

CASE REPORT

Intraabdominal Abscess due to Duodenal Perforation by a Toothpick, Mimicking a Pancreatic Cancer

Sae Byeol Choi, Hyun Jeong Lee, Sang Yong Choi

Department of Surgery, Korea University Guro Hospital, Korea University College of Medicine, Seoul, Korea

ABSTRACT

Context Although exhaustive evaluation is required to make a diagnosis, pancreatectomies for malignancies eventually prove to be a benign disease. Ingested foreign bodies such as fish bones or needles may occasionally penetrate any segment of the gastrointestinal system. Intraabdominal abscesses secondary to foreign body perforation may mimic malignancies and result in a needless radical surgery. Intraoperative ultrasonography is useful to localize the tumor. **Case report** A Seventy-four-year-old man who was planned operation for a suspected pancreatic cancer. On exploration, it was proven to be a peripancreatic inflammatory mass developed secondary to a foreign body reaction associated with a toothpick perforated and escaped from the duodenum. **Conclusion** Our experience in managing this case highlights the need for thorough evaluation and a high index of suspicion for alternate diagnoses when managing atypical pancreatic mass lesions.

INTRODUCTION

Ingested foreign bodies such as fish bones or needles may occasionally penetrate any segment of the gastrointestinal system [1, 2, 3, 4]. According to its degree of radio-opacity, the foreign body may or may not be detected on preoperative imaging [1, 3, 4]. Intraabdominal abscesses secondary to foreign body perforation may mimic malignancies and result in a needless radical surgery. Therefore, an accurate preoperative diagnosis in such cases is mandatory [2].

Although the evaluation of a patient with a pancreatic mass tends to be rigorous, the final diagnosis in 5 to 10% of pancreatectomies for suspected malignancies is chronic pancreatitis [5, 6]. A mass lesion in the head of the pancreas may also occur, secondary to inflammatory lesions such as foreign body-associated abscesses or chronic pancreatitis, in addition to malignancies [2, 7]. Herein, we report our experience with a rare case of a pseudotumor that resulted from a penetrating toothpick-associated abscess, mimicking a pancreatic cancer. The radiolucent foreign body caused the inflammatory process to appear like a malignant mass.

CASE REPORT

A Seventy-four-year-old man was admitted to the Department of Gastroenterology for complaints of vague right upper quadrant (RUQ) abdominal pain and intermittent rigors for duration of one month. He also complained of generalized weakness and weight loss of 10 kg during the month preceding his consultation. His co-morbid illnesses included hypertension, angina, and bronchiectasis. On examination, the patient was febrile, with a peak fever of 38.0°C, and he had tenderness over the RUQ of his abdomen. Laboratory results were as follows: white blood cell count, 8000 cells/ μ L; total bilirubin concentration, 2.05 mg/dL; alkaline phosphatase level, 393 IU/L; and C-reactive protein level, 122.61 mg/L. Computed tomography (CT) of his abdomen demonstrated a multiloculated low-density lesion in the pancreatic head, suggesting the possibility of malignant intraductal papillary mucinous neoplasm, adenocarcinoma, or tuberculosis. There was evidence of portal vein invasion and common bile duct compression, resulting in gallbladder distension and intrahepatic bile duct dilatation (**Figure 1**). There was no free air or abnormal fluid collection in the abdomen. On endoscopic ultrasonography, a 3.5 cm size, oval shaped hypoechoic mass with irregular margins was identified in the pancreatic head, which was compressing the portal vein. His serum carbohydrate antigen 19-9 level was 20.2 IU/mL. Pancreaticoduodenectomy with concomitant portal vein resection was planned.

