Case Report

Spontaneous Large Renal Pelvis Haematoma in Ureteropelvic Junction Obstruction: A Rare Case Report

Cheah JK[1,3], Hamzaini AH[1,3], Fam XI[2,3] (✉)

[1]Department of Radiology, [2]Urology Unit, Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Kuala Lumpur, Malaysia
[3]Hospital Canselor Tuanku Muhriz, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Kuala Lumpur, Malaysia

Abstract

Spontaneous renal haemorrhage is a rare occurrence with potentially serious consequences. This presented case was an even rarer form of ureteropelvic obstruction (UPJO), which was spontaneous bleeding into the renal pelvis in a patient who was not previously investigated for UPJO. We presented a 17-year-old gentleman who presented with lower abdominal pain for one week and painless haematuria for two days. Initial computed tomography angiography (CTA) renal revealed haematoma with a grossly dilated pelvicalyceal system. The patient was initially treated conservatively. However, in the ward, he suddenly developed severe left-sided back pain, decreased haemoglobin level and persistent gross haematuria. Repeated CTA renal revealed worsening left renal haematoma with a grossly dilated pelvicalyceal system, and he was panned for nephrectomy. A review of the literature followed with a discussion of the case were done in this study.

Keywords: CTA renal; haematuria; nephrectomy; spontaneous renal haemorrhage; uretero-pelvic obstruction

Correspondence:

Hamzaini Abdul Hamid. Department of Radiology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Kuala Lumpur, Malaysia. Tel: +603-91455555 E-mail: hamzaini@ppukm.ukm.edu.my

Introduction

Spontaneous renal haemorrhage (SRH) or haematoma is intraparenchymal renal bleeding of unknown cause in a patient without trauma or anticoagulation (1). SRH is commonly associated with vascular renal tumours or vascular malformations. Most of the time, in approximately 80% of the cases, SRH presents with acute flank pain, while hypovolaemic shock occurs in only 11% of cases (2). ureteropelvic obstruction (UPJO) can be congenital or acquired due to renal calculus or surgery. A computed tomography angiography (CTA) renal is the preferred imaging modality for diagnosis and pre-operative planning. Only a handful of patients with SRH with UPJO cases are reported in the literature (3). In this article, we described a rare case of SRH with UPJO in a young adult male who later developed worsening abdominal pain and required surgery.

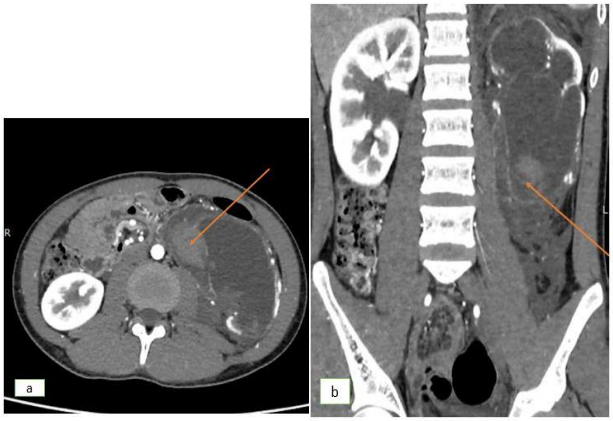
Case Report

A 17-year-old man with no previous history of hospitalisation presented to the Emergency Department (ED) with abdominal pain for one week and painless gross haematuria and vomiting for two days. On examination, vital signs were stable, and the abdomen was soft on palpation. Initial haemoglobin (Hb) at ED was 16.0 g/dL. Bladder irrigation was initiated. An initial abdomen radiograph showed a mass in the left lumbar region with a displacement of the bowel medially.

Ultrasound findings showed gross hydronephrosis on the left and a heterogeneous lesion within the lower

pole, which moved according to position with no internal vascularity within, representing a blood clot. Echogenic debris was also noted within the dilated renal system, representing blood products. The patient was initially planned for conservative treatment.

