

Intramucosal Esophageal Perforation with Nasogastric Tube



Mark J. Coronel

Kostas Sideridis

Simmy Bank

INTRODUCTION

An 84 year-old woman with a past medical history significant for diverticular bleeding requiring transfusion, colorectal cancer status post left hemicolectomy, abdominal aortic aneurysm repair seven years previous, bladder cancer with a partial bladder resection, hypertension, coronary artery disease and osteoporosis, presented to the emergency room with three episodes of hematochezia and lightheadness. Colonoscopy four months prior to admission showed scattered benign polyps and multiple diverticuli with no signs of malignancy.

Medications on admission included Felodipine, Alendronate once weekly, Isosorbide as needed, and Plendil. Social history was unremarkable for any history of alcohol abuse or tobacco use.

Mark J Coronel, M.D., Internal Medicine Resident, and Kostas Sideridis, D.O., Senior GI Fellow, Long Island Jewish Medical Center, Department of Medicine, New Hyde Park NY. Simmy Bank, M.D., FACG, FRCP, Chief Division of Gastroenterology, Professor of Medicine, Albert Einstein College of Medicine, Long Island Jewish Medical Center, Department of Medicine, Division of Gastroenterology, New Hyde Park NY.

On presentation to the emergency department, vital signs, temperature, and examination were unremarkable except for bright red blood on rectal examination. Initial laboratory data were the following: Hemoglobin 10.7 g/dL (12–16 g/dL); Hematocrit 31.7% (36%–46%); Platelets $185 \times 10^9/L$ (140–440 $10^9/L$); Prothrombin time 12 sec (10.6–13.0 sec), INR 1.0(.9–1.1), aPTT 26 sec (20.0–34.0 sec).

After initial management with IV fluids, the patient had several episodes of rectal bleeding accompanied by hypotension and worsening anemia, for which she received seven units of packed RBCs. Subsequently, the patient underwent an angiogram which was negative. Since the patient had previous AAA repair and the angiogram was not definitive, she underwent an enteroscopy to exclude an aorto-enteric fistula. A pediatric colonoscope was advanced to the mid-jejunum and demonstrated a normal appearing esophagus, stomach, and small bowel with clear bile and no evidence of any blood or fistula. Colonoscopy was then performed which showed pandiverticulosis with fresh blood and clots and green bile in the terminal ileum. The patient continued to have hematochezia and her Hemoglobin fell below 8 g/dL (12–16 g/dL).

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Intramucosal Esophageal Perforation

A CASE TO REMEMBER

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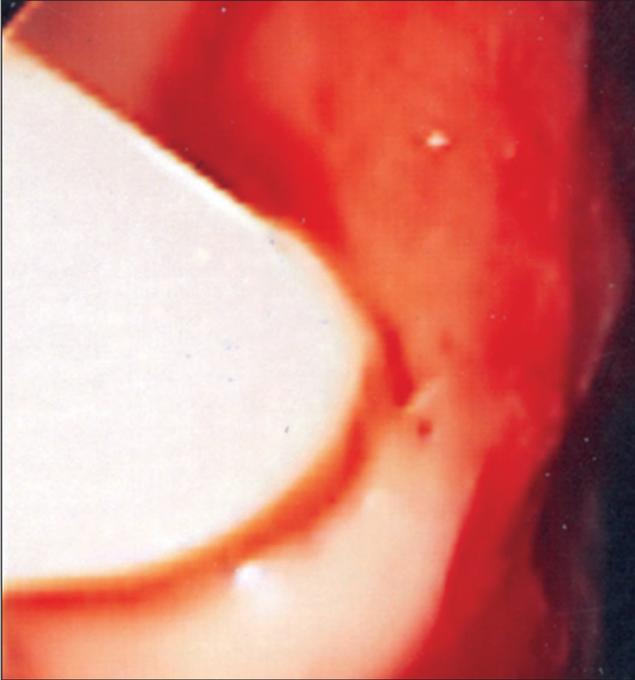


Figure 1A. Nasogastric tube perforating esophageal wall at level of gastroesophageal junction.

