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QUINCKE'S TRIAD: SEQUELAE OF TRAUMATIC LIVER INJURY.

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ABSTRACT

Quincke's triad is characterized by upper abdominal pain, jaundice, and upper gastrointestinal bleeding. It represents a rare complication following traumatic liver injury. Here we reported a classical case of Quincke's triad as a sequelae of blunt liver injury in a 14-year-old girl following involvement in a motor vehicle accident. She sustained a grade 3 liver injury, grade 2 right renal injury and right adrenal hematoma. She was initially managed conservatively in view of her haemodynamic stability but developed upper gastrointestinal bleeding on 3rd week of admission with severe right upper quadrant abdominal pain and jaundice. An urgent esophagogastroduodenoscopy was performed which revealed the presence of blood within the upper gastrointestinal tract but no primary source of the bleeding was identified. A Contrast-enhanced computed tomography of the abdomen revealed dilated biliary tree with the presence of filling defect within suggestive of blood clot in common bile duct. A subsequent scan following a recurrent bleed revealed a right hepatic artery pseudoaneurysm which was successfully managed with endovascular coil embolization.

Keywords: Gastrointestinal haemorrhage, Haemobilia, Liver injury, Jaundice, Quincke's triad.

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ABSTRACT

Quincke's triad is characterized by upper abdominal pain, jaundice, and upper gastrointestinal (GI) bleeding. It represents a rare complication following traumatic liver injury. Here we reported a classical case of Quincke's triad as a sequelae of blunt liver injury in a 14-year-old girl following involvement in a motor vehicle accident. She sustained a grade 3 liver injury, grade 2 right renal injury and right adrenal hematoma. She was initially managed conservatively in view of her haemodynamic stability but developed upper GI bleeding on 3rd week of admission with severe right upper quadrant abdominal pain and jaundice. An urgent esophagogastroduodenoscopy was performed which revealed the presence of blood within the upper gastrointestinal tract but no primary source of the bleeding was identified. A Contrast-enhanced computed tomography of the abdomen revealed dilated biliary tree with the presence of filling defect within suggestive of blood clot in common bile duct. A subsequent scan following a recurrent bleed revealed a right hepatic artery pseudoaneurysm which was successfully managed with endovascular coil embolization.

Keywords: Gastrointestinal haemorrhage, Haemobilia, Liver injury, Jaundice, Quincke's triad.

INTRODUCTION

Quincke's triad was first described in 1871 and characterized by upper abdominal pain, jaundice, and upper gastrointestinal (GI) bleeding.¹ Upper GI bleeding is by far the commonest presentation in Quincke's triad and is seen in up to 90% of the patients.² Meanwhile, the classical presentation of this triad only occurs in 20-35% of the patients with the presence of haemobilia.¹ Trauma to the hepatobiliary tract from accidental trauma and medical procedures such as endoscopic retrograde cholangiopancreatography (ERCP), percutaneous transhepatic biliary drainage

(PTBD) and liver biopsy were the commonest reported causes of haemobilia and Quincke's triad.^{1,2} Other causes include malignancy, biliary tract inflammation and vascular malformation.³ Here we reported a case of blunt liver injury complicated with Quincke's triad focusing on clinical presentation and its management.

CASE REPORT

A 14-year-old girl* was admitted to our hospital following a road traffic accident. She was a motorcyclist who had collided with a car and landed onto the right side of her body. At presentation, she was hemodynamically stable. Focus assessment with sonography for trauma (FAST) scan revealed free fluids within

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(*The legal age for getting a licence for riding a motorcycle in Malaysia is 16 years of age, hence this 14-year-old girl was riding the motorcycle illegally without a valid motorcycle licence.)

Morrison's pouch and pelvis. Contrast-enhanced computed tomography (CECT) of abdomen and pelvis was performed which showed multiple liver lacerations involving segments IV, V, VI, VII, and VIII as well as right renal and adrenal injury. She also suffered from multiple right sided rib fractures, lung contusion and closed fracture of right femur.

Because of hemodynamic stability and considering the extent of the polytrauma, she was managed conservatively in our surgical high dependency unit. The recovery was uneventful until the 3rd week of admission when she developed hematemesis and black tarry stool with accompanying upper abdominal pain. On physical examination, the patient was pale and jaundiced with hemoglobin and bilirubin level of 6.1 g/dL and 135 mmol/L respectively. She was resuscitated with 2 units of packed cells, and an urgent oesophagogastroduodenoscopy (OGDS) was performed, which only confirmed presence of fresh blood within the second part of the duodenum but no primary source of bleeding

could be detected.