One day later, the Hb value was reduced to 12.0 g/dL. A CTA renal was performed, showing spontaneous massive left intrarenal haemorrhage due to obstruction of the ureteropelvic junction with perinephric collection. In addition, the left ureter was not visible, with no apparent cause for the obstruction. This obstruction was caused by haematoma (Fig. 1).



FiIGURE 1: (A) CTA renal axial view: Hyperdensity within the left pelvicalyceal system suggested haematoma (orange arrow). No active arterial extravasation (B) CTA renal coronal view: Hematoma was seen with no dilated left ureter

Three days after the first CTA renal, he complained of sudden onset of pain in his left back with an Hb value of 10.5 g/dL. He was tachycardic with a heart rate of 125 bpm. Blood pressure was 108/65 mmHg, unsupported. Repeat CTA renal showed worsening left renal haematoma with similar perinephric collection. No CTA evidence of active bleeding (Fig. 2)

The patient was scheduled for a nephrectomy due to a poorly functioning kidney and his worsening condition. Cystoscopy showed no bladder tumour, normal bladder mucosa and no blood clots. Nephrectomy findings showed a grossly hydronephrotic, non-functioning left kidney with thinned parenchyma and clots in the collecting system of the left kidney. Old blood clots and haematoma were noted in the retroperitoneal space behind the kidney. No tumour was seen.

Pathological examination showed a multilobulated left kidney with minimal perinephric fat and a dilated pelvicalyceal system forming a distorted cystic structure with brownish fluid and blood clots. In the periphery, minimal normal renal parenchyma was seen, with areas of haemorrhage (Fig. 3).

In addition, histological slides showed no underlying malignancy or the cause for the source of the haematoma. It is described as a dilated pelvicalyceal system with acute on chronic inflammation.

This patient recovered well and was hence discharged on postoperative day-4. His post-operative haemoglobin was 10.1 g/dL and did not require any transfusion of blood products. He was well and has since continued to be treated outpatient. His haemoglobin and creatinine levels have normalised.

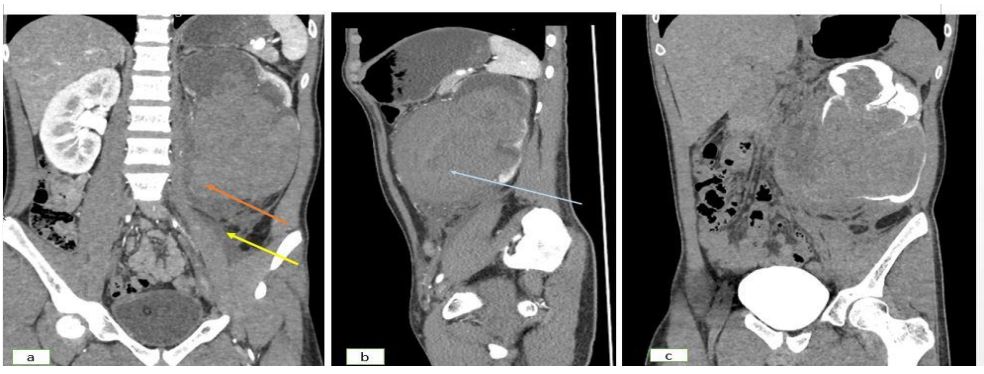


FIGURE 2: (A) CTA renal coronal view: Increasing in haematoma size within the left pelvicalyceal system suggestive of enlarging haematoma into the renal pelvis (orange arrow) with perinephric collection (yellow arrow). The ureter was not dilated; (B) CTA renal sagittal: A more extensive haematoma was seen within the left renal dilated system with no active contrast extravasation; (C) Excretory phase in coronal view: No excretion of contrast was seen into the left ureter. The large left haematoma at the ureteropelvic junction obscured the contrast from flowing into the ureter

