Abstract

Intramural duodenal haematoma is an uncommon lesion, usually a complication of blunt abdominal trauma in children and young adults. We present two clinical cases of intramural duodenal haematoma following endoscopic biopsy, which caused partial duodenal obstruction and pancreatitis and resolved with conservative management.

Keywords: Intramural duodenal haematoma; Endoscopic biopsy complication; Conservative management

Case Presentation

Case 1

A 12 year old boy underwent an upper endoscopy because of complaints of poor appetite, inconstant feces and abdominal pain. He had no history of bleeding or failure to thrive. The endoscopy was performed with "Olympus" video gastroduodenoscope (8.8 mm diameter). Multiple lesions in the antrum area were observed and biopsies of the esophagus, stomach and duodenum were obtained using "Olympus" forceps. Histological examination showed mild inflammation of the esophagus and a pathological diagnosis of reflux esophagitis was concluded. After the procedure the patient was stable and was discharged home with no present complaints. Two hours after the discharge, he was re-admitted with abdominal pain (VAS-10) and frequent vomiting. On physical examination diffuse abdominal tenderness and bloated abdomen were observed, arterial blood pressure- 106/75 mmHg, pulse- 86 b/min. Blood tests showed leukocytosis (14.00 x 10⁹/l), hemoglobin of 125g/l, and hematocrit 32.8%, and alkalosis (pH 7.49, pCO₂ 21.3 mmHg, pO₂ 82.5 mmHg, HCO₃ 16.4 mmol/L, SBE -6.3 mmol/L). His INR (1.4) was slightly prolonged. During the next few days his hemoglobin dropped to 109g/l, while the metabolic disorder and INR stabilized. On admission an abdominal ultrasound (Figure 1) showed a solid mass, similar to a hematoma, compressing the liver and associated to the duodenum. On physical examination diffuse abdominal tenderness and bloated abdomen were observed, arterial blood pressure- 106/75 mmHg, pulse- 86 b/min. Blood tests showed leukocytosis (14.00 x 10⁹/l), hemoglobin of 125g/l, and hematocrit 32.8%, and alkalosis (pH 7.49, pCO₂ 21.3 mmHg, pO₂ 82.5 mmHg, HCO₃ 16.4 mmol/L, SBE -6.3 mmol/L). His INR (1.4) was slightly prolonged. During the next few days his hemoglobin dropped to 109g/l, while the metabolic disorder and INR stabilized.
endogastroduodenoscopy were used for the control of the hematoma. Though there were signs of bowel obstruction, non operative management was continued and the patient was discharged home after 21 days from the endoscopic biopsy.

Case 2

A 13 year old boy with history of graft versus host disease after a bone marrow transplant due to myelodisplastic syndrome was examined because of weight loss. Upper gastrointestinal endoscopy was performed to determine the presence of chronic graft versus host disease. Before the procedure the patient had slight anemia (Hemoglobin- 115g/L) and thrombocytopenia (Platelet count- 58x10^9/L). The gastroduodenoscopy revealed erosive esophagitis, varicosity of the esophageal veins, gastropathy and duodenogastric reflux. Histological examination confirmed low activity graft versus host disease of the gut.

Immediately after the procedure the patient presented with intense abdominal pain and frequent vomiting. On physical examination the patient had a compulsory position, diffuse abdominal tenderness. The hemoglobin level had decreased to 92g/L, while amylase levels were increased (3783.4 U/L).

Suspecting acute pancreatitis an abdominal ultrasound was ordered. It revealed a 70 by 50mm mass, resembling a hematoma by the duodenum with no oedema signs of the pancreas (Figure 3). A CT (Figure 4) and upper endoscopy confirmed an intramural hematoma in the second part of the duodenum.

