



Contents lists available at ScienceDirect

## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)

# Gastric perforation by a foreign body presenting as a pancreatic pseudotumour



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## ARTICLE INFO

### Article history:

Received 21 October 2013  
Received in revised form 20 January 2014  
Accepted 17 April 2014  
Available online 22 May 2014

### Keywords:

Foreign body  
Perforation

## ABSTRACT

**INTRODUCTION:** Foreign body ingestion rarely causes complications, though it can pose a significant diagnostic challenge. Perforation, particularly of more muscular viscera, can present insidiously with a wide range of differential diagnoses.

**PRESENTATION OF CASE:** Here we present a case of 75 year-old woman presenting with chest and epigastric pain. Initial imaging suggested a pancreatic lesion. Despite appropriate treatment she deteriorated clinically, and following urgent laparotomy a duck bone fragment was found to have perforated the lesser curvature of the stomach and embedded within the liver causing subhepatic abscess formation and associated inflammation.

**DISCUSSION:** There are a number of examples of insidious presentations of gastrointestinal perforation. However, we have found only one other case of a perforation presenting as a pancreatic pseudotumour, and ours is the first to have been successfully managed by removal of the foreign body and drainage of the abscess alone.

**CONCLUSION:** A high level of suspicion is required to make the correct diagnosis in cases such as these where the symptoms are not clear-cut. Thorough review and discussion of imaging prior to surgical treatment is essential to prevent unnecessary intervention.

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## 1. Introduction

Foreign body ingestion commonly leads to complications in the paediatric population.<sup>1</sup> In adults however, the foreign body passes through the digestive system without any complication in 80% of cases,<sup>2</sup> with approximately 1% resulting in a gastrointestinal perforation.<sup>3</sup>

In the acute setting, gastrointestinal perforation secondary to foreign body ingestion may present as odynophagia or abdominal pain. However perforations of the stomach, duodenum and large bowel, due to thicker mucosal walls, may present in a more insidious manner, resulting in difficulty establishing a diagnosis.

We highlight a case of a 75 year-old woman who presented with symptoms suggestive of cardiac ischaemia, was found to have radiological changes suggestive of pancreatic neoplasia, and eventually treated for a localised collection and inflammation secondary to gastric perforation after swallowing a fragment of duck bone.

## 2. Presentation of case

A 75 year-old lady with a background of ischaemic heart disease and previous endometrial adenocarcinoma presented to the emergency department with central chest pain. Initial cardiac investigations identified no cause for her symptoms, and her pain localised to the epigastrium with radiation to the back. On examination her abdomen was soft, not distended, and with no evidence of palpable masses or organomegaly.

Initial blood tests revealed elevated inflammatory markers (white cell count of  $10.9 \times 10^9/L$ , CRP 36 mg/L) and abnormal liver function tests (ALT 48  $\mu/L$ , ALP 81  $\mu/L$ , Bilirubin 6  $\mu\text{mol/L}$ ) with normal amylase (27  $\mu/L$ ).

An abdominal ultrasound revealed evidence of an ill defined hypoechoic lesion in head of pancreas with associated common bile duct dilatation and with no evidence of calculi in the gallbladder. A further computed tomography (CT) scan of the pancreas then demonstrated a 33 mm low density region arising from the pancreatic body with impingement of the portal vein.

The differential diagnoses being considered included pancreatitis with an associated pancreatic cyst or necrosis, or pancreatic malignancy. Given that there was nothing in the history to suggest an intra-abdominal source of infection, an abscess was not considered in the differential diagnoses at this stage.

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<http://dx.doi.org/10.1016/j.ijscr.2014.04.021>

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Fig. 1. CT scan showing linear calcific density embedded within the liver.

Despite conservative treatment, the patient’s clinical condition deteriorated with increasing epigastric pain and rising inflammatory markers and liver enzymes. A repeat CT scan revealed enlargement of the cystic lesion related to the pancreatic head with an associated fluid collection in the sub-hepatic space. In addition, a linear calcific density embedded within the liver was visualised (see Fig. 1). In light of this, the differential diagnosis was revised to include foreign body perforation with an associated collection. It was presumed that the foreign body was not identified by the first CT scan due to its narrow cross-sectional area and limited visibility.