The patient underwent a laparotomy one month following his initial evaluation. On exploration, the first and second portions of the duodenum were found to be severely adhering to the hepatic hilum and its mobilization was complicated by severe touch-induced bleeding. An

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Correspondence Sae Byeol Choi

Department of Surgery
Korea University Guro Hospital
80, Guro-dong, Guro-gu
Seoul, Korea, 152-703
Tel + 82-2-2626-3080
Fax + 82-2-2626-1148
E-mail csbroad@hanmail.net

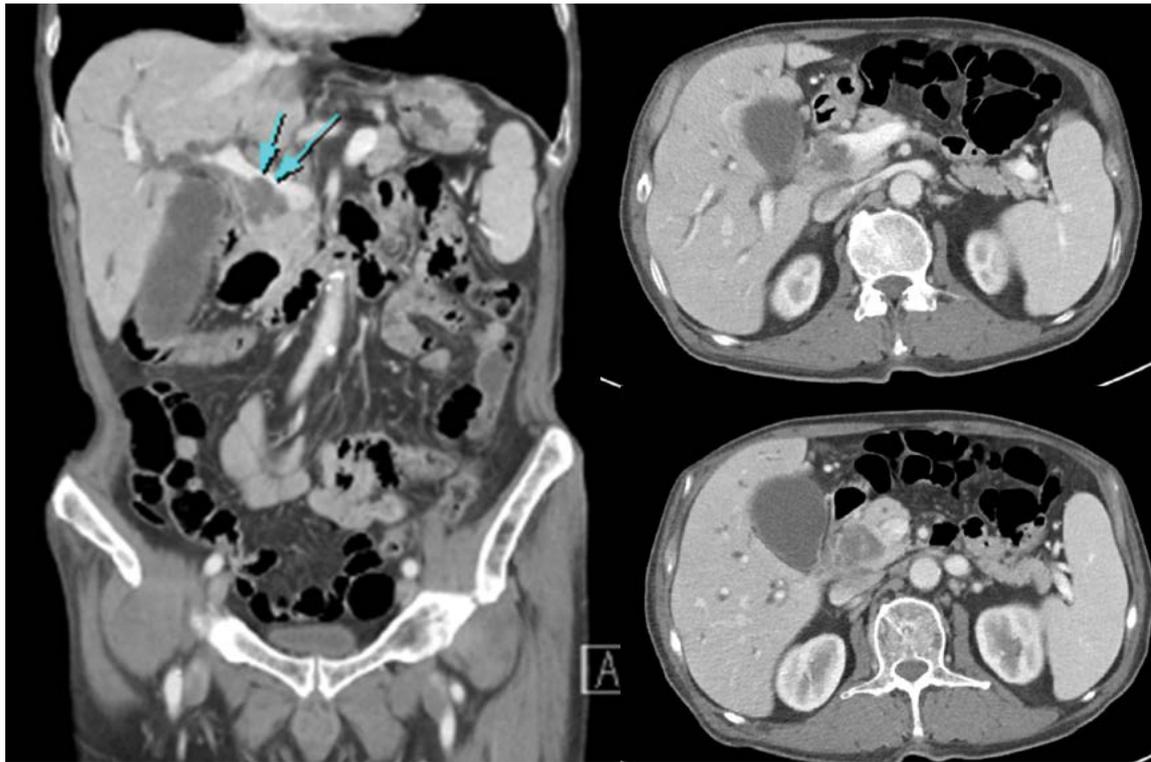


Figure 1. Abdominal computed tomography (CT) demonstrates a multiloculated low-density lesion in the pancreas head, with portal vein invasion and common bile duct compression.

oval-shaped scar was identified at the junction of the first and second portions of the duodenum, on completion of its mobilization (**Figure 2**). Cholecystectomy was performed. During lymph node dissection around the hepatoduodenal ligament, severe fibrotic changes were detected. Frozen biopsy of the dissected lymph node demonstrated only inflammatory changes, with no evidence of malignancy. Further dissection performed in the retroportal area identified chronic fibrotic tissues between the anterior surface of the vena cava and the retroportal area, which were dissected by electrocautery. The electrocautery-dissection in this area revealed the unexpected finding of a toothpick within the fibrotic tissue.

