

## CASE REPORT

# Xanthogranulomatous pyelonephritis presenting as *Proteus* preperitoneal abscess

Yuyi Yeow\* and Yew-Lam Chong

Department of Urology, Tan Tock Seng Hospital, Singapore, Singapore

\*Correspondence address. Department of Urology, Tan Tock Seng Hospital, 11 Jalan Tan Tock Seng, Singapore 308433, Singapore. Tel: +65-63577808; Fax: +65-63577808; E-mail: yuyi.yeow@mohh.com.sg

## Abstract

Xanthogranulomatous pyelonephritis (XGPN) is a rare form of chronic pyelonephritis with progressive loss of renal function. Commonly, obstructing urinary calculi are seen. It is difficult to differentiate between XGPN and malignancy in many cases, and the diagnosis is usually only confirmed post-operatively upon histopathological examination of the specimen. Surgical treatment is often the main treatment modality due to suspicion for malignancy. Here, we present a case of XGPN that presented with abdominal distension, which was eventually discovered to be due to a preperitoneal abscess.

## INTRODUCTION

Xanthogranulomatous pyelonephritis (XGPN) is an uncommon condition that can present in multiple ways. The index of suspicion should be present, especially in the setting of obstructive urolithiasis. Conservative treatment with antibiotics is an option in focal cases, but surgery is usually required in diffuse cases or when malignancy cannot be ruled out.

To the best of our knowledge, this is the first reported case of XGPN presenting with an anterior abdominal preperitoneal collection.

## CASE REPORT

A 47-year-old immunocompetent Chinese lady, who had no medical history, was admitted to the hospital for investigation of increasing abdominal distension. She was afebrile and normotensive. On examination, there was generalized abdominal distension with normal bowel sounds. There was mild right flank tenderness. Computed tomography abdomen/pelvis showed significant right hydronephrosis with a 2 cm mid-ureteric calculus (Figs 1–3). There was also associated soft tissue

thickening in the lower pole of the right kidney. A moderate-sized fluid collection was seen in the anterior abdomen. Laboratory tests showed normal renal function with leukocytosis ( $19.4 \times 10^9/l$ ). Midstream urine cultures were negative for bacterial growth.

She underwent insertion of a right percutaneous nephrostomy drain, percutaneous drainage of the anterior abdominal collection, as well as a percutaneous biopsy of the right renal soft tissue lesion. Urine cultures from the percutaneous nephrostomy grew *Proteus mirabilis*. Fluid cytology from the abdominal collection showed acute inflammatory cells. Biopsy of the renal lesion showed xanthogranulomatous inflammation.

Magnetic resonance imaging (MRI) of the abdomen was then performed to better evaluate the nature of the preperitoneal anterior abdominal collection (Fig. 4). Small non-dependent peritoneal nodules were noted, which raised the concern for the possibility of malignancy.

After a period of antibiotic treatment, she underwent open right nephroureterectomy with exploration, drainage and wash-out of the preperitoneal collection. During surgery, 1 l of pus was drained from the preperitoneal space, and cultures grew *P. mirabilis*. The ureter was ligated below the level of the calculus

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Figure 1: Anterior preperitoneal collection.

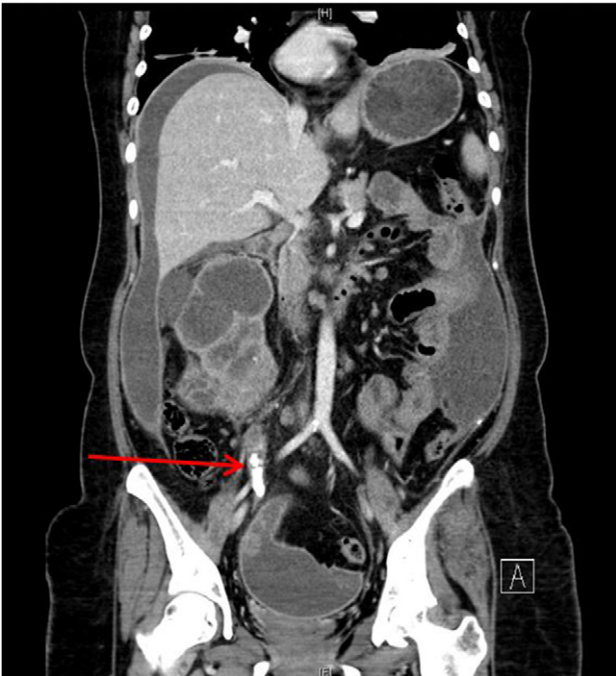


Figure 2: Proximal ureteric calculus (red arrow).

and removed together with the kidney. Final histopathology results showed XGPN with no evidence of malignancy in the kidney or peritoneal lining.

Post-operatively, she had small residual subhepatic collections, which were drained percutaneously, and she was discharged on the 11th post-operative day. She remained well on follow-up with no recurrence or complications.

## DISCUSSION

XGPN was first described in 1916 by Schlagenhauer. Common associations are urinary tract obstruction, chronic urinary tract infections and urolithiasis. Other risk factors commonly seen are diabetes and hyperlipidemia.

