

Successful colonoscopic removal of a foreign body that caused sigmoid colon perforation: a case report

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Zhenhua Ma, Wujie Chen, Ye Yang,
Zhenjie Xu, Haitao Jiang, Yang Zhang and
Dongdong Lu

Abstract

Large bowel perforation is an acute abdominal emergency requiring rapid diagnosis for proper treatment. The high mortality rate associated with large bowel perforation underlines the importance of an accurate and timely diagnosis. Computed tomography is useful for diagnosis of ingested foreign bodies, and endoscopic repair using clips can be an effective treatment of colon perforations. We herein describe a 78-year-old man with sigmoid colon perforation caused by accidental swallowing of a jujube pit. The jujube pit had become stuck in the wall of the sigmoid colon and was successfully removed by colonoscopy, avoiding an aggressive surgery. As a result of developments in endoscopic techniques, endoscopic closure has become a feasible option for the management of intestinal perforation.

Keywords

Perforation, foreign body, jujube, colonoscopy, computed tomography, endoscopic repair

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Introduction

The overall mortality rate from large bowel perforation reportedly ranges from 16.9% to 19.6%, emphasizing the importance of an accurate and timely diagnosis.^{1,2} Computed tomography is considered the method of choice for identifying ingested foreign bodies and their complications because of its high-quality multiplanar

HwaMei Hospital, University of Chinese Academy of Sciences; Ningbo Institute of Life and Health Industry, University of Chinese Academy of Sciences; Key Laboratory of Diagnosis and Treatment of Digestive System Tumors of Zhejiang Province; Ningbo Clinical Research Center for Digestive System Tumors, Ningbo, Zhejiang, P. R. China

Corresponding author:

Ye Yang, Department of Gastroenterology, HwaMei Hospital, University of Chinese Academy of Sciences, No. 41 Xibei Street, Ningbo, Zhejiang 315000, P. R. China.
Email: 625399581@qq.com



capabilities and high resolution.³ Endoscopic repair using clips can be effective for the treatment of colon perforations that occur during diagnostic colonoscopy.⁴ Most foreign bodies can pass through the gastrointestinal tract without any complications, but a small proportion can cause complications involving perforation, obstruction, and fistula formation, which may be fatal.^{5,6} We herein present a rare case of successful diagnosis and treatment of sigmoid colon perforation due to a jujube pit.

Case presentation

A 78-year-old male farmer presented to the emergency department of our hospital with a 13-day history of umbilical abdominal pain, nausea, and vomiting. The patient had received medical treatments for presumed gastroenteritis at a local hospital. However, 1 day before presentation to our hospital, his abdominal pain had gradually increased and he had developed anal exhaust reduction and bloody stools. He had a history of chronic bronchitis but was otherwise clinically well. Physical examination revealed moderate obesity with a distended abdomen and umbilical abdominal tenderness. Fresh blood was observed on anal examination.

Laboratory examination revealed evidence of peritoneal irritation: the white blood cell count was $13.6 \times 10^9/L$ (reference range, $3.5\text{--}10.5 \times 10^9/L$), and the C-reactive protein concentration was 50.3 mg/L (reference range, $<10\text{ mg/L}$). Abdominal computed tomography (CT) showed a high-density lesion (foreign body) in the colon, evidence of abdominal infection and an incomplete jejunal obstruction (Figures 1, 2). Colonoscopy showed a circumferential ulcer in the sigmoid colon and a 3-cm jujube pit piercing the wall of the sigmoid colon (Figures 3, 4).

Using colonoscopy, we firmly grasped the sharp end of the jujube pit and covered it by a snare. We then drew it toward the



Figure 1. Computed tomography scan of the abdomen revealing a hyperdense lesion within the colon (black arrow).



Figure 2. Computed tomography scan of the abdomen revealing a high-density lesion (foreign body) in the colon, evidence of abdominal infection, and an incomplete jejunal obstruction (black arrow).

scope, with the bowel lumen maintained at the center of the visual field to avoid mucosal injury. Once the object was removed, a second-look colonoscopic examination was performed to check for complications,

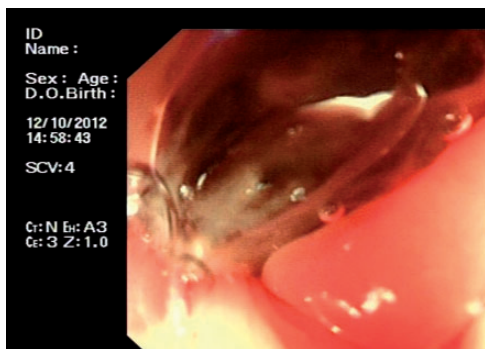


Figure 3. A jujube pit was observed piercing the wall of the sigmoid colon.

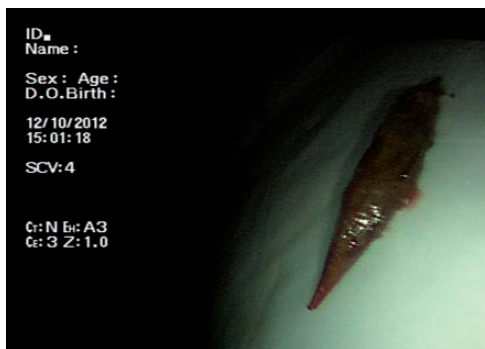


Figure 4. The 3-cm jujube pit.

thereby avoiding an aggressive surgery. The patient was treated with antibiotics for 7 days and discharged from the hospital with no early complications.

Discussion

A large bowel perforation is an abdominal emergency with multiple etiologies. Foreign body inhalation is a common cause of colonic perforation.⁷ Most foreign bodies that reach the gastrointestinal tract will pass spontaneously, although impaction may occur at areas of anatomical narrowing (upper esophageal sphincter, lower esophageal sphincter, pylorus, ileocecal valve, and anus).^{8–12} Fraga et al.¹³ analyzed the frequency of perforation according to its location in 236 patients.

The most common location was the small bowel (39.8%), followed by the duodenum (22.0%), colon (20.3%), rectum (10.6%), and sigmoid colon (5.5%).

The overall mortality rate from large bowel perforation reportedly ranges from 16.9% to 19.6%, emphasizing the importance of an accurate and timely diagnosis.^{2,7} However, localizing the perforation site can be challenging. Multidetector CT is the most reliable imaging method for the diagnosis of large bowel perforation, predicting the perforation site with an accuracy of 82% to 90%.¹⁴ In our case, CT revealed wall thickening and an abscess of the sigmoid colon, consistent with perforation of the large intestine.

Most foreign bodies will pass through the gastrointestinal tract uneventfully, but long and pointy foreign bodies such as toothpicks, fish bones, and sharp jujube pits as in the present case are more likely to require surgical or endoscopic removal. Perforation of the sigmoid colon caused by a jujube pit is rare. Surgery is usually inevitable if foreign bodies cannot be extracted endoscopically.¹⁵

Large bowel perforation is a common acute abdominal disease that requires rapid diagnosis and effective treatment. In our case, a jujube pit that had become stuck in the wall of the sigmoid colon was successfully removed by colonoscopy, thereby avoiding an aggressive surgical strategy. In the absence of peritoneal signs or clinical instability, a minimally invasive approach via colonoscopy can be a safe, efficient means of removing sharp objects, reducing the risk of distal perforation and the need for surgery.¹⁶ As a result of developments in endoscopic techniques, endoscopic closure has become a feasible option for the management of perforation.

Ethics

This study was approved by the hospital ethics committee of HwaMei Hospital, University of

Chinese Academy of Sciences. The patient provided written informed consent.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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