

# Surgical management of gastrointestinal perforation by ingested chicken bone: A case report

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## Abstract

Gastrointestinal perforation resulting from eating is rare. In the current report a case of a 60-year-old male with gastrointestinal perforation caused by eating chicken bone without the patient aware of its accidental ingestion is presented. At first the case history the patient provided was not eating chicken bone before abdominal pain. Laboratory examinations, the plain abdominal X-ray and the abdominal ultrasonography were unremarkable. The upper abdominal pain was alleviated but not completely disappeared after medical treatment. Five days later, the abdominal pain was increased. Enhanced computed tomography scanning of the upper abdomen and gastric endoscopy revealed a needle-shaped foreign body at the stomach cavity and stomach antrum. The patient subsequently underwent open surgery. In operation we found greater omentum was edema and adhered to gastric antrum, pus in the abdominal cavity, and a needle-shaped bone pierced from stomach. The patient recovered well and was discharged on postoperative day 7 without any complications. The present study discusses the clinical features and surgical treatment of this kind of case.

## Introduction

Gastrointestinal perforation is a common surgical emergency, but accidental and unnoticed foreign body ingestion is not very uncommon. Most of ingested foreign bodies pass uneventfully through the gastrointestinal tract. Perforation of the gastrointestinal occurs in less than 1% of ingestion of a foreign body [1]. Case of the gastrointestinal perforation caused by eating is rare. It is very difficult for diagnosis sometimes. Here we report a rare case of gastrointestinal perforation caused by eating.

In September 2017, a 60-year-old male was referred to the local hospital complaining of upper abdominal pain without nausea or vomiting. Physical examination revealed that the abdomen was flat, abdominal muscle was a little tension in upper abdominal, abdominal tenderness was positive in upper abdominal, rebound tenderness was negative in upper abdominal, and bowel sounds was four times every minute. Laboratory examination revealed that a white blood cell count were  $9.08 \times 10^9/L$  (normal range,  $3.5-9.5 \times 10^9/L$ ), the neutrophil percentage was 77% (normal range, 40-75%), the hemoglobin (Hgb) levels were 146 g/L (normal range, 130-175 g/L), and the platelet (PLT) count was  $321 \times 10^9/L$  (normal range,  $125-350 \times 10^9/L$ ). The plain abdominal X-ray and the abdominal ultrasonography were both unremarkable. After medical treatment the upper abdominal pain was alleviated but not completely disappeared. Due to the increased abdominal pain after lunch 5 days later, the patient was referred to Shenzhen Luohu People's Hospital (Shenzhen, China) at 14:50 for treatment. The admission charge was T=38.5°C, HR=91, BP=134/78 mmHg, RR=24. Physical examination revealed that the abdomen was flat, abdominal muscle was tension in upper abdominal, abdominal tenderness was positive in whole abdominal, rebound tenderness was positive in upper abdominal, the hepatic dullness was in the sixth intercostal space of right lock midline, and bowel sounds was none. Laboratory examination revealed that a white blood cell count were  $15.2 \times 10^9/L$  (normal range,  $3.5-9.5 \times 10^9/L$ ), the neutrophil percentage was 81% (normal range, 40-75%), the hemoglobin (Hgb) levels were

141 g/L (normal range, 130-175 g/L), the hematokrit (Hct) was 42% (normal range, 40-50%), and the platelet (PLT) count was  $316 \times 10^9/L$  (normal range,  $125-350 \times 10^9/L$ ). The plain abdominal X-ray and the abdominal ultrasonography were both unremarkable. Enhanced computed tomography scanning of the upper abdomen revealed a needle-shaped dense shadow at the stomach cavity and stomach antrum, local gas shadow and fluid at local. The results suggested gastric perforation caused by a foreign body. To inquest the case history the patient admitted eating chicken before abdominal pain five days ago. A gastric endoscopy was subsequently performed and revealed a foreign body in the stomach antrum.

Emergency exploratory laparotomy was performed under general anesthesia. The right upper quadrant abdominal rectus incision was taken and we saw greater omentum was edema and adhered to gastric antrum. There was approximately 100 ml pus in the abdominal cavity, mainly in the liver and kidney crypts. We isolated omental adhesions and saw there was a needle-shaped bone with long about 3 cm and diameter about 0.2 cm pierced from stomach and a small amount of purulent exudate locally. The liver, duodenum and biliary tree were undamaged. The bone was extracted from the gastric antrum through perforation. Therefore perforation was closed in a single-layer suture interrupted using 4/0 silk, the mucosal layer was interrupted reinforced with 4/0 silk, and covered with an omental patch for safety. Peritoneal lavage was performed by warm saline and two drainage pipes were placed in the liver and kidney crypts, and pelvic cavity respectively. The patient received antibiotic, nutritional support and symptomatic

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treatments. Drains were removed on the fourth postoperative day. The patient resumed oral intake on the fourth postoperative day, and discharged on postoperative day 7 without any complications.

## Discussion

Cases of gastrointestinal perforation due to sharp foreign body were often reported. The most commonly ingested foreign bodies are fishbone and crushed chicken and duck bones [2]. This case is rare as the chicken bone with long about 3 cm and diameter about 0.2 cm was not very thick. As the chicken bone was not thick and not falling off, the peritonitis of the patient was not very serious in short term, and clinical symptoms, plain abdominal X-ray and the abdominal ultrasonography were all unremarkable. Therefore it is difficulty for doctor to diagnosis at first in the case. Compared with open operation treatments, laparoscopic removed of a foreign body is less invasive and is associated with minimal postoperative pain, faster return to normal activation, and better cosmetic outcome [3]. Since the patient was on day 5 after onset of illness, local peritonitis was serious, partial gas and liquid shadow was showed on CT, and whether other organs damaged were not confirmed, we thought open surgery was safer rather than remove the foreign body by gastroscopy or laparoscopic operation.

Presentations of gastrointestinal perforation were rare, depending on the site of perforation and the extent and duration of peritonitis [4]. It is difficulty for early diagnosis as symptoms, physical examinations and auxiliary examinations did not support gastric perforation. Gastrointestinal perforation can cause peritonitis, abscess formation, inflammatory mass formation, obstruction, fistulae, and hemorrhage [5]. Although the routine examinations found no obvious abnormalities, we should inquest the case history and do physical exam carefully, increase the necessary checks for patients with clear signs of peritonitis to prevent delaying in diagnosis and treatment.

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