Case Report

Massive Dissecting Intramural Duodenal Haematoma Following Endoscopic Haemostasis of a Bleeding Duodenal Ulcer

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Intramural duodenal haematoma is a rare injury of the duodenum. Most reported cases are secondary to blunt trauma to the abdomen. Such injury following endoscopic intervention is even rarer, and there are no definite guidelines for its management. We report a case where endoscopic haemostasis of a bleeding duodenal ulcer resulted in a massive dissecting intramural duodenal haematoma with gastric outlet obstruction and obstructive jaundice. [Asian J Surg 2006;29(2):98–100]

Key Words: duodenal injury, endoscopic complications, intramural duodenal haematoma

Introduction

Intramural duodenal haematoma is a rare injury of the duodenum, and most reported cases are as a result of blunt abdominal trauma. Intramural duodenal haematoma following endoscopic intervention is even rarer, and there are no definite guidelines for its management. We report the case of a patient in whom endoscopic haemostasis of a bleeding duodenal ulcer resulted in a massive dissecting intramural duodenal haematoma with gastric outlet obstruction and obstructive jaundice.

Case report

A 40-year-old Chinese man with chronic renal failure was admitted to the coronary care unit following a severe hypertensive crisis, which was later complicated by a minor cerebellar infarct. He was treated with aspirin, after which he developed an acute episode of upper gastrointestinal bleeding. An emergency upper endoscopy revealed a bleeding ulcer in the first part of the duodenum. The bleeding was arrested by injecting approximately 16 mL of diluted epinephrine (1:10,000) into and surrounding the bleeding site. He complained of severe epigastric pain radiating to the flanks the next day, and was referred for a surgical opinion. Upon examination, he was found to be pale, despite having received blood transfusion. His vital signs were stable. He was afebrile and the upper abdomen was guarded and tender. Chest and abdominal radiographs, however, did not show any radiological evidence of a perforated viscus. His total white blood cell count was not elevated. The patient was managed conservatively by close monitoring. However, abdominal tenderness and guarding persisted after 24 hours, prompting an abdominal contrast computed tomography (CT) scan.

The CT scan showed extensive intramural duodenal haematoma arising from the first part of the duodenum and extending to the duodenal jejunal flexure, causing complete obstruction of oral contrast flow (Figure 1). Clinically, he was developing obstructive jaundice, confirmed by rising bilirubin levels. A diagnosis of gastric outlet obstruction and obstructive jaundice secondary to intramural duodenal haematoma was made.

He underwent emergency laparotomy; minimal intra-peritoneal blood was found. The serosa of the duodenum...
Massive Intramural Duodenal Haematoma

Patients with duodenal haematoma usually present with insidious onset of obstruction about 48 hours after the initial injury. The obstructive symptoms are due to a gradual shift of fluid into the hypertonic environment within the intramural haematoma, leading to compression of the duodenum and common bile duct, as in this case. In adults, it has been reported that the haematoma is more likely to be in the second and third portions of the duodenum. In our patient, it involved the whole length of the duodenum from the pylorus to the duodenojejunal junction, forming a massive intramural duodenal haematoma that caused gastric outlet and biliary tree obstruction.

We believe that the formation of the intramural duodenal haematoma was due to the overzealous injection of a large volume of diluted epinephrine into the mucosa and submucosa of the bleeding ulcer during the endoscopic procedure, raising a submucosal flap by hydrodissection, embedding the vessel and allowing it to continue bleeding into the submucosal plane. In a hypertensive patient, the pressure of the arterial bleed would have led to the formation of a massive dissecting intramural haematoma, similarly seen in dissecting aortic aneurysm. However, in the duodenum, the extension of the expanding haematoma was limited by the anatomical barrier at the pylorus and ligament of Treitz.

Discussion

Intramural duodenal haematoma is an uncommon injury. According to the Organ Injury Scale of the American Association for the Surgery of Trauma, it is classified as Grade I. Most reported cases of this type of injury are due to child abuse, blunt abdominal injuries, recreational injuries, or iatrogenic and spontaneous bleeding in patients with coagulopathy. There was a case presenting as a complication of peptic ulcer disease.

Reported cases of intramural haematoma following endoscopic procedures are few and mostly confined to the oesophagus, with a reported rate of just 0.3–1.6%. Several authors have reported the incidence of intramural small intestinal haematoma following endoscopic biopsies in those with coagulopathy. A MEDLINE search among English language medical literature concerning intramural duodenal haematoma following endoscopic haemostasis found only five cases: four from a series of 227 patients in Germany, and one from Taiwan. One additional case was noted in a French language journal where they reported using 28 mL of epi-nephrine for local injection, leading to duodenal intramural haematoma, acute pancreatitis and haemoperitoneum.

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Figure 1. Computed tomography scan shows an intramural haematoma involving the second, third and fourth part of the duodenum and an abrupt stop at the duodenojejunal junction.

Figure 2. The removed intramural duodenal haematoma, weighing 220 g, conforms to the C-loop of the duodenum.
Earlier reports have suggested that simple evacuation of the haematoma with or without a bypass procedure may be the appropriate treatment for intramural duodenal haematoma. Over time, more authors have reported that surgery may not be necessary in most patients in the absence of duodenal perforation. In most uncomplicated cases, the haematoma will resolve in 1–3 weeks with conservative management. Aizawa et al reported a patient with duodenal haematoma who was treated with ultrasound-guided aspiration and endoscopic balloon dilatation.9

In cases where surgery is performed, obstructive jaundice requiring biliary drainage and suspected duodenal perforation are the usual indications. Maemura et al reported a case of laparoscopic drainage of a haematoma, which eventually required a laparotomy due to duodenal perforation.10 In our case, the huge haematoma and development of obstructive jaundice necessitated surgery and, in view of the possibility of ongoing active bleeding from the artery, a laparotomy was opted for over conservative management. The incised duodenal serosal layer was intentionally left unopposed to prevent recurrence of intramural haematoma in the event of rebleeding. A drainage tube was necessary to enable detection of rebleeding, missed mucosal perforation or delayed duodenal perforation after commencing diet. The tube was removed 1 week later after it had served its purpose. Our patient eventually recovered well with no evidence of dysmotility or stricture of the duodenum.

References