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Case Report

Fish Bone Penetration of the Duodenum Extending into the Pancreas: Report of a Case

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Abstract
We report a case of fish bone penetration of the duodenum extending into the pancreatic head, which was successfully treated by surgery. A 73-year-old woman was admitted with upper abdominal dull pain that had persisted for 3 days. Computed tomography showed a linear calcified body, which appeared to penetrate the posterior wall of the duodenal bulb into the pancreatic head. A laparotomy was performed based on the preoperative diagnosis of localized peritonitis caused by penetration of the duodenum into the pancreas by an ingested foreign body. The foreign body was safely removed from both the pancreas and duodenum and was found to be a fish bone, measuring 4 cm in length. Neither an abscess nor hematoma was detected at the site of the pancreatic head. The postoperative course was uneventful. This case demonstrates an unusual presentation of fish bone penetration of the duodenum with a migration to the pancreas.

Key words Fish bone · Foreign body penetration · Duodenum · Pancreas

Introduction

The perforation or penetration of the gastrointestinal tract by an ingested foreign body such as a fish bone occurs occasionally.[1,2] However, fish bone penetration of the duodenum extending into the pancreas is extremely rare. We report herein a case of fish bone penetration of the duodenum with migration to the pancreatic head that was successfully treated by surgery.

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Case Report

A 73-year-old woman was admitted to our hospital with upper abdominal dull pain that had persisted for 3 days. She had undergone a hysterectomy for myoma uteri 11 years previously and she had also undergone a cholecystectomy for cholelithiasis 2 years prior to this presentation. On admission, she was hemodynamically stable and had no fever. Her upper abdomen was tender. The laboratory data on admission were as follows: white blood cell count 15 300/mm^3, red blood cell count 458×10^4/mm^3, hemoglobin 12.9 g/dl, platelets 28.7×10^4/mm^3, total bilirubin 1.21 mg/dl, aspirate aminotransferase 26 IU/l, alanine aminotransferase 37 IU/l, alkaline phosphatase 292 IU/l, γ-glutamyl transferase 15 IU/l, blood urea nitrogen 10 mg/dl, creatine 0.43 mg/dl, amylase 33 IU/l, and C-reactive protein 17.4 mg/dl. Chest and abdominal radiography showed no abnormality. Computed tomography (CT) of the abdomen showed a linear calcified body, which appeared to penetrate the posterior wall of the duodenal bulb into the pancreatic head (Fig. 1a), and swollen retroperitoneal tissue adjacent to the pancreas (Fig. 1b). Neither free air nor ascites were detected. Although a history of her ingestion of a foreign body was not obtained, we made the diagnosis of localized peritonitis caused by penetration of the posterior wall of the duodenal bulb into the pancreatic head by a foreign body, such as a fish bone. First we attempted to remove the foreign body endoscopically, but failed because the foreign body was not detected. Therefore, an emergency laparotomy was performed. A linear, hard foreign body was found in the adhesive tissue between the duodenal bulb and the pancreatic head (Fig. 2a). It was slowly removed first from the pancreas and then from the duodenum. The foreign body was identified as a fish bone, 4 cm in length (Fig. 2b). The swollen retroperitoneal tissue was inflammatory devoid of any abscess formation. The perforated site on the duodenal bulb was closed and coated with

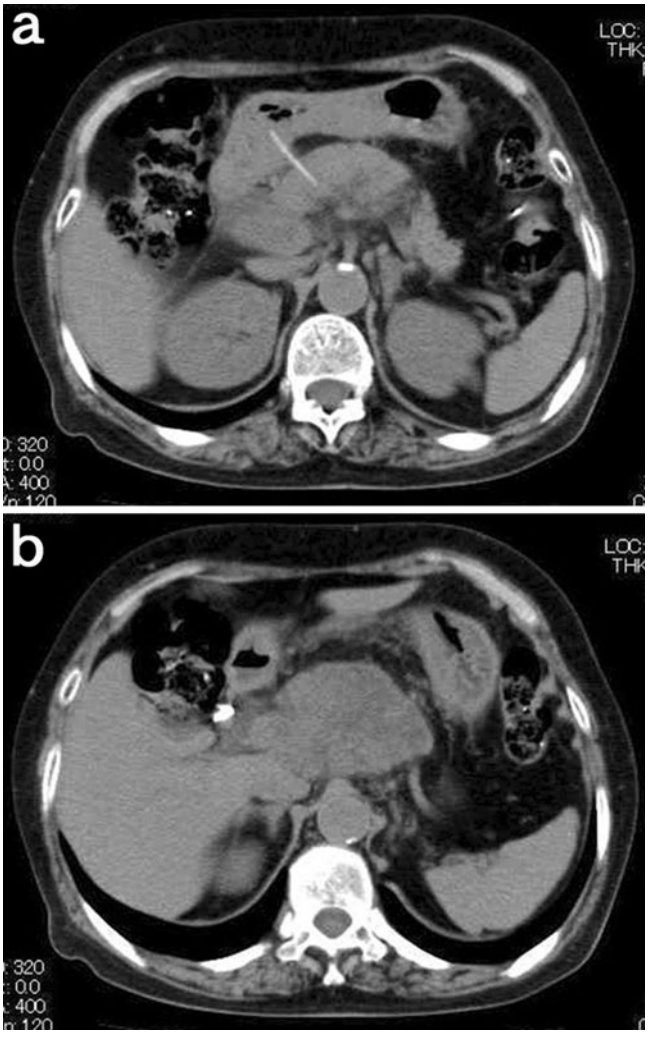

Fig. 1. Computed tomography scan showed a linear calcified body that appeared to penetrate the posterior wall of the duodenal bulb into the pancreatic head (**a**), and swollen retroperitoneal tissue around the pancreas (**b**)

