Idiopathic retroperitoneal haematoma causing duodenal obstruction: a case report and review of literature

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ABSTRACT

Idiopathic retroperitoneal haematoma is a rare clinical entity; resulting duodenal obstruction is even more occult. It can pose a diagnostic challenge due to variable presentations. Timely management requires a high index of suspicion and a multidisciplinary approach. Surgery is indicated in patients refractory to conservative treatment and failure of endoscopic or interventional radiology options. We report an interesting case illustrating the rarity and severity of this condition, with a review of the literature.

KEYWORDS

Idiopathic haematoma – Duodenal obstruction – Gastric outlet obstruction – Retroperitoneal tumour – Retroperitoneal haematoma

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Background

Idiopathic retroperitoneal haematoma is a rare clinical entity¹; resulting duodenal obstruction is even more occult. There are few literature reports of this diagnostic dilemma. We present a challenging case and a review of current literature.

Case history

A 61-year-old male builder attended the emergency department with a sudden onset of epigastric pain and one episode of vomiting. An in-depth review revealed that he was not on any regular medications, had a history of left inguinal hernia repair and a family history of bowel cancer. On examination, he had upper abdominal pain with guarding in the epigastric region. Initial chest and abdominal radiographs were unremarkable, as were routine blood tests. An abdominal ultrasound ruled out cholelithiasis and he was discharged home with a plan for an outpatient upper gastrointestinal endoscopy to explore for peptic disease.

He presented for a second time after one week with lower abdominal pain and now persistent vomiting. He had also developed some scrotal discolouration. He was tender over the right deep inguinal ring but there was no hernia

present. His right testicle was mildly painful and there was no history of trauma or recent intercourse. Targeted ultrasound imaging was non-diagnostic and blood tests were unremarkable. He had a urology review and as his pain was settling, it was decided to discharge him.

Three days later, he was again seen with continuing abdominal pain and worsening projectile vomiting. Pain was now generalised and exacerbated by food. He had lost two stones in weight since his first presentation. On examination, his abdomen was soft, non-distended and tender in right iliac fossa and periumbilical region. A scrotal examination revealed normal non-tender testicles but with gross discolouration of scrotal skin. Blood tests revealed a haemoglobin of 105g/l, white blood cell count of 16,000/mm³, C-reactive protein of 26mg/dl and a normal amylase and coagulation profile.

He was admitted to the surgical ward and computed tomography (CT) of chest abdomen and pelvis was undertaken. This revealed a central abdominal soft-tissue mass appearing to originate from the proximal third part of the duodenum (D3), measuring approximately 3.5 × 3.6 × 4.6cm (Figures 1, 2). An upper gastrointestinal endoscopy identified significant amount of food residue in the stomach and duodenum (Fig 3), with an apparent D3 luminal lesion, which was biopsied. Urgent serology for tumour markers including carcinoembryonic antigen, carbohydrate associated antigen 19-9 and alpha-fetoprotein

were unremarkable. A nasojejunal tube was sited for enteral supplemental feeding; and he was started on a proton pump inhibitor and prophylactic intravenous extended spectrum antibiotics.

The duodenal biopsies were subsequently reported as slight villous atrophy with intraepithelial lymphocytosis but with no evidence of dysplasia or malignancy. His case was therefore discussed at our regional upper gastrointestinal multidisciplinary team meeting and it was deemed necessary to obtain a diagnostic tissue sample. An endoscopic ultrasound and fine-needle aspiration imaging modality were not considered in this case, because of a high risk of bleeding, as deep biopsies were required and there was an increased probability of injury to surrounding vascular structures. An exploratory laparoscopy was therefore attempted but converted to open surgery due to difficult access. A retroperitoneal juxta-aortic mass was thereby isolated; this was dark coloured, felt hard to touch and on taking a wedge biopsy oozed what appeared to be old blood. The duodenum was uninvolved but noted to be thickened and a systematic laparotomy revealed no other abnormality.

Staging positron emission tomography was performed one week after surgery and demonstrated complete resolution of the previous mass lesion. Final histology from the specimen showed fibrosis associated with fibrin and

haemosiderin-laden macrophages, and adipose tissue with unremarkable lymph node. There was no evidence of a neoplastic process. On day 10 post-surgery, the patient's symptoms had near completely resolved and oral nutrition was established. At clinic review one month later, he was symptom free with a stable weight and was finally discharged.

Figure 2 Computed tomography of the abdomen (axial) imaging revealed a central soft-tissue mass lesion, which is intimately associated with the proximal third part of the duodenum.

Figure 1 Computed tomography of the abdomen (coronal) imaging revealed a central soft-tissue mass lesion, which is intimately associated with the proximal third part of the duodenum.