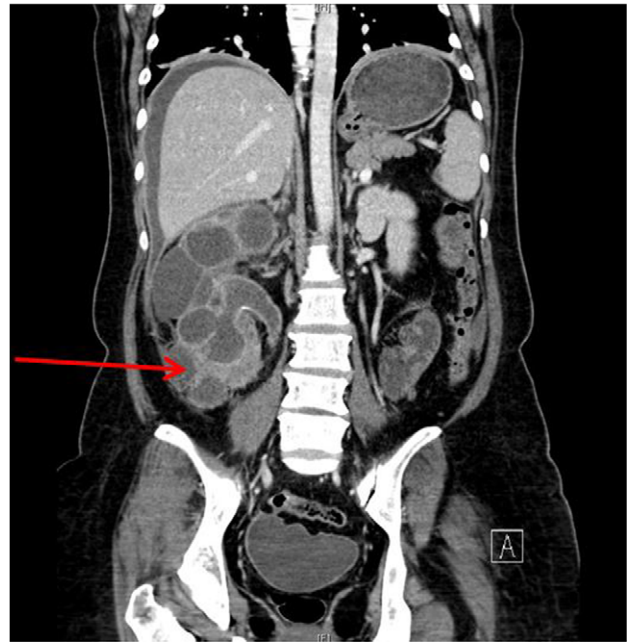


Figure 3: Right hydronephrosis with lower pole mass (red arrow).

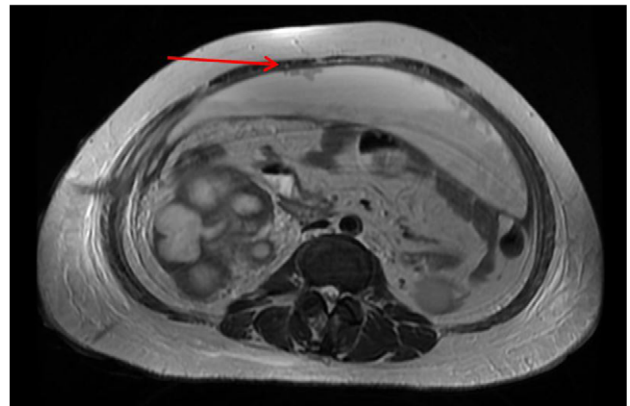


Figure 4: MRI showing non-dependent peritoneal nodules (red arrow).

A recently published case series of 12 XGPN [1] cases showed that only one patient presented with fever. Common presentations include a flank mass or flank pain. Other rare presentations described included septic lung metastasis [2] or fistulas.

Our patient had an atypical presentation with abdominal distension and presumed ascites, which was eventually revealed to be an anterior preperitoneal collection secondary to infection. Although the initial suspicion was that of a malignant process complicated by ascites, subsequent cytology and histopathological results showed that it was likely benign. In view of the non-functioning renal unit and significant abdominal collection, she underwent definitive surgery.

The most common urinary pathogen identified was *Escherichia coli* [3], and common areas of involvement were the retroperitoneum and psoas muscle. In our patient, the retroperitoneal space was surprisingly not greatly involved, but rather it was the anterior preperitoneal space that had significant adhesions and inflammation. The pathogen identified from both nephrostomy and preperitoneal collection was *P. mirabilis*, showing that both pathologies were linked.

Previous authors have described laparoscopic approaches [4] for the treatment of XGPN, but this would unlikely have been suitable for our patient with a large anterior abdominal collection.

XGPN is also known as a great mimic, often indistinguishable from malignancy. Diffuse and focal forms have been described [5]. Conservative management with antibiotics [6], or partial nephrectomy [7], has been described for focal forms, but diffuse forms usually require total nephrectomy.

### CONFLICT OF INTEREST STATEMENT

None of the contributing authors have any conflict of interest, including specific financial interests or relationships and affiliations relevant to the subject matter or materials discussed in the manuscript.

### REFERENCES

1. Chlif M, Chakroun M, Rhouma SB, Chehida BMA, Sellami A, Gargouri MM, et al. Xanthogranulomatous pyelonephritis presenting as a pseudotumour. *Can Urol Assoc J* 2016;**10**:E36–40.
2. Sistla R, Afroz T, Prasad S, Nallagonda R, Prasad R. Septic lung metastasis in xanthogranulomatous pyelonephritis. *Lung India* 2016;**33**:462–64.
3. Kuo CC, Wu CF, Huang CC, Lee YJ, Lin WC, Tsai CW, et al. Xanthogranulomatous pyelonephritis: critical analysis of 30 patients. *Int Urol Nephrol* 2011;**43**:15 doi:10.1007/s11255-010-9778-8.
4. Shah KJ, Ganpule AP, Kurien A, Muthu V, Sabnis RB, Desai MR. Laparoscopic versus open nephrectomy for xanthogranulomatous pyelonephritis: an outcome analysis. *Indian J Urol* 2011;**27**:470–74.
5. Li L, Parwani AV. Xanthogranulomatous pyelonephritis. *Arch Pathol Lab Med* 2011;**135**:671–74.
6. Fitouri Z, Nouira Y, Nouira K, Sallami S, Hmidi M, El Fekih N, et al. Focal xanthogranulomatous pyelonephritis: success of conservative treatment. A case report. *Tunis Med* 2008;**86**: 912–5.
7. Kim SW, Yoon BL, Ha US, Sohn DW, Cho YH. Xanthogranulomatous pyelonephritis: clinical experience with 21 cases. *J Infect Chemother* 2013;**19**:1221–4.