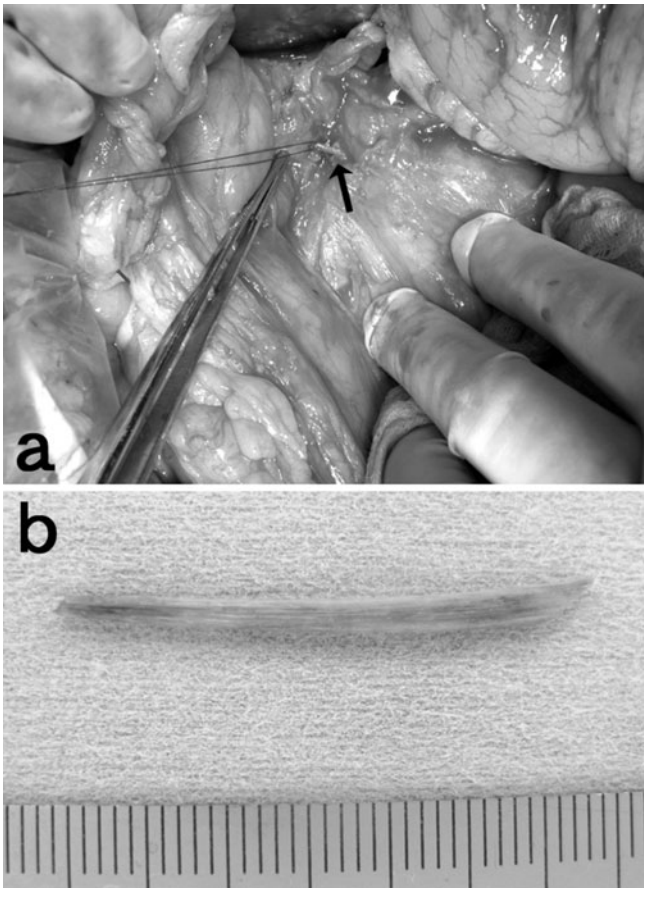

Fig. 2. A linear hard foreign body (*arrow*) was found in the tissue between the duodenum and the pancreas (**a**), and was found to be a 4-cm long fish bone (**b**)

the greater omentum. On the 14th postoperative day, the patient was discharged with no recurrent abdominal pain and no elevation of white blood cell count, C-reactive protein, and amylase in the laboratory data. The fish bone was thought to be a bone from a marbled sole because the patient had eaten this type of fish a few days before the onset of abdominal pain.

Discussion

Most ingested foreign bodies pass through the gastrointestinal tract uneventfully within 1 week of ingestion,[3] and a gastrointestinal perforation by such foreign bodies occurs in less than 1% of all such cases.[4] Materials with sharp, pointed ends, such as toothpicks, sewing needles, hair pins, wire, fish bones, chicken bones, and dental plates are the most common foreign bodies that cause either perforation or penetration. Perforation may occur at any site of the gastrointestinal tract. The ileocecal, rectosigmoidal, and esophageal regions are the most commonly affected areas.[3,5]

Fish bone penetration of the gastrointestinal tract extending into the pancreas is unusual. A review of the English literature revealed only two such cases.[6,7] In the former case, a fish bone penetrated the duodenum, similar to our case, and in the latter case, a fish bone penetrated the stomach. In these two cases, a pancreatic abscess developed. We postulate that in our case, the relatively short period between ingestion and the onset of pain and subsequent treatment limited the opportunity for the development of a pancreatic abscess.

Establishing a preoperative diagnosis of perforation or penetration of the gastrointestinal tract, including the duodenum, by a foreign body such as a fish bone is difficult because most patients do not recall swallowing the foreign body and the onset of symptoms may vary. Furthermore, a plain X-ray is unreliable in the diagnosis of ingested fish bones because the degree of radio-opacity

of the bone varies with the species of fish.[8,9] A CT scan has been shown to be more helpful in detecting ingested fish bones.[10,11] It often reveals a linear calcified body corresponding to a bone. We were able to make an accurate diagnosis preoperatively on the basis of the CT scan findings.

The treatment consists of the surgical removal of the ingested fish bone and drainage of the abscess if necessary. Furthermore, the repair of the perforated site is important. On the other hand, the efficacy of the treatment by the endoscopic removal of an ingested fish bone followed by the administration of appropriate antibiotics has been demonstrated for the last few years in the Japanese literature.[12] Therefore, it may be useful to perform an endoscopic study not only for the diagnosis but also for the removal of the detected foreign body, thus avoiding a surgical procedure. The early recognition and prompt treatment are essential to save the patient's life.

In summary, this case demonstrates an unusual presentation of fish bone penetration of the duodenum with migration to the pancreas. The findings of this case should remind all clinicians that the possibility of penetration by a foreign body always should be included in a differential diagnosis for a patient with nonspecific abdominal symptoms.

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