Discussion

Even though the first case of IDH was reported in 1838, the incidence of it is still unknown. IDH is usually a consequence of a blunt abdominal trauma and predominant in children as mentioned before. Guzman reports that endoscopic complications in children present only in 2% of cases, and most are associated with the anesthesia or bleeding and perforation [3]. The only 2 patients that developed an IDH post endoscopy in our hospital are described here. One of the mechanisms, thought to contribute to the development of an IDH is the duodenum’s fixed retroperitoneal position and the rich submucosal vascular plexus, which is prompt to bleeding [1,4]. Though there are no proven risk factors for IDH after an endoscopic biopsy, previously reported cases have been associated with malnutrition, anticoagulant therapy [5], and post transplant patients. Some authors report an IDH in patients with no previous medical history [6,7] such as in our first clinical case. Our second case portrays the reported association of an IDH in transplant patients [6,3]. J Ramakrishna et al. [8] reports that IDH after endoscopic biopsy is usually the result of thrombocytopenia and levels of over 50x10^9/L should be sustained at least for 48 hours after the procedure. It should also be noted that a study of 24 bone marrow transplants with suspicion of graft versus host disease, showed that gastric antrum biopsies were more sensitive for the diagnostics than biopsies from the duodenum or rectum [9].
In consideration this and of the risk factors of a developing IDH for such patients, duodenal biopsies may not be necessary for the diagnosis of graft versus host disease and should be performed only with strong indications.

Because of its’ retroperitoneal position, any trauma to the duodenum can present itself with unspecific symptoms. The most common are reported to be abdominal pain and vomiting or hematemesis usually within 48 hours of the trauma mechanism, diffuse abdominal tenderness [1,2,6,7]. Laboratory findings are also unspecific and are associated with such complications of an IDH as pancreatitis and cholestasis. In our first case, the admission findings showed only metabolic alkalosis, which was most likely due to the patients vomiting. Later on, hemoglobin level fell slightly but did not require any blood transfusions. And as the obstruction of the biliary tree by the hematoma progressed, total bilirubin levels elevated. The second patient had decreased platelets and hemoglobin due to his primary disease, after the biopsy he first presented with high amylase levels, followed by increased pancytopenia and anemia.

Imaging techniques such as ultrasound, CT or magnetic resonance imaging (MRI) [10,11] are used for diagnosing IDH. In our first case, an upper gastrointestinal endoscopy was also used as a diagnostic tool. Though not standardized, each one of the imaging techniques has its own place in the diagnostics of an IDH. Ultrasound is usually one of the first to be performed for a child presenting with abdominal pain. D Antoniou et al. [10] reports that a nonperistaltic hypoechoic mass associated to the duodenum should give a big suspicion of an IDH. However, it is hard to distinguish the hematoma from a pancreas pseudocyst or abscess and ultrasound should not be used as the only diagnostic test. Due to its low cost and safety for the patient, it should be considered as one of the main tools for the control of the hematoma during the course of treatment.

Computer tomography is one of the primary diagnostic tools of a duodenal trauma [12], which can help differentiate an IDH from a perforated duodenum and, thus, help determine the treatment of choice. In a retrospective study, done by Jeffrey R et al. [11], pneumoperitoneum and extravasation of contrast were found to be associated with a duodenal perforation. However, KM Kasai et al reported that in 5 children with a duodenal perforation, none showed extravasation of contrast on their CT scans, while of the 14 with an IDH no specific signs on a CT were seen at all, and they were diagnosed either using an ultrasound or video endogastroduodenoscopy [13].

Literature indicates that conservative management should be of choice for IDH. 16 of the 21 previously reported cases of IDH no specific signs on a CT were seen at all, and they were diagnosed either using an ultrasound or video endogastroduodenoscopy [13].

There have been only a few cases as of yet of IDH after upper intestinal endoscopy biopsy. Though it is a rare complication, without appropriate treatment it can have lethal results, whereas a timely diagnosis can often lead to successful conservative management. That is why every patient, especially one with medical history of anticoagulation or immunosuppression, presenting with abdominal pain and vomiting after a video gastrointestinal endoscopic biopsy should be examined for an IDH. Ultrasound and CT are both adequate choices for the diagnostics of IDH, however CT is preferred for the primary diagnosis, where as ultrasound can be used as a safe technique to monitor the resolution of the hematoma. Non-operative management should be preferred for stable patients with surgical treatment reserved for unstable patients and unsuccessful conservative treatment cases.

References