This finding suggested the possibility of the pancreatic mass being inflammatory rather than a true malignant lesion. Intraoperative ultrasound (IOUS), performed to confirm the presence and location of the intrapancreatic mass, failed to identify any mass lesion within the pancreas. However, we also did not find any pus-like material, suggesting that the necrotic mass containing pus in the initial evaluation may have undergone fibrosis during the time interval between the initial evaluation and the surgery. We did not proceed with pancreaticoduodenectomy, and terminated the surgery after suturing the surface of the duodenum seemed to be penetrated by the toothpick. Postoperatively, the patient mentioned that he had a habit of chewing toothpicks, and speculated that he may have unknowingly swallowed one in sleep. The patient was discharged without any complications. A follow up CT scan taken on postoperative 7th day demonstrated the absence of any mass-like lesion in the pancreatic head (**Figure 3**).

DISCUSSION

Ingested foreign bodies are known to cause penetrating injuries of the gastrointestinal tract, and occasional reports describe rare complications of fishbone penetration of the duodenum or stomach, extending into the pancreas [1, 2, 3, 4]. Patients with chronic pancreatitis tend to develop inflammatory mass-like lesions in the head of the pancreas, which are identified as pseudotumors on biopsy [7]. However, our patient had no clinical evidence of chronic pancreatitis. Pancreatic tuberculosis, included as a differential diagnosis in this case, is a rare condition, and has a clinical presentation similar to that of pancreatic cancer [8]. In our patient, a peripancreatic inflammatory mass mimicking pancreatic cancer developed secondary to a foreign body reaction following duodenal perforation caused by a toothpick. Since the toothpick is made of wood, which is radiolucent, it was not identified on preoperative imaging studies. Furthermore, preoperative diagnosis of foreign body perforation is often difficult, as patients do not report the history of foreign body ingestion, and there may be a time lag of months to years between the time of ingestion and the onset of symptom [4].

The diagnostic accuracy of endoscopic ultrasound (EUS) and fine needle aspiration (FNA) in the diagnosis of pancreatic lesions of size greater than 2 cm is reported to be 92 to 95% [9, 10, 11]. A gastroenterologist performed EUS without FNA in our patient. It is possible that FNA result in our patient may have identified only inflammatory cells and thus cautioned us against proceeding with the diagnosis of malignancy, with the patient being monitored under close follow-up. However, only laparotomy and exploration could have identified the foreign body in our

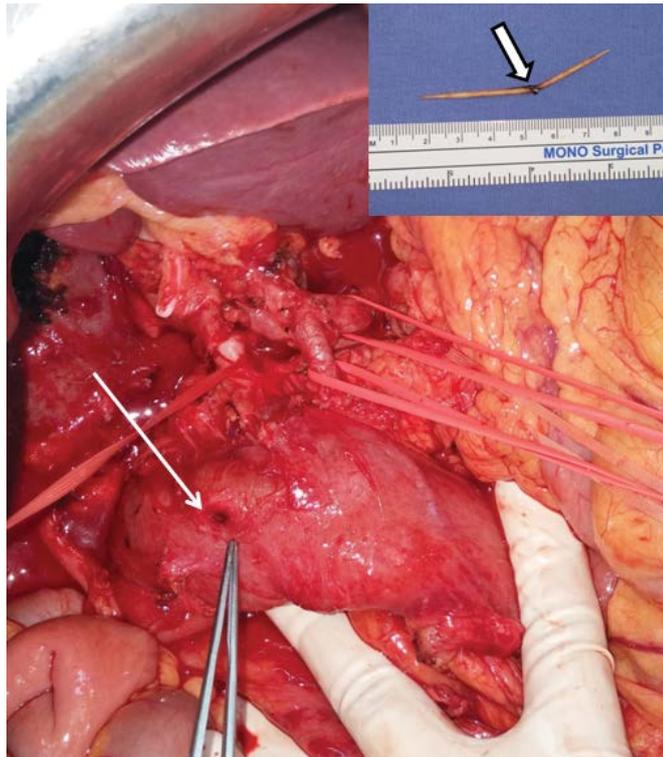


Figure 2. Intraoperative photographs demonstrating the site of duodenal perforation by the toothpick (→). A wooden toothpick broken up by electrocautery during the surgery is seen (⇒).