CECT abdomen was then performed to exclude delayed secondary hemorrhage due to the liver injury. It revealed an organized hematoma within the liver with the presence of filling defect with Hounsfield unit of 60-80 within the dilated common bile duct suggestive of blood clot (Figure 1). The diagnosis of haemobilia with Quincke's triad was established based on the clinical manifestation as well as imaging findings.

She was managed conservatively for the haemobilia with packed cells transfusion and correction of coagulopathy. Her condition improved initially but she developed a second episode of upper GI bleeding 48 hours after receiving the blood transfusion. A four-phase CECT liver was performed and it revealed a right hepatic artery pseudoaneurysm (Figure 2A&B). She successfully underwent urgent endovascular coil embolization of right hepatic artery pseudoaneurysm (Figure 3A&B). No further bleeding episode was observed following embolization. Her abdominal pain resolved



Figure 1: Contrast-enhanced abdominal computed tomography. Dilated common bile duct with the presence of hyperdense substance within representing the blood clot (black arrow). Right renal contusion was also visualized in this image.

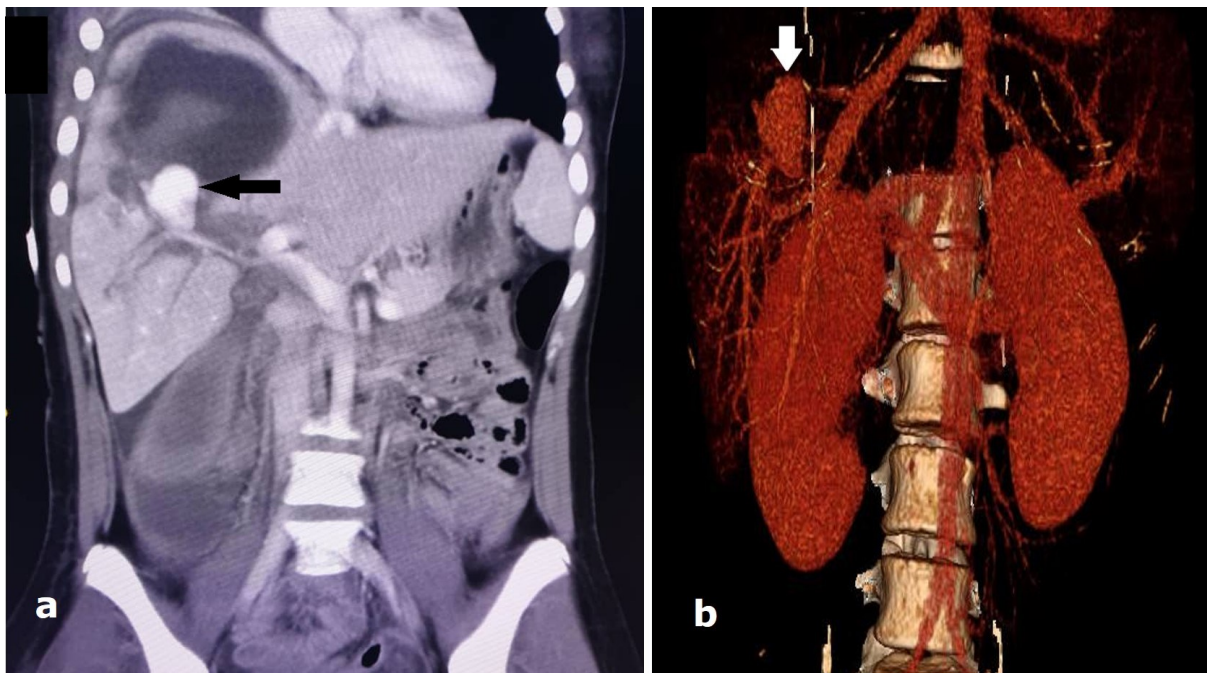


Figure 2: (a) Contrast-enhanced abdominal computed tomography illustrating right hepatic artery pseudoaneurysm (black arrow). (b) 3D reconstruction highlighting the vascular supply of the liver and kidneys, with white arrow indicating the hepatic artery pseudoaneurysm.

and jaundice subsequently improved with bilirubin level returning to normal after 1 week. She was discharged after 2 months of hospitalization and was well at 6 months follow-up.

