis, oral antibiotic therapy is usually given only for 1 week after surgery. However, in colesional actinomycosis, prolonged antibiotic therapy (6-12 weeks) is required after surgical extirpation to completely eradicate the infection. The drug of choice is Pencillin G and, in allergic patients, tetracycline may be given.[5]

To conclude, renal actinomycosis is difficult to diagnose clinically and radiologically and histopathology examination is required to suspect the disease. Coexistence of xanthogranulomatous inflammation and actinomycosis in the present case and in those documented in the literature suggest that actinomycotic infections may occur in organs extensively damaged by xanthogranulomatous inflammation. One should therefore remember to look for the presence of actinomycotic colonies in resected specimens that show xanthogranulomatous inflammation so that the patient may be treated effectively.

REFERENCES

1. Piper MH, Schaberg DR, Ross JM, Shartsis JM, Orzechowski RW. Endoscopic detection and therapy of colonic actinomycosis. Am J Gastroenterol 1992;87:1040-2.
2. Lin TP, Fu LS, Peng HC, Lee T, Chen JT, Chi CS. Intra-abdominal actinomycosis with hepatic pseudotumor and xanthogranulomatous pyelonephritis in a 6-yr-old boy. Scand J Infect Dis 2001;33:551-3.
3. Nistal M, Gonzalez-Peramato P, Serrano A, Regadera J. Xanthogranulomatous funiculitis and orchiepididymitis: Report of 2 cases with immunohistochemical study and literature review. Arch Pathol Lab Med 2004;128:911-4.
4. Jha A, Yiengpruksawan A, Christiano A, Jha N, Latika P. Actinomycosis of the Pancreas: A case report and review. Gastroenterol Res 2010;3:134-8.
5. Lin YH, Chen HW, Chuang CK, Ng KF, Wang HH. Renal Actinomycosis Presented as Emphysematous Pyelonephritis: A Case Report. JTUA 2009;20:181-3.

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