

CASE REPORT

Acute duodenal intramural hematoma complicated by acute pancreatitis—a rare complication of endoscopic epinephrine injection therapy

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Abstract

Intramural duodenal hematoma (IDH) is a rare complication in endoscopic management of ulcer hemorrhage. Usually noted in cases of blunt abdominal trauma, non-traumatic IDHs have been reported in individuals on anticoagulation, with blood disorders, pancreatic diseases and in endoscopic procedures such as biopsy, sclerotherapy and argon plasma coagulation. Patients may be asymptomatic or present with acute blood loss anemia, abdominal pain or vomiting. We report a case of an 83-year-old man with melena and syncope who underwent endoscopy for bleeding ulcer control and subsequently developed acute pancreatitis due to an acute IDH. Computed tomography (CT) scan confirms the diagnosis. Most cases are conservatively managed however when unsuccessful, laparoscopic surgical drainage or ultrasound or CT guided drainage can be performed.

INTRODUCTION

Endoscopic modalities for hemostasis in active gastrointestinal bleeding have evolved over the years. Their effectiveness has now made endoscopic management the treatment of choice in active ulcer hemorrhage [1]. Sclerotherapy is a safe and effective modality of hemostasis in bleeding ulcers however there may exist some serious associated complications [2]. These complications include mucosal perforation, and ulceration, vessel thrombosis and bleeding culminating in serious adverse events [2, 3].

Intramural duodenal hematoma (IDH) is a rare complication in endoscopic treatment of ulcer bleeding. IDHs are usually found in cases of blunt abdominal trauma [4]. However, non-traumatic hematomas have been reported in patients on anticoagulation, individuals with underlying blood disorders, pancreatic diseases

and in endoscopic procedures such as biopsy, sclerotherapy and argon plasma coagulation [5]. We report a case of an 83-year-old man with melena and syncope who underwent endoscopy for bleeding ulcer control and subsequently developed acute pancreatitis due to an acute IDH. We report on the clinical presentation, and discuss treatment and management of this complication.

CASE REPORT

An 83-year-old man with medical history of hypertension, diabetes mellitus type 2, Alzheimer's dementia and chronic constipation, presented with dizziness and lightheadedness. He also reported melena of 5 days duration, which was associated with mild epigastric pain. Physical examination revealed an elderly

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male in no acute distress. Abdominal examination was unremarkable. Laboratory findings noted hemoglobin 12.3 g/dL, platelet count 239, lipase 28 U/L and INR of 1.1. Further questioning revealed, he had undergone an esophagogastroduodenoscopy (EGD) at an outside institution ~2 weeks prior for abdominal pain and he was unsure of the findings. Computed tomography (CT) scan of abdomen showed uniform mural thickening of gastric antrum, and normal appearing pancreas (Fig. 1). Patient's dizziness persisted, and hemoglobin dropped to 9.0 over the next 24 h. An urgent EGD revealed patchy erythematous gastropathy, and a briskly bleeding site noted in the second portion of the duodenum ~4 cm proximal to the ampulla of Vater. The mucosa was edematous but without discernible ulcer (Fig. 2). Hemostasis was achieved with application of 5 mL of 1:10 000 epinephrine injection and placement of a hemostatic clip.

Over the next day, the patient reported worsening epigastric pain and tenderness associated with non-bilious non-bloody emesis. Lipase returned elevated at 1235 U/L. He was initiated on intravenous hydration with lactate ringers and was kept nothing by mouth. CT scan of abdomen showed an ill-defined, ovoid heterogeneous hyper attenuating structure distal to the hemostatic clip, expanding the second portion of the duodenum and measuring $5.5 \times 3.8 \text{ cm}^2$, most likely representing an intramural hematoma along with peri-pancreatic edema representing acute pancreatitis (Fig. 3). Hemoglobin trended down to 7.3 g/dL which responded appropriately with the transfusion of a unit of packed red blood cell (PRBC). Abdominal pain and tenderness resolved over the subsequent 2 days. A repeat CT scan of abdomen showed an interval decrease in size of the IDH and also the

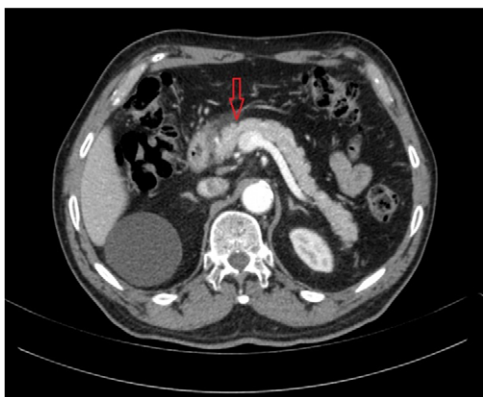


Figure 1: CT abdomen pelvis showing normal appearing pancreas (red arrow) with no hematoma around.

