# Iatrogenic Duodenal Intramural Hematoma Presenting as Acute Pancreatitis

Jun-Yen Huang[1], Wei-Pang Hsu[2], Jen-Wen Hsu[3] and Sze-Yuan Chou[4]

**Duodenal intramural hematomas are very uncommon. They are usually caused by blunt abdominal trauma and can also occur in patients who receive anticoagulant therapy or who present with blood dyscrasias or pancreatic disease. Among such cases, iatrogenic duodenal intramural hematomas are considered extremely rare. The authors report a case of iatrogenic duodenal intramural hematoma presenting as acute pancreatitis. The patient was a 28-year-old male admitted due to severe nausea and vomiting which developed after receiving therapeutic endoscopy for bleeding acute duodenal ulcer. Elevated serum amylase, lipase and total bilirubin were noted and acute pancreatitis was the initial diagnosis. On abdominal computed tomography (CT) a mass lesion was found compressing the duodenal lumen. Panendoscopy was performed and a submucosal hematoma protruding from the distal part to the junction of the bulb and first portion of duodenum was found. The patient underwent surgery and the hematoma was completely evacuated. He gradually recovered after the operation. The possibility of iatrogenic duodenal intramural hematoma should be considered in any patient presenting with severe nausea/vomiting or epigastric pain after diagnostic or therapeutic endoscopy, especially if there is jaundice or elevated serum amylase/lipase.**

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**Key Words:** acute pancreatitis, duodenal intramural hematoma, iatrogenic

## INTRODUCTION

Duodenal intramural hematomas are very uncommon. They are usually caused by blunt abdominal trauma and occur mainly in young men and children[1]. They

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can also occur in patients who receive anticoagulant therapy, or who present with blood dyscrasias or pancreatic disease[2]. Among such cases, iatrogenic duodenal intramural hematomas are considered extremely rare. Non-traumatic duodenal intramural hematomas usually occur as a complication of diagnostic or therapeutic endoscopy[3-7]. Herein we report a case of iatrogenic duodenal intramural hematoma, presenting as acute pancreatitis, which developed after endoscopic local injection of epinephrine for bleeding duodenal ulcer, with characteristic findings on panendoscopy, computed tomography (CT) and upper gastrointestinal tract contrast radiography and small bowel series.

## CASE REPORT

The patient was a 28-year-old male. He visited our outpatient clinic (OPD) with complaints of epigastric distress for one week and tarry stool passage for one day. Panendoscopy study revealed an active ulcer with mild bleeding over duodenal bulb, on the lesser curvature side (Figure 1). Local injection of 25 mL of epinephrine (1/10,000) was performed with endoscopic injection needle to control the bleeding. Omeprozole 20 mg QD was prescribed. However, severe nausea and vomiting developed that night after he had returned home. The symptoms persisted and worsened over the next 2 days, and he visited our OPD again 48 hours later. He was admitted to a ward under the impression of acute duodenal ulcer with transient post-bulb obstruction.

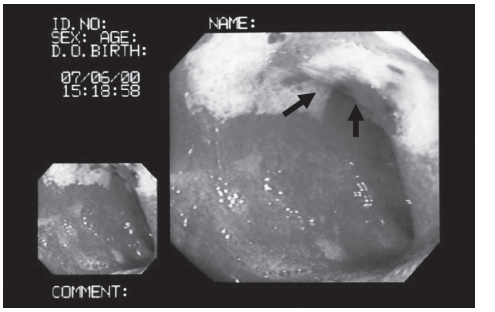


Figure 1. On panendoscopy an active ulcer with mild oozing of blood was identified over the junction of the first and second portions of the duodenum, on the lesser curvature side (arrow).

On physical examination, his blood pressure was 110/70 mmHg, pulse rate was 88 beats per minute, and body temperature was 36.2℃. He had epigastric tenderness and a distended abdomen, but no guarding sign or rebound tenderness. He presented with mild yellowish discoloration of sclera, but no clay-colored stool. Urine color was normal. Leukocytosis with left shift was noted on laboratory examination: white blood cell count was 10,800 cells/$mm^3$ with 75.6% segmented neutrophils and 18.2% lymphocytes. Platelet count was 185 K/$mm^3$, PT (prothrombin time) was 13.0/12.9 secs and PTT (partial thromboplastin time) was 36.4/33.3 secs. Serum amylase (1,358 U/L), lipase (6,284 U/L) and direct/total bilirubin (1.2/2.5 mg/dL) were all elevated. Chest X-ray showed no free air under the diaphragm. Acute pancreatitis was diagnosed by clinical symptoms, signs and laboratory data. Narcotics were prescribed and supportive treatment was given. The patient was asked to take nothing per os. Nasogastric tube

