

Case Report

Spontaneous renal pelvic haematoma mimicking cancer in IgA nephropathy

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Introduction

Common causes of gross haematuria include stones, neoplasms, tuberculosis, trauma and prostatitis. However, macroscopic haematuria can occur in patients with IgA nephropathy. IgA nephropathy usually occurs in patients under 40 years of age, and loin pain often accompanies the haematuria [1]. Furthermore, macroscopic haematuria in IgA nephropathy often causes acute renal failure because of tubular obstruction by red blood cells [2–4]. Obstruction or haematoma of the renal pelvis and lower urinary tract by gross haematuria in IgA nephropathy or any other diseases causing haematuria has not been reported. Here, we report the case of a patient with pelvic haematoma in IgA nephropathy, that was erroneously suspected for pelvic malignancy leading to its radical resection.

Case

A 49-year-old man was hospitalized in March 2004 with relapsed gross haematuria that had started 9 months before admission. The patient had first been admitted 9 months previously, complaining of mild, colicky pain in the left flank and gross haematuria. The physical examination was positive for left costovertebral angle tenderness. Clinical impression was a ureter stone of the left kidney. Intravenous pyelography (IVP) showed normal findings of the urinary tract (Figure 1A), while the abdominal CT revealed a high density lesion of the left renal pelvis which was thought to be a blood clot (Figure 1B).

After discharge, the patient experienced recurrent gross haematuria. The evaluation of gross haematuria in the out-patient department was negative for malignancy and/or urinary tract stones.

At second admission, the patient presented with painless total gross haematuria and organized blood clots. There was no history of trauma, anticoagulant therapy or analgesic abuse. The patient denied flank pain and voiding difficulty. Vital signs revealed blood pressure 110/70 mmHg, respiratory rate 15/min, pulse rate 98/min and body temperature 36.7°C. The physical examination was unremarkable. The laboratory test results were as follows: haematocrit 24.2%, haemoglobin 7.3 g/dl (73 g/l), white blood cell $8.4 \times 10^3/\mu\text{l}$ ($8.4 \times 10^9/\text{l}$), platelet $575 \times 10^3/\mu\text{l}$ ($575 \times 10^9/\text{l}$), prothrombin time 12.3 s, partial thromboplastin time 31 s, serum albumin 4.3 g/dl (43 g/l), serum urea nitrogen 13 mg/dl (4.6 mmol/l) and creatinine 1.4 mg/dl (124 $\mu\text{mol/l}$). Urinalysis showed many red blood cells and albumin (++) without pyuria. Repeated urine cytologies were negative for malignant cells. A 24-h urine sample contained 3.4 g/day of protein. IVP demonstrated non-visualization of the left kidney (Figure 1C). The abdominal US revealed a isoechoic mass with ill-defined margins in the left renal pelvis. The abdominal CT showed a 4×2 cm, enhancing soft tissue mass in the left renal pelvis, extending to the upper pole calyces and proximal ureter. There also was parenchymal atrophy and calyceal dilatation (Figure 1D). With the above clinical picture, this persistent lesion was radiologically suspected to be a renal pelvic tumour. Therefore, a left radical nephrectomy with bladder cuff resection was performed.

The left nephrectomy specimen measured $11.5 \times 5.0 \times 4.0$ cm and weighed 360 g. The renal capsule was unremarkable, while the outer surface showed a protruding lesion on the pelvis. The pelvis was dilated by an intraluminal mass. On section, the cut surface revealed an impacted blood clot in the upper calyces and pelvis (Figure 2A) which was an organizing haematoma in light microscopic examination (Figure 2B). The inner surface was lined by