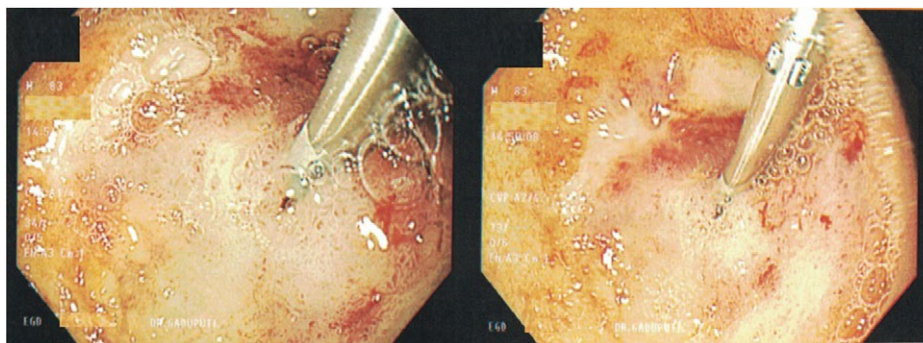


Figure 2: EGD revealed a brisk bleeding site in the second portion of the duodenum ~4 cm proximal to the ampulla of Vater. Hemostasis achieved with 5 mL epinephrine and hemostatic clip.

associated intra-peritoneal and extra-peritoneal hematoma (Fig. 4). Patient's hemoglobin subsequently improved to 10.1 g/dL without further PRBC transfusions. Patient was subsequently discharged home to follow up in the clinic.

DISCUSSION

IDHs are rare complications in endoscopic management of gastrointestinal bleeding. IDHs are however common in cases of blunt abdominal trauma with over half cases occurring in children under age 15 [4, 6]. IDHs are commonly found in the second and third portions of the duodenum [7]. The close proximity of the second and the third portions of the duodenum to the posterior vertebral bodies, coupled with their high sub-mucosal vascularity and fixation by the peritoneum predisposes these segments of the duodenum to injury including intramural hematomas [8]. Non-traumatic cases of intramural hematomas have been reported, usually in patients on anticoagulation, individuals with underlying blood disorders, pancreatic diseases and in endoscopic procedures such as biopsy, sclerotherapy and argon plasma coagulation [5].

IDH presents in a variety of ways. Patients may present with acute blood loss anemia, abdominal pain, vomiting or may even be asymptomatic. Very few (<30) cases of IDH after biopsy or sclerotherapy have been reported in the literature to our knowledge [9]. Most of these patients with IDH after hemostatic therapy had underlying coagulopathy, thrombocytopenia and/or liver cirrhosis [4, 7, 9–12]. Dibra et al. [13] however reported a case of IDH after submucosal epinephrine therapy for duodenal bleeding ulcer in a patient without apparent underlying disease. Additionally, all the cases of IDH had a common variable of epinephrine injection therapy performed while some had an added combination of ethanolamine injections or hemostatic clipping.

Some cases of IDH had an associated acute pancreatitis, theorized to be likely due to compression of the ampulla of Vater by the hematoma [14]. Our patient has a similar associated acute pancreatitis but without any known underlying coagulopathy or cirrhosis. The development of acute pancreatitis in cases of IDH has been attributed to hematoma compression of the pancreatic duct and obstruction of duodenal papilla [12, 14]. Other explanations have included the possibility of pancreatic enzyme release during acute or chronic pancreatitis, causing vascular destruction thereby leading hematoma formation [7]. Given the lack of consensus, there remains uncertainty in explaining causality between the association of acute pancreatitis and IDH.

The management of IDH has evolved since the 1970s, up until which surgical therapy was the mainstay treatment of choice [6]. Conservative management in the form of nasogastric

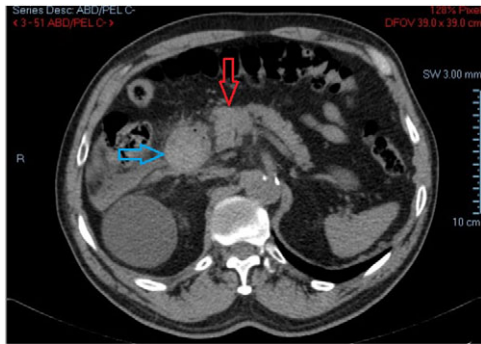


Figure 3: CT abdomen showing edematous appearing pancreas (red arrow) with a large duodenal intramural hematoma at the head of the pancreas (blue arrow).

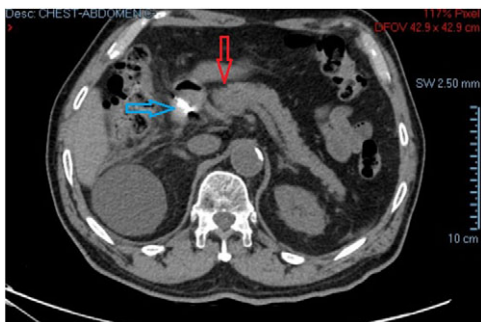


Figure 4: CT abdomen showing resolving peri-pancreatic edema (red arrow) and resolving duodenal intramural hematoma (blue arrow).

tube placement and total parenteral nutrition has shown hematoma resolution in 3–6 weeks [9]. In cases where conservative management is unsuccessful, IDHs are treated with laparoscopic surgical drainage or drainage under ultrasound or CT guidance [15].

CONCLUSION

IDHs are rare complications in endoscopic management of gastrointestinal bleeding. They may occur in patients without underlying blood diseases as in the case of our patient, leading to concomitant complications of acute pancreatitis. Conservative management can lead to favorable outcomes.

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CONFLICT OF INTEREST STATEMENT

None of the authors have any form of conflicts of interest.

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ETHICAL APPROVAL

This case report was approved by the institute's Institutional Review Board as per its policy.

CONSENT

Consent for participation was obtained from this patient.

GUARANTOR

Tagore Sunkara, M.D.

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