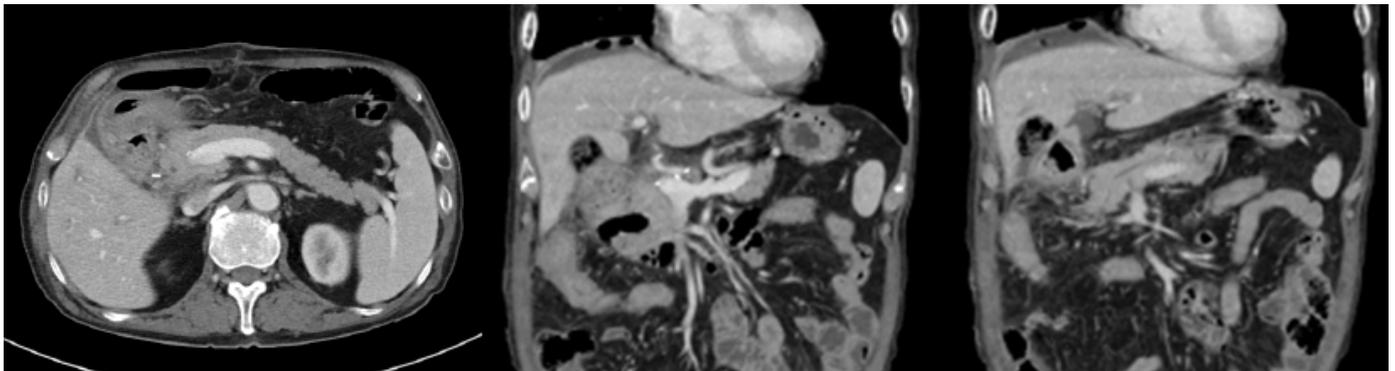


Figure 3. Postoperative CT scan taken on postoperative 7th day demonstrates the absence of any mass-like lesion in the pancreatic head.

case because it was radiolucent. This was advantageous to our patient as failure to identify and remove it may have resulted in recurrence or persistence of the abscess. Therefore, foreign body removal is eventually necessary, as management involves the drainage of the abscess, removal of the foreign body and a careful search for the site of perforation [4].

IOUS played an important role in confirming the absence of a pancreatic mass lesion, thereby preventing a needless pancreaticoduodenectomy. A high index of suspicion regarding the absence of cancer is important in preventing unnecessary surgery. In pancreatic surgery, IOUS guides the accurate localization of nonpalpable tumors for their enucleation [12]. In one study, IOUS was found to have altered the operative intervention based on the intraoperative detection of vascular invasion, liver metastasis, or for other reasons in 30% of patients [13]. IOUS is of value in pancreatic surgery, particularly during procedures for pancreatitis (Peustow pancreaticojejunostomy, or pseudocyst drainage) and for

non-adenocarcinoma pancreatic tumor resection [14]. In pancreatic tumor surgery, it is also useful in searching for additional lesions and facilitates limited resections by accurately localizing the lesions [12, 14].

In conclusion, this was an unexpected case of intraabdominal abscess caused by a toothpick perforating the duodenum, masquerading as a pancreatic tumor. In the process of evaluation and making decisions for surgical treatment for a pancreatic tumor demonstrating an unusual pattern, a thorough preoperative and/or intraoperative evaluation and high index of suspicion for various clinical situations are necessary to avoid unnecessary surgery.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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