The patient therefore underwent an urgent laparotomy and operatively a 5 cm bone fragment was found within the left lobe of the liver, associated with perforation of the lesser curvature of the stomach. There was also a large abscess to the left of the portal

vein and bile duct extending behind the pancreatic neck. The perforation of the lesser curve of the gastric wall was oversewn and the subhepatic abscess drained. The patient recovered well and was discharged 20 days post-operatively. When discussing the findings with the patient she later recalled that she had been eating duck off the bone the night before her pain started, so this was felt to be the most likely origin of the bone fragment.

3. Discussion

Although in adults 80% of ingested foreign bodies may be passed without complication,<sup>2</sup> presentation of gastro-intestinal perforation secondary to foreign body ingestion may follow an insidious course, and therefore mimic a number of different pathologies at each anatomical site, as demonstrated in Table 1. Examples have been reported of cases of suspected appendicitis,<sup>4,5</sup> diverticulitis,<sup>6</sup> localised peritonitis,<sup>7</sup> abscesses<sup>8,9</sup> and even Ludwig’s angina (cellulitis of the floor of the mouth)<sup>10</sup> secondary to foreign body perforations. As in our case, perforations of the stomach can be seen to present late and therefore result in further complications.

Pseudo-tumoural lesions have also been reported in a number of cases, affecting various points along the GI tract. Ingested pieces of crab shell and chicken bone caused localised reactions mimicking tumours of the omentum and stomach, respectively.<sup>11,12</sup> In another, an oesophageal granuloma was diagnosed secondary to trauma from an ingested fish bone<sup>13</sup> and colonic pseudo-tumour formation resulted from an ingested chicken bone.<sup>14</sup> As suggested previously, these examples of more insidious clinical presentations occurred following perforation of more muscular viscera.

One other case report has been found in which a localised pancreatic inflammatory reaction mimicking a tumour of the pancreatic head was caused by a perforation.<sup>14</sup> However, in this example a Whipple’s procedure was performed for suspected pancreatic malignancy, highlighting the necessity of recognising this rare presentation.<sup>15</sup>

Another case of gastric perforation similar to ours presented with a 2 month history of dysphagia, weight loss and night sweats. Their differentials, however, included suspected lymphoma or gastric cancer rather than a tumour of the pancreas itself. Similarly to our case, however, after an exploratory laparotomy a peri-pancreatic abscess was successfully treated by drainage alone.<sup>16</sup>

A recent review suggests that around 20% of ingested foreign bodies will be managed endoscopically, with only 1% going on to have surgery.<sup>2</sup> However, this is in cases where foreign body ingestion is identified without perforation – for the cases described above with perforation, and especially the more subacute presentations, exploratory surgery is more frequent given the range of differential diagnoses.

Table 1  
Insidious presentations of perforations, classified by location.

Author	Year	Location of perforation	Suspected diagnosis	Foreign body
Hsu CL	2011	Mouth	Ludwig angina	Fish bone
Kikuchi K	2011	Oesophagus	Oesophageal tumour	Fish bone
Cho HJ	2012	Stomach	Omental tumour	Crab leg
Rao VS	2011		Lymphoma/gastric cancer	Chicken bone
Ricci G	2012		Gastric wall tumour	Chicken bone
Junghans R	1999	Duodenum	Pancreatic tumour	Fish bone
Jutte E	2010		Liver abscess	Sewing needle
Hur H	2009	Intestine (unspecified)	Peritonitis	Bone (unspecified)
Baek SK	2012	Appendix	Appendicitis	Shot pellet
Joglekar S	2009	Sigmoid colon	Appendicitis	Chicken bone
Wright J	2010		Colorectal cancer	Chicken wishbone
Kornprat P	2009		Abdominal inflammation	Chicken bone
Leggieri N	2010	Multiple sites	Liver abscess	Multiple incidences

#### 4. Conclusion

Perforation by ingested foreign bodies can present in a variety of ways, including subacute presentations and mimicking other conditions. Thorough review and discussion of imaging is essential prior to any decisions about management, particularly if radical surgery is a potential option.

#### Conflict of interest statement

No conflicts of interest to report.

#### Funding

None.

#### Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Author contributions

Helen Williams – data collection, writing, manuscript review, Arif Khokhar – data collection, writing, Maleeha Rizvi – data collection, writing and Stuart Gould – data collection, figures, manuscript review.

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