An extremely rare cause of acute abdomen

Serkan Karaisli, Ahmet Er, Atilla Örsel, Erdinç Kamer

Department of General Surgery, İzmir Katip Çelebi University, Atatürk Training and Research Hospital, İzmir, Turkey

Cite this article as: Karaisli S, Er A, Örsel A, Kamer E. An extremely rare cause of acute abdomen. Turk J Gastroenterol 2017; 28: 311-3.

Question:

A 70-year-old male with a history of hypertension, congestive heart failure (CHF), tricuspid regurgitation, and atrial fibrillation (AF) presented to the emergency room with abdominal pain, nausea, and vomiting for a day. There was no history of trauma or an abdominal operation. His physical examination revealed epigastric tenderness and rebound. His white blood cell count was 13670 µL, C-reactive protein level was 6.54 mg/dL, and international normalized ratio (INR) was 9.42 (reference range: 0.8-1.2) as he was using warfarin (coumadin). Other laboratory parameters were normal. Abdominal X-ray and ultrasound findings were insignificant. Contrast-enhanced abdominal computed tomography (CT) revealed wall thickening in the duodenum and proximal jejunal intussusception (JI) (Figure 1). The patient was hospitalized, and intravenous hydration and broad-spectrum antibiotics were performed. Fitomenadion (konakion) and fresh frozen plasma were intravenously used to normalize the INR. After the INR decreased to 1.38, the patient was taken to an operating room.

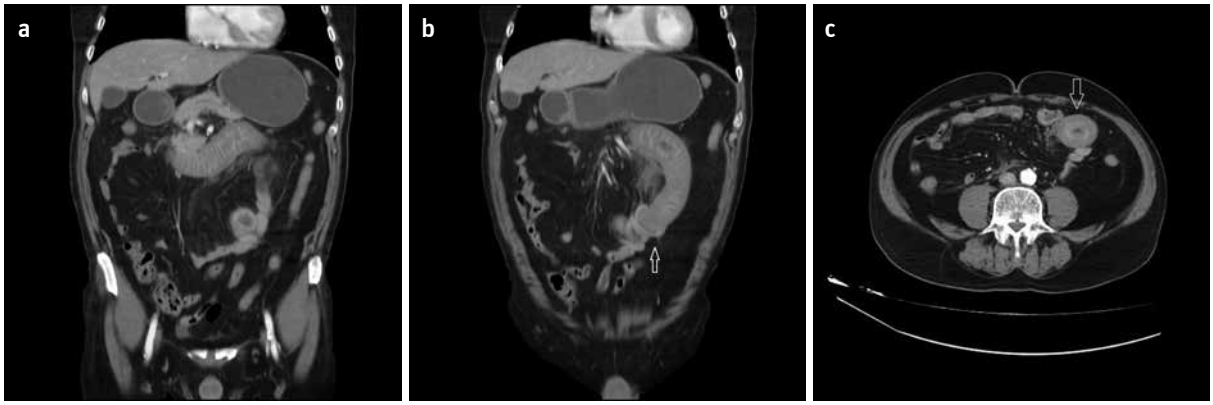

Figure 1. a-c. (a) Dilated stomach and wall thickening in the duodenum, (b) intussusception site in the proximal jejunum (arrow), (c) typical "target sign" feature of intussusception (arrow)

This study was presented at the 10th National Congress of Trauma and Emergency Surgery, 28 October-1 November 2015, Antalya, Turkey.

Address for Correspondence: Serkan Karaisli E-mail: skaraisli@hotmail.com

Received: February 6, 2017 **Accepted:** May 1, 2017 **Available Online Date:** June 30, 2017

Answer: Total duodenal necrosis

During his intra-operative examination, the jejunum was normal, while the duodenum starting from the pyloroduodenal opening was necrotic (Figure 2). The ascending colon was mobilized, and necrosis in the entire anterior portion of the duodenum was observed. The posterior portion of the duodenum was observed to be necrotic when the Kocher maneuver was performed (Figure 3). The margin of necrosis was not clear between the duodenum and the head of the pancreas. This is the reason why the Whipple procedure was performed. The layers of the abdominal wall were completely closed.