DISCUSSION

Haemobilia is defined as the presence of gross blood within the biliary tree.¹ It occurs due to direct mucosal trauma to the biliary

tract, the formation of hepatic artery pseudoaneurysm, or vascular fistula with the biliary system.²⁻⁴ The occurrence of haemobilia after a traumatic liver injury is rare, with a reported incidence of less than 3%.^{1,4} Haemobilia that manifest as upper GI bleeding with concurrent upper abdominal pain and jaundice is identified as Quincke's triad.^{1,3,5}

Classical Quincke's triad is relatively rare with a reported incidence of 20-35% in



Figure 3: (A) Selective angiography showing right hepatic artery pseudoaneurysm (white arrow), pre-embolization. (B) Successful post coil embolization showing completed occlusion of the pseudoaneurysm.

patients presented with haemobilia.^{1,4} Among the components of the triad, upper GI bleeding is the most common presentation (90%), followed by upper abdominal pain (70%) and jaundice (60%).² The time interval from initial injury to the manifestation of triad varies from immediately in cases of penetrating injury or can be delayed up to several weeks or months.^{2,4} In our case, the patient developed Quincke's triad 3 weeks after sustaining her injuries.

The diagnosis of Quincke's triad remains difficult due to the intermittent nature of the upper GI bleeding as well as its rare occurrence.^{2,5} It should be suspected in a patient with a history of traumatic liver injury who developed upper GI bleeding, especially if endoscopy is negative.¹ Laboratory investigations usually will show a low hemoglobin level with an elevation of serum bilirubin due to obstruction of bile outflow by blood clots. OGDS is routinely performed to identify the source of bleeding but has a very low diagnostic yield to diagnose haemobilia.³ Indirect OGDS findings that related to haemobilia include blood clots at the ampulla of Vater or presence of blood within the second part of the duodenum.² ERCP offers both diagnostic and therapeutic option with the characteristic finding of blood clots within the biliary tree is described as amorphous, tubular, cast-like filling defect with or without biliary tree dilatation.^{1,5}

CECT abdomen is an excellent tool due to the non-invasive nature of the procedure as well as produces a rapid result with excellent diagnostic accuracy.⁵ CT findings suggestive of haemobilia include blood clots in the biliary tree, biliary tree dilatation, hepatic cavitation, and pseudoaneurysm.²⁻⁴ Conventional angiography, on the other hand, remains the gold standard for diagnosis of the haemobilia.^{1,5} It allows delineation of vascular anatomy as well as the possibility of therapeutic intervention with a success rate of up

to 80%.^{1,3}

Management of patients with Quincke's triad is similar to those with upper GI bleeding with initial resuscitation to ensure hemodynamic stability with blood transfusion if indicated together with correction of coagulopathy.^{1,4,5} Two important aspects of the management are control of the bleeding and to ensure patency of biliary outflow.^{1,2,5} The choice of treatment is mainly dictated by the patient's clinical status, degree of the hemorrhage, and the cause of the bleeding.²

Conservative management was reported to be successful in up to 50% of the cases.² ERCP and stenting are mainly used to achieve hemostasis in case of ductal bleeding with various types of biliary stents have shown similar efficacy.¹ It acts by producing a tamponade effect on the ductal wall along with providing for the passage for biliary outflow.^{1,5} Transcatheter arterial embolization is indicated in case of presence of significant arterial extravasation, arterial aneurysm or pseudoaneurysm and vascular fistula with biliary tract with a high success rate up to 80-100%.⁵

Surgery remains the last resort in the management of Quincke's triad and mainly reserved for patients with hemodynamic instability, failed endoscopic or radiological intervention or concurrent abdominal pathology requiring surgery such as hemorrhagic cholecystitis.^{1,2} It is reported up to 20% of the patients with Quincke's triad or haemobilia required surgery.² Surgical interventions include ligation of bleeding vessel, excision of vascular pseudoaneurysm and liver resection with or without concurrent cholecystectomy.⁵ Surgical intervention is associated with a high success rate up to 90% with 5% risk of rebleeding and 10% mortality rate.^{2,5}

CONCLUSION

Quincke's triad resulting from traumatic liver injury represents a rare entity. A high index of suspicion required to diagnose this perplex medical condition when there is a clinical and endoscopic discordance to ensure prompt treatment and prevent morbidity as well as mortality.

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We have acquired consent from patient for all images used in publication purpose.

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