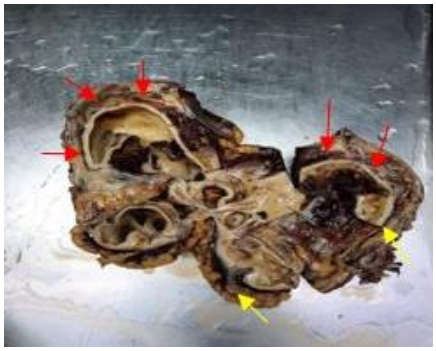


FIGURE 3: Grossly dilated renal pelvis (red arrows) with thinned parenchyma (yellow arrows)

Discussion

SRH is a rare condition but has serious consequences. SRH is most commonly caused by occult vascular renal tumours (angiomyolipoma or renal cell carcinoma), vasculitides (polyarteritis nodosa) or vascular malformations. However, there are several cases which are unknown or have been caused by infections, uncontrolled hypertension, ruptured haemorrhagic cysts, erosions caused by renal calculus or even surgical intervention (4).

Non-traumatic spontaneous haemorrhages of the kidney are a rare condition, of which only a few cases have been published. Patients who have an underlying renal abnormality are more prone to have SRH compared with patients who have no renal conditions.

UPJO may be congenital or acquired from renal calculus or surgery. Patients with UPJO may present with acute or chronic flank pain that may mimic an acute abdomen or other nonspecific symptoms such as haematuria or post-trivial trauma (5). Severe distention of the renal pelvis in a case of a large renal pelvic clot causes non-suppurative perirenal inflammation. It causes the patient to present in acute presentation, as seen in our case. Interestingly, our patient had no previous history of hospitalisation that could have led to scarring of the ureteropelvic junction. So far, there is only one case of spontaneous bleeding in a patient with UPJO, which presented as an acute abdomen (6). Our patient with SRH with UPJO presented as an acute abdomen with hematoma in the intrarenal collecting system, which was very rare.

In the paediatric population, haemorrhage or pelvic rupture had been described in patients with UPJO after trauma (7). Our patient denied any previous history of trauma. In our case, histological dissection did not reveal an underlying source of bleeding - this had not been described previously. The cause that led to a haemorrhage of this extent is unclear.

Imaging is essential to diagnose a case of SRH. The preferred imaging modality is CTA renal to look for the source of bleeding, localise the lesion, and look for arteriovenous malformation (AVM) or any crossing vessels. Approximately 25-50% of crossing vessels occur at the ureteropelvic junction (8). The presence of an active extravasation on CTA would determine the next step of treatment. Other modalities include a renal angiogram or an MRI. In our case, CTA renal was performed and showed no AVM or crossing vessel evidence. No contrast extravasation was detected.

There is a broad range of management recommendations, and the best treatment can often be challenging. A proposed approach for the management of SRH by the author was illustrated in Figure 4.