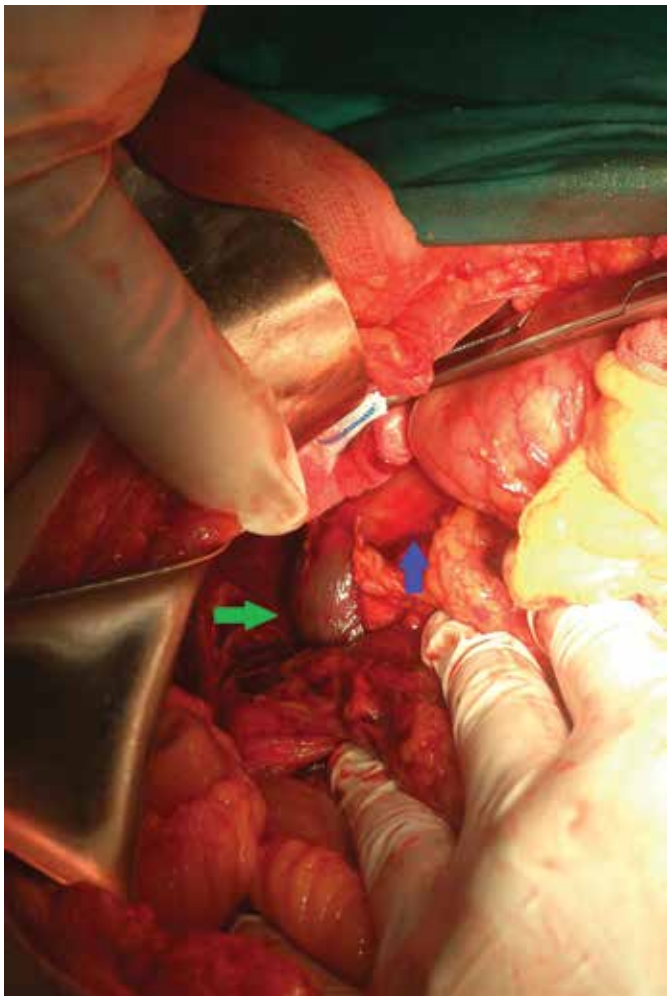

Figure 2. Gastroduodenal junction. Blue arrow: Normal stomach, Green arrow: Necrotic first part of the duodenum

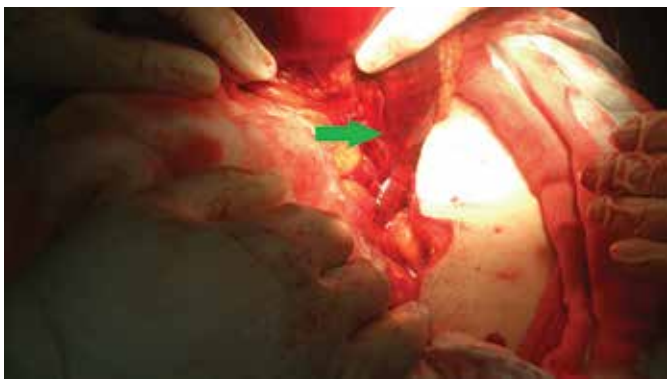

Figure 3. Posterior part of the duodenum. Green arrow: Necrotic posterior part of the duodenum

Postoperatively, broad-spectrum antibiotics were used. On postoperative day 6, the patient was re-operated due to a massive hemorrhage. There was approximately 1500 cc of hematoma in the abdominal cavity. Multiple hemorrhagic foci in the omentum were observed and ligated. All anastomoses in the first operation were uneventful. The patient died on postoperative day 8 due to a cerebral embolism secondary to AF. A pathologic examination revealed mucosal ulceration and a submucosal hematoma in the duodenum.

Duodenal necrosis (DN) is a rarely seen and an extremely challenging situation for surgeons. Diagnosis and treatment of DN are difficult, and complications of DN is associated with anapproximately 40% mortality rate (1). Necrotizing pancreatitis, trauma, ingested corrosive solutions, vasculitis, and high jejunal loop obstruction have been described as the most common causes of DN (1-3). In the presented patient, there was no history of trauma, vasculitis, or ingestion of corrosive solutions; his amylase and lipase levels were insignificant. Findings of preoperative CT scan were suspicious for a JI but the jejunum was normal during his intraoperative examination. JI might have caused distention in the duodenal lumen, and consequently the duodenal mucosa was exposed to luminal overpressure due to distal intestinal obstruction and finally became ischemic. We believed that JI spontaneously resolved because it was not detected during the operation. Our patient had severe CHF with an ejection fraction (EF) of 20% (reference range: 55%-0%), and we believe that the low EF could not provide sufficient blood to the duodenum in spite of the spontaneous resolution of JI. Jabłoński et al. (3) performed gastroduodenoscopy and suggested decompression by a nasogastric tube after making a diagnosis; however, because of the high INR during diagnosis, we could not perform any invasive procedure for 7 hours.

The Whipple procedure and periampullary duodenojejunostomy with gastrojejunostomy have been described for DN (2,3). We performed the Whipple procedure due to total DN.

Total DN is an extremely rare and challenging situation in comparison with partial DN. Making a prompt diagnosis is necessary to prevent mortality and morbidity. A high INR and low EF worsen the clinical course. Laparotomy should be planned in the presence of peritoneal irritation signs and when partial or total DN is suspected.

Ethics Committee Approval: N/A.

Informed Consent: Written informed consent was obtained from the relatives of the patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author contributions: Concept - S.K., E.K.; Design - S.K., A.E.; Supervision - A.Ö., E.K.; Resource - S.K., A.Ö.; Materials - S.K., E.K.; Data Collection and/or Processing - S.K., A.E.; Analysis and/or Interpretation - A.Ö., E.K.; Literature Search - A.E., E.K.; Writing - S.K., E.K.; Critical Reviews - A.E., E.K.

Acknowledgements: We thank all General Surgery Department staff for their cooperation and Dr. Mustafa Peskersoy for his help on preparing this study.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Sakorafas GH, Tsiotos GG, Sarr MG. Experience with duodenal necrosis: A rare complication of acute necrotizing pancreatitis. Int J Pancreatol 1999; 25: 139-42. **[CrossRef]**
2. Arcerito M, Margulies DR, Frykman PK. Duodenal necrosis secondary to a closed-loop bowel obstruction with novel reconstruction. J Pediatr Surg 2012; 47: 394-6. **[CrossRef]**
3. Jabłoński S, Kustalik S, Klejszmit P, Misiak P. Total duodenal necrosis with retroperitoneal perforation in an adolescent with jejunal intussusceptions. J Dig Dis 2016; 17: 483-5. **[CrossRef]**