She then received another five units of packed RBCs (total 12 units). Because the source of the bleeding was most likely diverticular in origin, an emergency subtotal colectomy with end ileostomy was performed. Approximately twelve hours after surgery, the patient

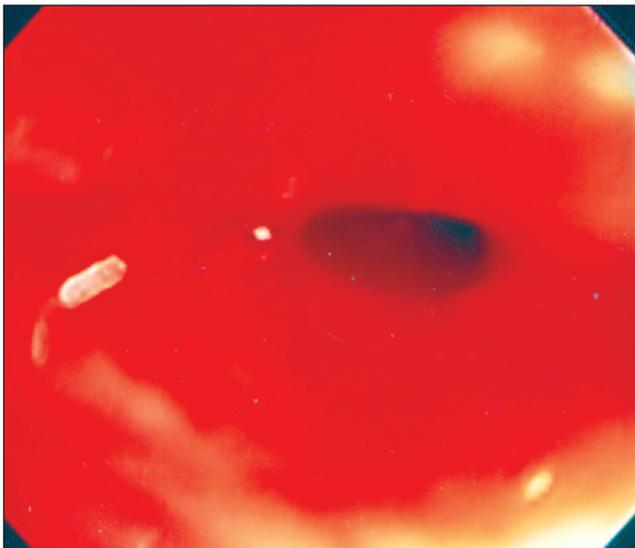


Figure 2. Opening to false tract.

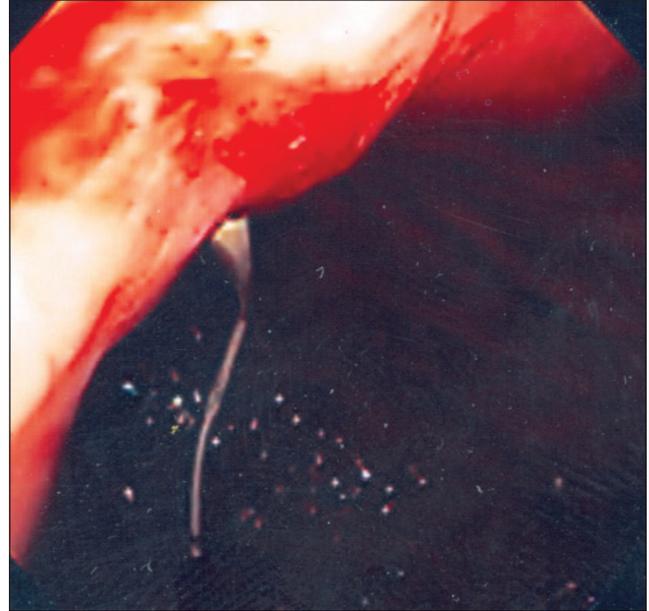


Figure 1B. Nasogastric tube entering stomach through false tract.

was noticed to have bright red blood draining from the nasogastric tube which was placed after surgery. She required another two units of packed RBCs.

Emergent upper endoscopy was performed to identify the source of the upper GI bleed. Under endoscopic visualization, a 14 Fr nasogastric tube was observed to be entering a false tract in the esophageal mucosa at the level of the gastroesophageal junction and then exiting into the stomach (Figure 1A and 1B). The nasogastric tube was removed (Figure 2). A gastrograffin study was obtained which demonstrated no extravasation of contrast into the mediastinum (Figure 3). A CT scan of the chest with oral contrast was obtained for follow-up and showed no evidence of any pneumomediastinum, mediastinitis, or extravasation of contrast (Figure 4). The patient recovered uneventfully over the next week with supportive care and was discharged home.

DISCUSSION

Gastrointestinal intubation with a nasogastric tube has become a common procedure which is routinely used for decompression, alimentation, and the performance of gastro-duodenal secretory tests. Perforation of the hypopharynx, esophagus, and stomach are known com-

