Ileal Perforation with Peritonitis Caused by a Fish Bone:
Report of a Case

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Small bowel perforation by a fish bone is unusual, and the preoperative diagnosis is difficult. We report a 91-year-old man who had a sudden onset of upper abdominal pain with muscle guarding after a meal. Computed tomography of the abdomen revealed a thickened ileum, and with suspicion of a metal foreign body in the intestine, together with multiple gallbladder stones and cholecystitis. Also, intestinal perforation and pneumoperitoneum could not be ruled out. He had immediate surgical intervention and an ileal perforation caused by a fish bone with turbid ascites was diagnosed. A partial resection of the small intestine and cholecystectomy were performed. The patient's hospital course was smooth and he was discharged home in good condition. An accurate diagnosis and emergency surgical intervention may have aided in the good results in this case.

Key words: intestinal perforation, fish bone, diagnosis

Introduction

Small bowel perforation induced by a fish bone is rare. In the literature, small bowel perforation with peritonitis is common. It can be caused by gallstone ileus, diverticulitis or metastatic lesions from lung adenocarcinoma(1-3). But it is seldom caused by a fish bone(4). It is difficult to diagnose before surgical intervention(5,6). Elevation of the white blood cell (WBC) count shows an inflammatory process, and abdominal computed tomography (CT) provides evidence of hollow organ perforation. However, they can not diagnose fish bone penetration preoperatively. Herein, we report a case of pneumoperitoneum with peritonitis, which was correctly diagnosed preoperatively in the emergency department (ED) as small bowel perforation caused by a fish bone.

Case Report

A 91-year-old man complained of abdominal pain after a meal. He was sent to the ED for suspected acute abdomen. He appeared acutely ill but had no vomiting, shortness of breath or fever. On arrival in the ED, he was alert and oriented, and his blood pressure was 154/86mmHg, heart rate 84beats/min, respiratory rate 20breaths/min, and body temperature 36.5℃. He had a history of hypertension, gastric ulcer and bladder cancer. The initial physical examination revealed normal breath sounds and a regular heart beat without murmur, together with a soft, tender upper abdomen. However, he had persistent tenderness...
over the epigastric site of the abdomen, without muscle guarding. Chest radiography revealed minimal fibrotic infiltrates in the upper right lung, plate atelectasis in the lower right lung, and a tortuous elongated thoracic aorta with cardiomegaly, and emphysematous changes in the lungs due to chronic obstructive pulmonary disease (COPD). Radiography of kidney-ureter-bladder revealed degenerative disc disease of the lumbar spine and multiple calcified gallbladder stones. A serum laboratory examination showed WBC count 8,700/μL, neutrophils 69.2%, lymphocytes 20.8%, hemoglobin 13.1g/dL, and platelet count 181,000/μL. Serum biochemistry tests revealed glucose (random) 131mg/dL, ALT 19U/L, creatinine 1.0mg/dL, and Na⁺/K⁺ 130/3.8mEq/L. After primary medical treatment in the ED, his epigastric pain improved gradually. Because of his age and persistent general weakness, he was admitted to the observation unit of the ED for further observation and care.

The epigastric pain reappeared together with fever and palpitation in the observation unit. Physical examination revealed epigastric tenderness with muscle guarding and tachycardia. Abdominal CT revealed a thickened ileum with suspicion of a metal foreign body in the intestine, with multiple gallbladder stones and cholecystitis (Fig. 1). Intestinal perforation could not be ruled out. Repeated serum laboratory tests showed WBC count 11,200/μL, neutrophils 89.0%, and lymphocytes 7.0%. The patient reported that he had eaten fish the previous day. Under the impression of intestinal perforation by a fish bone and cholecystitis, he underwent emergency surgical intervention. A partial small bowel resection and anastomosis, and a cholecystectomy were performed. An ileum perforation caused by a fish bone with turbid ascites was confirmed (Fig. 2). The pathology of the resected portion of the ileum revealed intestinal perforation with peritonitis. The postoperative course was uneventful and the patient was discharged home well eleven days later.
Discussion

Clinically, hollow organ perforation is not uncommon. Spontaneous rupture of the intestinal wall can occur at weak points, and penetration of the intestinal wall by a foreign body has been reported. However, ileal rupture caused by penetration by a fish bone is seldom reported. A fish bone can be swallowed accidentally during a meal. This is a natural ingestion process. Usually, it causes no problem because the gastrointestinal tract lumen is smooth, wet, hollow and elastic. During food passage, its size and direction are modified mechanically and chemically, and the size is adjusted passively. However, if a long, hard and pointed foreign body passes through the tract, these modulations do not occur, which can result in perforation. The sites of perforation by fish bones vary, and can be in the stomach, small bowel or large bowel. One retrospective study reported that the most common site of intestinal perforation by foreign bodies is the distal ileum. Usually, physical findings and radiography are unreliable in the diagnosis. Clinicians are usually alerted to the disease when peritoneal or infection signs appear. Sometimes, it is misdiagnosed as acute appendicitis, diverticulitis, or abdominal aortic dissection. Abdominal CT examination may provide preoperative diagnosis of a foreign body, but more often, it is confirmed after diagnostic laparoscopy. Surgical intervention with resection of the partial bowel is indicated. If emergency physicians can diagnose this condition early, patients usually heal uneventfully. But once patients are misdiagnosed or there is a delay in diagnosis, complications such as intraabdominal abscess, or hepatic abscess can result.

The history and symptoms/signs in our patients were unremarkable. Only abdominal pain with muscle guarding over the epigastric site was found. However, abdominal CT findings showed a small bowel perforation caused by a foreign body (suspected fish bone). The early preoperative diagnosis led to early surgery. After performing a partial resection of the small bowel, the patient healed without other complications. Therefore, in the ED, patients with abdominal pain of unknown cause with sudden onset of muscle guarding should be questioned in detail about their recent food intake. This is especially important in elderly patients, as incomplete mastication with intake of a pointed hard foreign body may result in perforation of the bowel.

Fig. 2  A pointed fish bone (black arrow) penetrating the wall of the ileum
References

因魚刺穿刺所致之迴腸穿孔與腹膜炎：一病例報告

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因魚刺穿刺所致之小腸穿孔並不常見，但要在手術之前診斷出來則更加困難。本文報告一位91歲男性病患於前一天晚餐之後感到上腹疼痛以及腹部肌肉纖硬。經由電腦斷層檢查發現其迴腸壁增厚且有金屬異物置入，同時，由於無法排除小腸穿孔與腹膜積氣，因而進行緊急外科手術。手術發現迴腸因魚刺穿穿破裂並伴有混濁之腹水，部分迴腸也因此切除。此病患最後順利出院且住院過程十分平順。我們因而認為正確診斷與立即外科手術介入是達到良好預後最重要的因素。

關鍵詞：迴腸穿孔，魚刺，診斷