

Teaching Point
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Bilateral spontaneous perirenal haemorrhage in a patient on haemodialysis

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Introduction

Acquired polycystic kidney disease occurs as one of the sequelae of chronic haemodialysis. Spontaneous perirenal haemorrhage of acquired polycystic kidney disease in a patient on chronic haemodialysis is an uncommon clinical entity [1–4], and bilateral perirenal haemorrhage in these patients is rare [5]. This report describes one case of bilateral perirenal haemorrhage in a haemodialysis patient with acquired polycystic kidney disease, who was treated with nephrectomy and transcatheter arterial embolization, respectively.

Case description

A 46-year-old man was referred to hospital after vomiting and sudden onset of severe right flank pain. He was on chronic haemodialysis for 8 years because of end-stage renal failure. An attempt of transcatheter arterial embolization at other hospital had been unsuccessful. Physical examination showed a tender palpable mass in his right flank. Laboratory studies showed a low serum haemoglobin concentration. A CT scan of the abdomen revealed large amounts of right perirenal, pararenal and retroperitoneal haematoma, and contrast extravasation suggestive of active bleeding was noted (Figure 1). The kidney was explored through a flank incision and a nephrectomy was performed. Histologic evaluation showed multiple cysts, markedly atrophic parenchyma, lymphoplasmacytic infiltration, focal haemorrhage and arterial proliferation with wall thickening and myxoid degeneration. After recovery, the patient was discharged from the hospital on the 10th day of hospitalization.

One month later, he was readmitted to hospital due to a sudden onset of severe abdominal pain and distension during haemodialysis. CT showed large amount of haemoretroperitoneum, especially left posterior pararenal

space and around the inferior vena cava and aorta and active bleeding in the left kidney (Figure 2). Transcatheter embolization with the lipiodol/glue (3:1) mixture was performed at the ruptured small branches. Renal arteriography following embolization confirmed that there was no more extravasation of the contrast media. He was discharged 1 month later.

Discussion

In a significant number of patients on long-term haemodialysis, the kidneys appear to undergo cystic transformation [6]. Spontaneous perirenal haemorrhage is a rare event. The most frequent aetiologies of bleeding include renal carcinoma, angiomyolipoma and vascular diseases [7]. Spontaneous perirenal haemorrhage has been reported in chronic haemodialysis patients [1–4]. However, bilateral spontaneous renal bleeding in a patient on chronic haemodialysis is a very rare clinical entity [5]. Several factors such as heparinization during dialysis, functional platelets abnormalities, intimal arterial fibrosis or oral anticoagulant therapies often combine to cause spontaneous perirenal haemorrhage [8]. However, it is possible that the haemorrhage may be the result of cyst or tumour formation itself [6].

Accurate diagnosis of spontaneous haemorrhage requires a combination of clinical information and radiological imaging. It may present with 'Lenk's triad' consisting of acute flank pain, tenderness and symptoms of internal bleeding [9].

Ultrasonography is a rapid and non-invasive method and is effective in the identification of renal/perirenal fluid collection. However, it may be difficult to differentiate between tumour and abscess [10] and thus, often has nothing to contribute. In a meta-analysis [11], ultrasonography performed only moderately well for the identification of renal haemorrhage and was insensitive in the detection of an underlying pathological condition. Results of this meta-analysis showed that CT is 100% sensitive for the presence of retroperitoneal haemorrhage and has a higher sensitivity

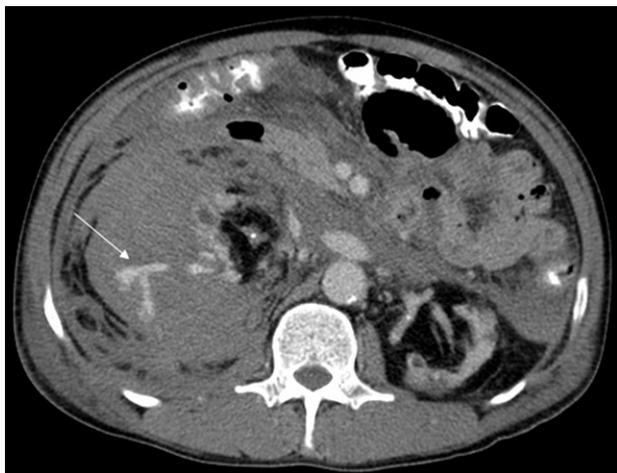


Fig. 1. CT scan shows a large haematoma extending from right kidney into perirenal, pararenal and retroperitoneal space. Contrast extravasation suggestive of active bleeding was noted (arrow).



Fig. 2. CT scan shows a large haematoma extending from left kidney into posterior pararenal space and around the inferior vena cava and aorta. Active bleeding in the left kidney was noted (arrow).

and specificity than ultrasonography for identification of an underlying renal mass [11]. Therefore, CT remains the investigation of choice. When CT is unavailable or contrast enhance CT is contraindicated, MRI may be a better alternative. Angiography may be useful for the diagnosis of vascular diseases associated with spontaneous perirenal haemorrhage and when emergency embolization is required.

Management for spontaneous perirenal haemorrhage may pose a dilemma. Many urologists believe that exploratory surgery or nephrectomy is indicated in all patients with an explained spontaneous perirenal haematoma and normal contralateral kidney [7,12,13]. The rationale for management of these cases must take into account that the commonest cause of spontaneous perirenal haemorrhage is tumour, benign and malignant nature of which have almost equal incidence and can occur in both the young and elderly. Therefore, surgery was the preferred treatment because of the frequency of unrevealed tumours and the potential mortality of massive haematoma [14]. The indications for surgery might be progressive anaemia, palpable retroperitoneal haematoma and symptomatic peritoneal irritation. Therefore, the management of spontaneous perirenal haemorrhage is nephrectomy in an unstable patient or when the underlying pathology is renal cell carcinoma. In Kendall's series [7], six cases of spontaneous kidney rupture were due to rupture of small RCC that CT had failed to reveal at the time of acute haemorrhage.

In contrast, conservative management may prevent unnecessary nephrectomy in patients with benign disease and a stable condition [15]. Furthermore, Howalt and Squires [16] have advised a conservative approach when diagnostic studies fail to demonstrate a significant pathology. Uson *et al.* [17] and Bosniak [18] advocated serial CT at an interval of 2–3 months until the haematoma resolves and a definite diagnosis may be possible. Thus, conservative management may prevent unnecessary nephrectomy in patients with a benign disease and a stable condition, permitting the possibility of nephron-sparing surgery if necessary [15,19].

In summary, the main interest in this case lies in bilateral spontaneous perirenal haemorrhage in a haemodialysis patient with acquired polycystic kidney disease. A second point of interest in this case is the fact that he was treated with nephrectomy and transcatheter arterial embolization, respectively. To our knowledge, we report the first case of bilateral spontaneous perirenal haemorrhage treated with nephrectomy and conservative treatment, respectively.

Teaching points

- (1) Due to varied clinical presentation of spontaneous perirenal haemorrhage, the differential diagnosis is difficult. However, flank pains with disproportionate low Hb and low haematocrit raises the suspicion of spontaneous perirenal haemorrhage.
- (2) CT is the most valuable examination for suspected perirenal haemorrhage.
- (3) Management for spontaneous perirenal haemorrhage may pose a dilemma. The appropriate treatment for these patients is based on the diagnosis that a haemorrhage has occurred and on the determination of its cause.

Conflict of interest statement. None declared.

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