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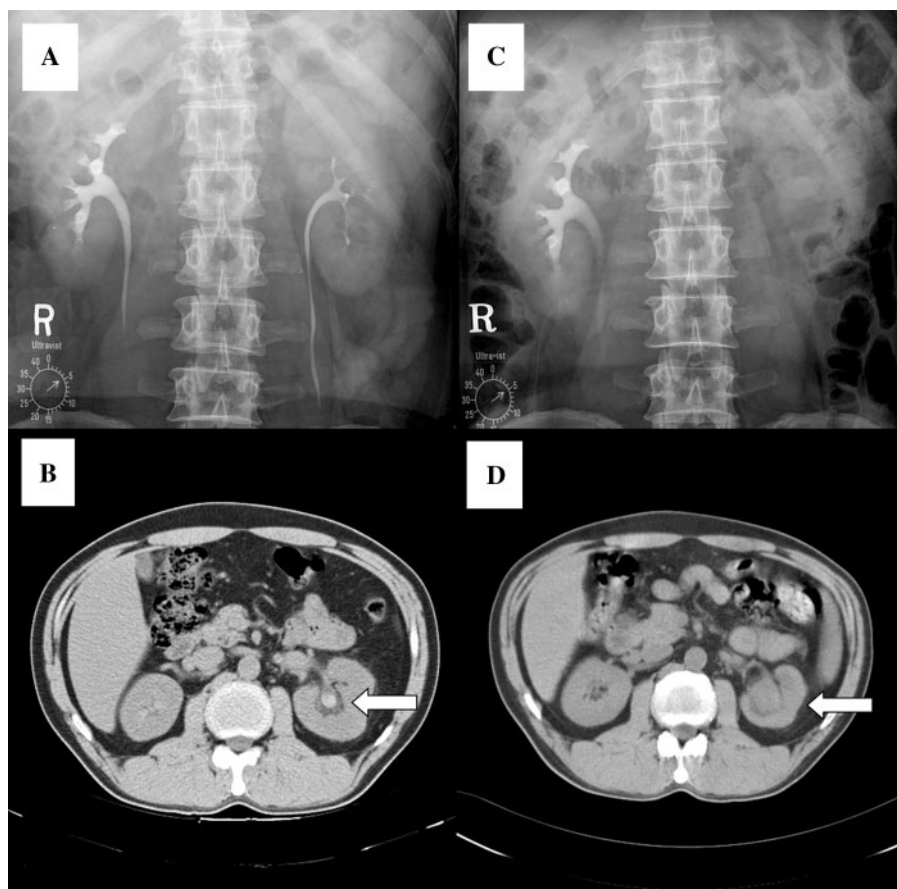


Fig. 1. (A) Initial intravenous pyelography (IVP) was normal. (B) A high-density lesion of the left renal pelvis without evidence of urolithiasis (arrow). (C) IVP demonstrated non-visualization of the left kidney. (D) A soft tissue mass in the left renal pelvis (Arrow).

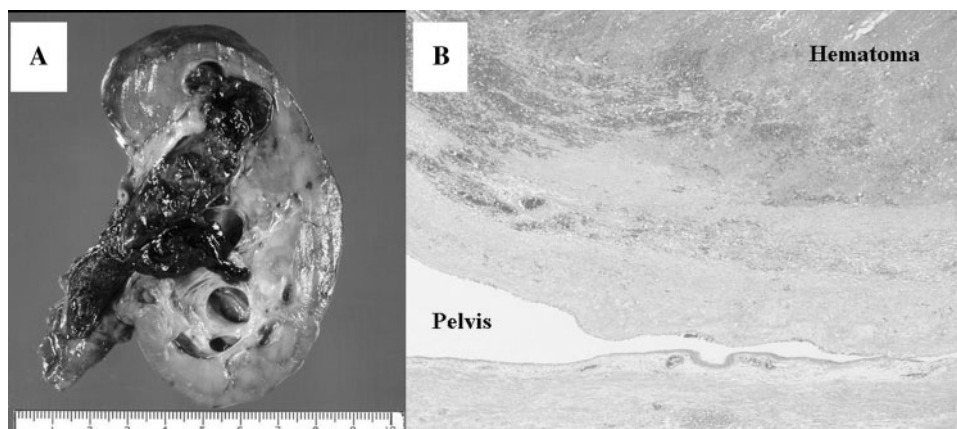


Fig. 2. (A) The cut surface revealed an impacted blood clot in the upper calyx and pelvis. (B) Microscopic examination demonstrated an organizing haematoma. (Haematoxylin and eosin; magnification: 100 $\times$).

intact urothelium. There was no tumour in the kidney. Some tubules were dilated and contained PAS-positive protein materials and red blood cells (Figure 3A). There were areas of grouped atrophy of tubules associated with interstitial fibrosis and patchy infiltration of lymphocytes with lymph follicles, with the mostly intact glomeruli indicating

chronic pyelonephritis. The mesangium was mildly and segmentally prominent with normal cellularity of mesangial cells and slight increase of mesangial matrix near the vascular pole (Figure 3B). In conjunction with immunofluorescent findings (Figure 3C), these findings were consistent with a mild form of IgA nephropathy, grade I.

