

**CASE REPORT**

## Xanthogranulomatous Pyelonephritis

Amit Suri, Vivek Gondotra, Jyotsana Suri\*

**Abstract**

Xanthogranulomatous pyelonephritis (XPN) is a variant of chronic pyelonephritis difficult to differentiate from renal malignancy on preoperative evaluation. We report an unusual case of XGP occurring in an immunocompetent patient in the absence of either urinary obstruction or nephrolithiasis, presenting as a diagnostic dilemma.

**Key Words**

Xanthogranulomatous pyelonephritis, Renal cell carcinoma, immunocompetent patients

**Introduction**

Xanthogranulomatous pyelonephritis (XPN) is a variant of chronic pyelonephritis that is frequently associated with urinary tract obstruction or nephrolithiasis. The definitive diagnosis of this entity is based on histopathological examination (1). We report an unusual case of XGP occurring in an immunocompetent patient in the absence of either urinary obstruction or nephrolithiasis, presenting as a diagnostic dilemma.

**Case Report**

A 40 yr old female presented with complaints of pain left flank for 3 months along with one episode of haematuria 2 months back. There was no history of fever, chills, dysuria, malaise or weight loss. General examination revealed pallor while abdominal examination was unremarkable. On investigations she had anemia, white cell counts and renal functions were normal. Routine urinary evaluation was unremarkable. USG abdomen revealed solid mass with central necrotic area in left kidney. CECT abdomen revealed a solid mass with necrotic centre, which enhanced on contrast administration as shown in (Fig 1 & 2).

The patient was taken up for radical nephrectomy and specimen sent for histopathology examination. Gross examination showed normal size kidney along with perinephric fat. Cut section revealed 4.5 cm in diameter yellow nodular tissue replacing the attenuated parenchyma near the upper pole, extending locally beyond the kidney. Rest of the kidney was unremarkable. The lesional tissue was cut and subjected to routine processing

using autotechnicon. Paraffin wax blocks were made, 3-5 micron sections cut and stained with haematoxylin and eosin stain. Light microscopy revealed sheets of foamy macrophages diffusely and in clusters admixed



*Fig 1. CT pictures of Kidney and Mass Pre Contrast Administration*

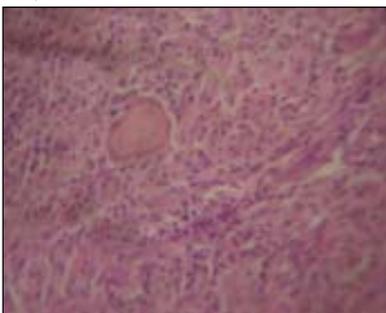


*Fig 2. Post Contrast Enhancement of the Mass as Evident on CECT*

**From the Consultant Urologist & \*Surgeon, Bee Enn Hospital, & \*\*Consultant Pathologist, Nidhan Diagnostic, Jammu**  
**Correspondence to :** Dr Amit Suri, Consultant Urologist, H.No 5, Lane no 3 Anand Vihar Talab tillo Jammu, J&K-India



**Fig 3. 200X Showing Diffuse Sheets of Foamy Macrophages Admixed with Plasma Cells, Lymphocytes & Multinucleate Giant Cells**



**Fig 4. 400X Showing Sheets of Foamy Macrophages , Plasma Cells , Lymphocytes, Giant cells. Normal Renal Tissue Cant be Identified**

with variable numbers of plasma cells, lymphocytes and at places neutrophils. Scattered multinucleate giant cells were also seen. In the lesional area normal renal elements were destroyed. Histopathological findings were consistent with Xanthogranulomatous pyelonephritis, no evidence of malignancy was seen in the sections (Fig 3 & 4).

#### Discussion

Xanthogranulomatous pyelonephritis (XGP) is a relatively uncommon form of renal granulomatous inflammatory disease characterized histopathologically by the presence of lipid-laden macrophages (xanthoma cells), as well as other inflammatory cells, including plasma cells, leukocytes, and histiocytes (1). Two forms of XGP, a diffuse form (85%) and a focal (localized, segmental) form (15%), are well known, and the latter is more easily confused with a renal tumor (1-8). The definitive diagnosis is most often recognized after histologic examination of the surgical specimen (9). The characteristics of the condition that might help in a preoperative diagnosis of diffuse or focal XGP include the following: the disease is usually unilateral (although bilateral very rarely); renal function is absent or grossly impaired on the involved side, especially in diffuse XGP; large, often numerous, renal calculi, including staghorn calculi, with or without hydronephrosis are present, especially in diffuse XGP;

and anemia, a raised ESR, and leukocytosis are often present (10). However, if inflammatory signs are few or absent and a history of urinary tract infection or a stone is absent (as was in our case), the preoperative diagnosis of XGP as differentiated from typical solid renal tumors may be very difficult and very frequently focal XGP may be diagnosed and treated as RCC. However, it is also reported that if there is clinical suspicion of focal XGP magnetic resonance imaging may be useful in the differentiation. The diagnosis of focal XPN is suggested in the absence of hyperintensity on fast T2-weighted sequences (5).

#### Conclusion

Although the diagnosis of XGP is mainly achieved histologically, a suggestive preoperative diagnosis and determination of the extent of the lesion by ultrasonography, CT, MR imaging, or any combination could allow less radical surgery in selected focal XGP cases. However in absence of signs of inflammation / infection / obstruction diagnosis may be completely based on histological evaluation of nephrectomy specimen

#### References

1. Dunnick NR, Sandler CM, Amis ES Jr, Newhouse JH. Renal inflammatory disease. In: Dunnick NR, Sandler CM, Amis ES Jr, Newhouse JH (eds). *Textbook of Uroradiology*. 2nd ed. Baltimore, MD: Williams & Wilkins; 1997. pp.163-89.
2. Zorzos I, Moutzouris V, Petraki C, Katsou G. Xanthogranulomatous pyelonephritis: the "great imitator" justifies its name. *Scand J Urol Nephrol* 2002; 36:74-76.
3. Cakmakci H, Tasdelen N, Obuz F, Yilmaz E, Kovanlikaya A. Pediatric focal Xanthogranulomatous pyelonephritis: dynamic contrast-enhanced MRI findings. *Clin Imaging* 2002; 26:183-86.
4. Verswijvel G, Oyen R, Van Poppel H, Roskams T. Xanthogranulomatous pyelonephritis: MRI findings in the diffuse and the focal type. *Eur Radiol* 2000;10:586-89.
5. Bair MJ, Lin IT, Chen HL, Wu CH. Xanthogranulomatous Pyelonephritis. *Am J Med Sci* 2010 Mar 10. [Epub ahead of print]
6. Smith EA, Styn N, Wan J, McHugh J, Dillman JR. Xanthogranulomatous pyelonephritis: an uncommon pediatric renal mass. *Pediatr Radiol* 2010 Feb 12. [Epub ahead of print]
7. Kim JC. US and CT findings of Xanthogranulomatous pyelonephritis. *Clin Imaging* 2001; 25:118-21.
8. Tiu CM, Chou YH, Chiou HJ, et al. Sonographic features of xanthogranulomatous pyelonephritis. *J Clin Ultrasound* 2001; 29:279-85.
9. Perez LM, Netto JM, Induhara R, Mroczek-Musulman E. Xanthogranulomatous pyelonephritis in an infant with an obstructed upper pole renal moiety. *Urology* 1999; 54:744.
10. Quinn FMJ, Dick AC, Corbally MT, McDermott MB, Guiney EJ. Xanthogranulomatous pyelonephritis in childhood. *Arch Dis Child* 1999; 81:483-86.