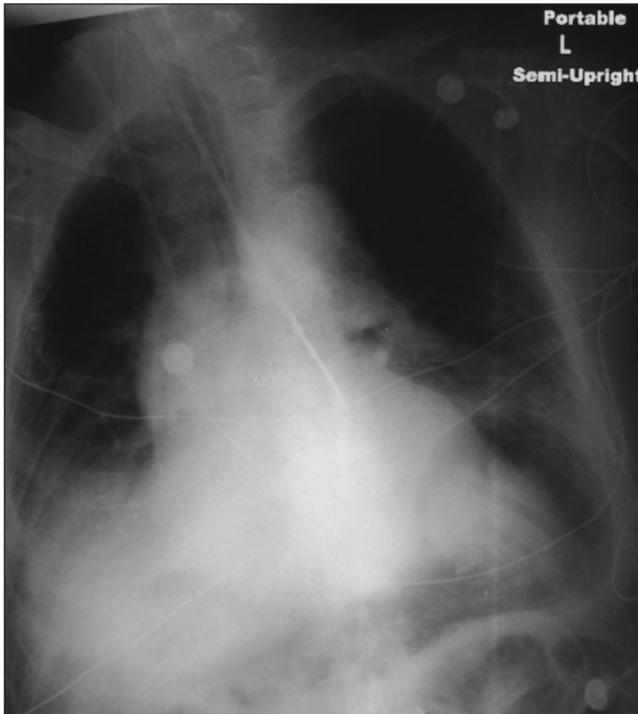


Figure 3. Chest X-ray after infusion of gastrograffin into nasogastric tube demonstrating no contrast extravasation.

plications of this procedure and represent one of the most serious forms of injury. In one study, while autopsy examination of the esophagus demonstrated inflammation, ulceration, or hemorrhage in about 60% of gastrointestinal intubations, only 1%–2% had iatrogenic injuries recognized clinically (1). Other studies have confirmed that flexible tubes may predispose the development of peptic esophagitis or stricture formation (2,3).

There have been very few reported cases of iatrogenic esophageal perforation by a flexible nasogastric tube (4–6). In the past, perforations have occurred using rigid, frozen tubes to ease insertion in uncooperative patients (7). In such cases, the diagnosis of iatrogenic perforation was based on recent instrumentation, pain in the neck or chest, signs of sepsis, leak seen in contrast studies and retropharyngeal or mediastinal air or fluid collection on CT scanning. Small perforations are usually treated with antibiotics and NPO while larger perforations require surgical management.

In this report, we describe a case of an acute upper GI bleed secondary to nasogastric tube placement in a patient who had a normal EGD twelve hours prior. While



Figure 4. CT image with oral contrast showing no pneumomediastinum, mediastinitis, or extravasation of contrast.

there have been reported cases of the development of an iatrogenic sinus tract representing a local perforation contained within the gastrocolic ligament or anterior wall of the lesser sac (8), there have been no reported cases of the development of an intramucosal sinus tract in the esophagus secondary to gastrointestinal intubation. This case highlights the need for proper attention to the procedural details of nasogastric tube placement in order to reduce the risk of iatrogenic injury. ■

References

1. Wolff AP, Kessler S. Iatrogenic injury to the hypopharynx and cervical esophagus: an autopsy study. *Ann Otolaryngology*, 1973; 82:778-783.
2. Banfield WJ, Hurwitz AL. Esophageal stricture associated with nasogastric intubation. *Arch Internal Medicine*, 1974; 134:1083-1086.
3. Nagler R, Spiro HM. Persistent gastroesophageal reflux induced during prolonged gastric intubation. *NEJM*, 1963; 269:495-500.
4. Ghahremani GG, Turner MA, Port RB. Iatrogenic intubation injuries of the upper gastrointestinal tract. *Gastrointestinal Radiology*, 1980; 5:1-10.
5. Gruen R, Cade R, Velar D. Perforation during nasogastric and orogastric tube insertion. *Austral N Zeal J Surg*, 1998; 68(11): 809-811.
6. Jackson RH, Payne DK, Bacon BR. Esophageal perforation due to nasogastric intubation. *Am J Gastroenterol*, 1990;85:439-442.
7. Hafner CD, Wylie JH, Brush BE. Complications of Gastrointestinal intubation. *Arch Surg*, 1961; 83:147-160.
8. Ghahremani GG, Turner MA, Port RB. Iatrogenic intubation injuries of the upper gastrointestinal tract. *Gastrointestinal Radiology*, 1980; 5:1-10.