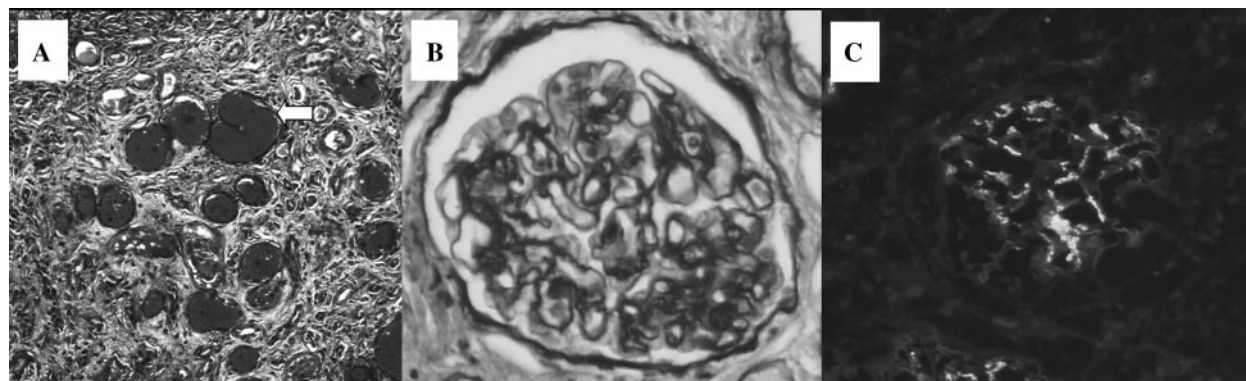


Fig. 3. (A) Some tubules were dilated and contained PAS-positive materials and red blood cells (arrow). (Silver methenamine stain; magnification: 400 $\times$). (B) and (C) In light microscopic and immunofluorescent findings of glomerulus was consistent with a mild form of IgA nephropathy. (Periodic acid-Schiff stain and immunofluorescent stain for IgA; magnification: 400 $\times$).

As a result, the patient was diagnosed as having a pelvic haematoma of the kidney with chronic pyelonephritis of left kidney in a case of IgA nephropathy.

Discussion

In this case, renal pelvic mass associated with recurrent gross haematuria was suspected to be pelvic malignancy leading to radical left nephrectomy, and was pathologically diagnosed as a pelvic haematoma with underlying chronic pyelonephritis in IgA nephropathy. It seems that the haematoma gradually grew and caused recurrent pyelonephritis and that it was caused by excessive haematuria from the glomeruli. At the time of writing, a thorough Medline search has revealed no previous report of a similar case of IgA nephropathy associated with renal pelvic haematoma. Elevated serum creatinine and light microscopic findings suggest that the patient had been in acute reversible renal failure because of tubular obstruction by red blood cells, and then blood clots formed. There are some unique features about the formation of the haematoma in this case. First, most of the haematuria in IgA nephropathy is from both kidneys. This case, however, showed unilateral haematoma. Second, if the patient had normal urine excretory function and patency of the pelvis and ureter, it should not produce haematoma. Therefore this suggests that the patient might have functional disorders in urine flow via the pelvis and ureter, because of no structural abnormalities in the urinary tract.

In this case, the correct diagnosis was not made pre-operatively because we could not exclude a malignant neoplasm of the kidney radiologically and clinically. Sometimes, pelvic haematomas of the kidney may be difficult to diagnose without nephrectomy [5].

However, we admit that the efforts to obtain a confirmatory diagnosis of malignancy were not sufficient. Diagnostic ureteropyeloscopy clearly has an important role for those patients in whom the aetiology of a filling defect or obstructing lesion cannot be determined by standard techniques. Additionally, ureteropyeloscopy offers the option of direct visual biopsy. Transureteroscopic biopsy has been most valuable when a tumour has been visualized in the setting of negative urine cytology [6]. In addition, angiography or magnetic resonance imaging can be helpful in differentiating haematomas from cancer.

From our experience of this case, we suggest that if a pelvic mass remains as a highly suspicious haematoma through the complete diagnostic imaging and procedures, it should be managed with careful follow-up to avoid unnecessary nephrectomy.

Conflict of interest statement. None declared.

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