Figure 3 Duodenal obstruction at junction of the second and third parts of the duodenum; biopsies taken after wash and under direct vision.

Discussion

Duodenal obstruction is rarely caused by an idiopathic retroperitoneal haematoma and therefore seldom reported in the literature.^{1,2} Signs and symptoms can be vague and are often misleading. Idiopathic retroperitoneal haematoma commonly presents as abdominal pain (67.5%), leg pain (22.5%), flank, back and groin pain. Other non-specific symptoms such as dizziness, light-headedness, nausea and vomiting are secondary to intravascular volume depletion, or intra-abdominal compartment syndrome. Clinical signs such as hypotension, tachycardia, abdominal distension and tenderness, cutaneous ecchymosis are reported.^{5–6}

In retrospect, our case presented with abdominal pain, vomiting and weight loss, which hints at the eventual diagnosis. The aetiology is unclear, but it should be considered that the patient is a builder who uses power hand-held tools and there may be a possibility of unrecognised repetitive abdominal trauma. This may account for an acute on chronic bleed with gradual formation of a large stable haematoma. The duodenal obstruction is then simply an anatomical hazard which manifests as 'duodenal compartment syndrome',² a concept suggested in a single series of three cases; therefore a very rare condition. It presents as gastric outlet obstruction, due to duodenal stenosis secondary to the periduodenal haematoma.

Spontaneous retroperitoneal haematoma can occur secondary to multiple causes related to retroperitoneal structures such as: leaking vascular aneurysms or ruptures, surgical or radiological interventions, renal or adrenal malignancy, bleeding abnormalities or haemodialysis.^{6,7} A careful and detailed history is therefore critical in deciphering this conundrum and imaging can be of utmost value.

An initial investigation with a plain abdominal radiograph is useful in identifying gastric distension and obstruction. Ultrasound has a limited role but can detect free fluid in the abdominal and pelvic cavity secondary to retroperitoneal bleed and help to rule out other causes of gastric outlet obstruction.^{6,7} Multiphasic multidetector CT is a modality of choice in such cases. It is non-invasive and can ascertain the type, site and extent of fluid collection and identify the cause of gastric outlet obstruction.⁸ A CT angiogram may show the site of bleeding, contrast extravasation and 'layering on the haematocrit level' within the haematoma. Magnetic resonance imaging is also helpful and might have spared the patient an operative procedure. Upper gastrointestinal endoscopy has been used in cases with diagnostic difficulty, such as in our case to rule out intraluminal cause of obstruction.⁹

Initial conservative management of gastric outlet obstruction and the retroperitoneal haematoma involves fluid resuscitation, nasogastric decompression and nutritional supplementation. There is a lack of high-level evidence for the preferred definitive management option for retroperitoneal haematoma. Endovascular procedures such as selective arterial embolisation of an active bleeding vessel using coils, gelatin and polyvinyl alcohol or stent graft have shown

efficacy.⁶ In certain cases, CT-guided drainage of the haematoma can also be used instead of open surgery.^{6,10}

Surgery is indicated in cases refractory to fluid and blood product resuscitation, failure of interventional radiology methods or if large retroperitoneal haematoma causes abdominal compartment syndrome or gastric outlet obstruction.^{8,9} In our case, the precise treatment modality was not established, but surgical exploration was recommended from the view of curability, and reported potential of delayed stenosis of the duodenum.¹¹

Conclusion

Stable idiopathic retroperitoneal haematoma cases with uncertain origin have been described, but their occurrence has been reported in less than 5% of cases.¹² We describe a case of a patient with a retroperitoneal haematoma and resulting gastric outflow obstruction. The very fact that this patient had an open surgical procedure for something that may probably have settled highlights the diagnostic difficulty that we allude to.

There are no consensus guidelines for retroperitoneal haemorrhage. Generally, recommendations for stable, non-expanding retroperitoneal haematomas are non-operative management. A review of the management of traumatic retroperitoneal haematoma states that operative exploration is recommended for zone one central retroperitoneal haematomas such as the paraduodenal case we have described.¹³ Surgery is indicated in patients refractory to conservative treatment, such as those who remain unstable and continue to bleed or develop pressure symptoms from the haematoma. As well as cases where medical, endoscopic and interventional radiology treatments fails, visceral obstruction, perforation or occlusion occur.

Idiopathic retroperitoneal haematoma is a rare clinical entity, which can pose a diagnostic challenge due to variable presentations. Timely management requires a high index of suspicion and a multidisciplinary approach. As in our case, explorative surgery remains strongly indicated not only for diagnosis, but also for treatment.

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