insertion with decompression of gastric contents was performed in conjunction with intravenous form proton pump inhibitor (PPI) and intravenous fluids. However, patient's epigastric pain became more severe and intolerable. Abdominal computed tomography (CT) showed no gross morphological change of the pancreas or biliary dilatation, but revealed a mass lesion in the second and third portions of duodenum compressing and markedly narrowing the duodenal lumen (Figure 2). Panendoscopy was performed again and a submucosal hematoma (which could not be removed by grasping forceps) protruding from the distal part to the junction of the bulb and first portion of duodenum was found (Figure 3). Upper gastrointestinal tract contrast radiography and small bowel series showed a large obstructive lesion involving the second and proximal third portions of the duodenum, with marked narrowing of the duodenal lumen, suggestive of submucosal tumor (Figure 4). He received operation due to intolerable epigastric pain and nausea. During the surgery, an intramural hematoma of about 200 mL was found at the second

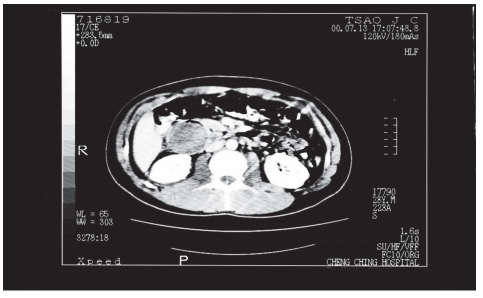


Figure 2. Abdominal computed tomography showed a mass lesion in the second and third portions of the duodenum compressing and markedly narrowing the duodenal lumen.

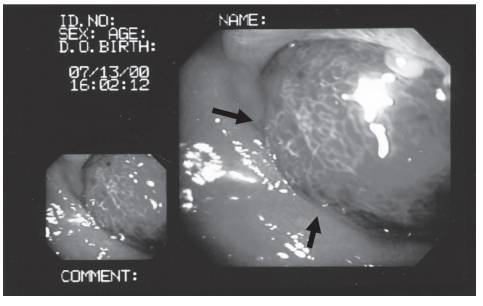


Figure 3. Panendoscopy revealed a submucosal hematoma protruding from the distal duodenum to the junction of the first and second portions of the duodenum (arrow).

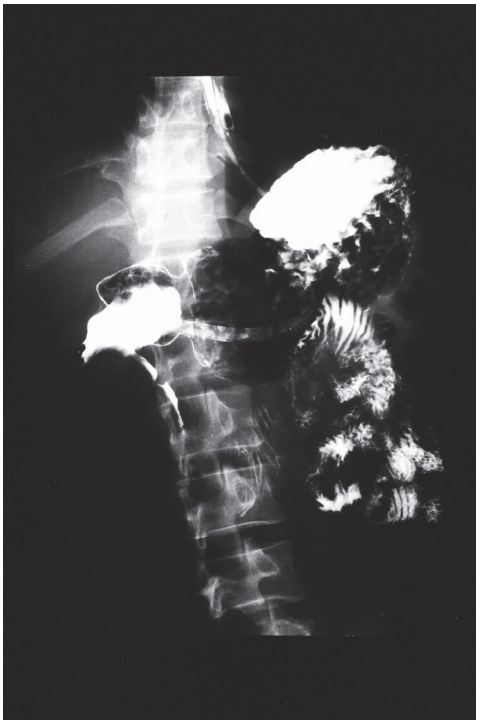

Figure 4. Upper gastrointestinal tract contrast radiography and small bowel series showed a large obstructive lesion involving the second and proximal third portions of the duodenum, with marked narrowing of the duodenal lumen.

and third portions of the duodenum, with compression, and was evacuated. He gradually recovered and was discharged two weeks after operation. After discharge, he received PPI therapy at our OPD for 3 months.

## DISCUSSION

Almost 80% of patients with duodenal intramural hematoma have a history of blunt abdominal injury. Spontaneous hematoma may be associated with factors such as alcoholism, pancreatitis, tumor, anticoagulant therapy or coagulopathy, and duodenal ulcer[2]. Recently, several cases of non-traumatic iatrogenic duodenal intramural hematoma as a complication of duodenal biopsy or endoscopic treatment of bleeding ulcer have been reported [3-7]. Such cases are rare, which can result in delayed diagnosis or inappropriate treatment.