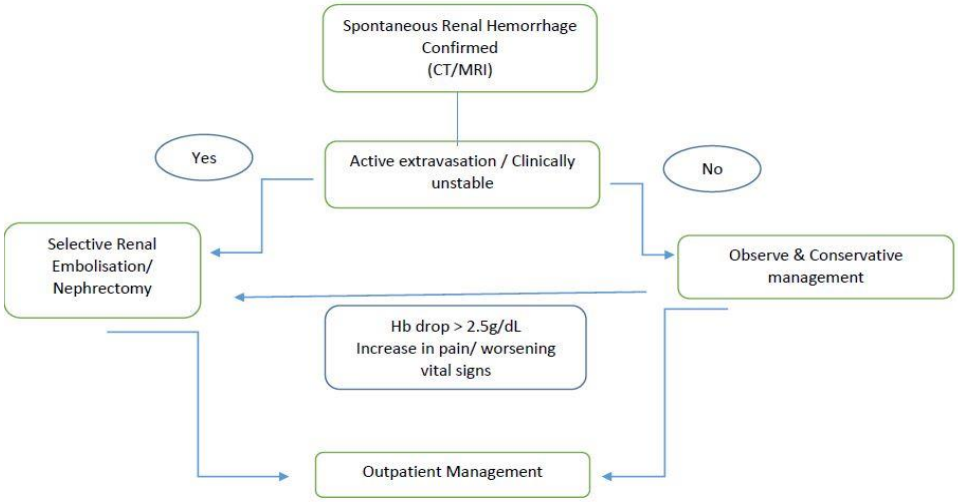


FIGURE 4: Suggested algorithm for evaluation of spontaneous renal haemorrhage (9). Hb: Haemoglobin; CT: Computed Tomography; MRI: Magnetic Resonance Imaging

It is suggested that clinical symptom evaluation should be initially done. An active contrast extravasation on CTA renal is essential for initial management.
If the patient has stable vital signs with no significant drop in Hb or no active contrast extravasation on CTA renal, then an overnight observation with conservative management is appropriate. The patient can be discharged and followed-up as an outpatient.

When a patient has unstable vital signs, a drop in Hb, or active extravasation on imaging, an angiogram with embolisation is indicated after proper stabilisation (9,10). Selective renal artery embolisation is a minimally invasive procedure and low risk to the patient. However, initial surgical reports suggest a nephrectomy in all cases and are still the first line of approach, as seen in our case (10). Our patient had a nephrectomy because of a non-functioning left kidney, worsening abdominal symptoms and a drop in Hb.

Conclusion

There are several causes of spontaneous renal bleeding, with the common causes including AVM and renal tumours. Spontaneous renal haemorrhage with UPJO is indeed very rare in a patient with haematuria and should be treated as a differential diagnosis if there is no cause to be found. Treatment of bleeding depends on the severity of the disease and may range from conservative observation to angioembolisation or nephrectomy.

References

1. Daskalopoulos G, Karyotis I, Heretis I, Anezinis P, Mavromanolakis E, Delakas D. Spontaneous perirenal hemorrhage: A 10-year experience at our institution. Int Urol Nephrol 2004, 36(1): 15-19.

2. Kim JW, Kim JY, Ahn ST, Park TY, Oh MM, Moon DG, Park HS. Spontaneous perirenal hemorrhage (Wunderlich syndrome): An analysis of 28 cases. Am J Emerg Med 2019; 37(1): 45-7.

3. Mali V, Liu B, Prabhakaran K, Loh D. Blunt renal trauma in occult congenital hydronephrosis. Singapore Med J 2005; 46(1): 28-30.

4. Zhang JQ, Fielding JR, Zou KH, Etiology of spontaneous perirenal hemorrhage: A meta-analysis. J Urol 2002; 167(4): 1593-6.

5. Nakada SY, Hsu TH. Management of upper urinary tract obstruction. 2012. Campbell Walsh Urology: Elsevier Publication.

6. Sawant A, Kasat G, Pawar P, Tamhankar A. Spontaneous large renal pelvis hematoma in ureteropelvic junction obstruction presenting as an acute abdomen: Rare case report. Urol Ann 2016; 8(2): 239-41.

7. Al-Hajjaj M, Habash A, Swed S. Giant hydronephrosis diagnosed after abdominal trauma. J Ped Sur Case Rep 2021; 71: 101937.

8. Ghritlaharey RK, More S Management of ruptured occult left hydronephrotic kidney in 7-year - old boy: A Case Report. J Clin Diagn Res 2014; 8(10): ND12-4.

9. Antonescu O, Duhamel M, Di Giacinto B, Spain J. Spontaneous renal hemorrhage: A case report and clinical protocol. Cureus. 2021; 13(6): e15547.

10. Elbaset MA, Zahran MH, El-Baz R, Badawy M, Osman Y: Spontaneous renal hemorrhage: critical analysis of different lines of management in non-traumatic patients: A single tertiary center experience. Int Urol Nephrol. 2020; 52(3): 423-9.