The duodenum is among the bowel segments most commonly injured by blunt force trauma. Duodenal hematoma and perforation are more frequent in the second and third segments owing to their relative fixed position and rich submucosal vascular supply[8]. Shearing forces tear the intramural vasculature and cause blood to accumulate, producing a submucosal mass effect. A hematoma may increase in size over time due to continuous bleeding or breakdown of hemoglobin causing a sort of edema[9]. Obstruction of the duodenal lumen is not uncommon in duodenal hematoma. The hematoma may rupture into the peritoneum or retroperitoneum but usually does not rupture into the duodenal lumen because the submucosal layer remains intact[9].

The diagnosis of duodenal intramural hematoma is difficult to confirm due to the lack of pathognomonic clinical features. Symptoms may include severe nausea/vomiting and epigastric or abdominal pain. Laboratory data are also non-specific. However, high serum amylase, lipase and total bilirubin may be present due to compression of the ampulla of Vater and secondary pancreatic duct obstruction[10]. A diagnosis of acute pancreatitis or obstructive jaundice may be made initially, as in our case. Patients with a duodenal hematoma usually present with insidious onset of obstruction at least 48h after injury[11]. The obstructive symptoms are the result of a gradual fluid shift into the hypotonic intramural hematoma, causing duodenal compression[11]. The hematoma usually resolves in 1-3 weeks with conservative therapy, including nasogastric drainage, adequate parenteral nutrition, and careful observation[12], as in this case initially. Follow-up of the obstruction can be performed with plain radiography of the abdomen or sonography of the hematoma[8]. Surgery should be reserved for those cases in which conservative therapy fails due to persistent obstruction longer than 7-10 days, associated complications or intractable symptoms[11], as in our case. Most authors have suggested that obstructive jaundice or acute pancreatitis caused by compression of the bile duct or pancreatic duct by a large duodenal hematoma necessitates drainage. Open laparotomy with drainage may be

done as in our case. Ultrasonically guided drainage and laparoscopy drainage have also been used with good results[12,13].

In conclusion, a diagnosis of iatrogenic duodenal intramural hematoma should be considered in a patient presenting with severe nausea/vomiting or epigastric tenderness after diagnostic or therapeutic endoscopy, especially if there is jaundice or elevated serum amylase/lipase. It is important to distinguish duodenal intramural hematoma from perforation, as in the former case conservative treatment based on total parenteral nutrition and nasogastric suction is a reasonable approach. Panendoscopy or upper gastrointestinal tract X-ray study may be able to establish the diagnosis, but sonography and abdominal CT are the imaging modalities of choice because they can exclude the possibility of accompanying lesions and can be used to monitor resolution of the lesion with nonsurgical therapy. Although duodenal intramural hematoma can usually be treated conservatively, patients with complications of obstructive jaundice or pancreatitis require drainage, by open laparotomy or laparoscopy or that is ultrasonically guided[12].

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# 以急性胰臟炎表現的醫源性十二指腸壁層內血腫

黃俊彥[1]　許維邦[2]　許人文[3]　周思源[4]

十二指腸壁層內血腫是一種少見的疾病，而在這些發生的病例之中，醫源性十二指腸壁層內血腫被認為是最罕見的。在此我們報告一個以急性胰臟炎表現的醫源性十二指腸壁層內血腫的病例。這是一位二十八歲的男性，他在因為急性十二指腸潰瘍合併出血並接受治療性內視鏡後出現嚴重的噁心及嘔吐。生化學檢查發現血中血清澱粉脢、脂肪脢及總膽紅素上升，他被初步診斷為急性胰臟炎並接受治療。電腦斷層掃瞄發現一個腫瘤位於十二指腸的第二部分及第三部分並壓迫到管腔。我們替病人再重做一次胃鏡，結果發現有一壁層內血腫由十二指腸的遠端凸出到十二指腸的球部及第一部分的交界處。病人接受了手術將該腫塊完全吸除掉。病人在手術後迅速的康復。當碰到一位在接受診斷或治療性內視鏡後發生嚴重噁心、嘔吐或胃痛時，特別是在伴隨有血清澱粉酶、脂肪酶上升或黃疸時，應該考慮十二指腸壁層內血腫發生的可能性。

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