Pseudotumoural gastric lesion caused by fish bone perforation

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ABSTRACT

We report the case of a 34-year-old previously fit and healthy male who presented to the accident & emergency department with non-specific abdominal pain. The patient proceeded to undergo laparotomy at which a large mass was found adjacent to the stomach. The impression at surgery was of a lymphoma or gastric carcinoma though CT had reported the likelihood of a fish bone or foreign body causing duodenal perforation. Histology later confirmed the presence of a fish bone surrounded by reactive tissue.

CASE REPORT

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A 34-year-old man presented with a one-day history of severe non-specific abdominal pain in the right upper quadrant, vomiting food contents, dysphagia and belching. The pain was cramping in nature, sudden in onset and exacerbated by ingestion of either solids or liquids. The patient had been opening his bowels normally with no history of weight loss or change in appetite. There was no significant past medical history and no family history of malignancy. On examination the patient was in discomfort but apyrexial and haemodynamically stable. Abdominal examination revealed vague four-quadrant tenderness but no evidence of peritonism. Blood tests revealed raised inflammatory markers (C reactive protein 126, white blood cells 13.3) and normal amylase and liver function tests apart from slightly raised ALT of 61. According to current standard practice in our hospital in the work-up of abdominal pain, serum lipase was not drawn. Differential diagnoses at this stage included bowel obstruction, peptic ulcer, gastritis, gastroenteritis, lower respiratory tract infection, biliary colic and appendicitis.

It was decided to manage the patient conservatively at this stage. Over the ensuing day, the patient's condition deteriorated with worsening pain, frequent vomiting and episodic low-grade fever and tachycardia. The plain abdominal radiographs were non contributory, revealing neither a foreign body, obstruction nor any evidence of an abdominal mass. A CT scan was performed (Fig. 1) which revealed the presence of a curved density within a soft tissue mass, posterior to the antrum/ pylorus of the stomach. The structure was seen on both the enhanced and the unenhanced studies, confirming that it was not vascular in nature. The surrounding mass demonstrated peripheral enhancement with a low-density centre, more suggestive of an inflammatory mass or abscess rather than a tumour. The radiologist did not offer any differential diagnoses as he was convinced about the presence of a fishbone/ foreign body as the underlying cause of the mass. Given the patient's condition and supported by the radiological findings, the patient underwent laparotomy.

At laparotomy, free fluid was found in the peritoneal cavity and a palpable prepyloric mass was identified with perforation. Locoregional lymphadenopathy was also identified. A subtotal gastrectomy and Polya restoration* was performed. Post-operatively, the patient made an uncomplicated recovery and was discharged on the eleventh post-surgical day.

Histological examination was made of the resected specimen (Fig. 2 and Fig. 3). Microscopic sections showed normal gastric mucosa with an underlying gastric wall abscess cavity with abundant pus. Cell surface peritonitis and "walling off" by omentum was seen.

The appearances were of a fish bone perforation of the stomach with gastric wall abscess formation. No evidence of malignancy or atypia was found.

Interestingly, the patient only recalled having eaten bony fish a week prior to the development of his symptoms and his admission to hospital.

* Polya restoration - Restoration of continuity may be achieved by the bilroth1 or polya procedures. In polya operation the duodenal stump is closed and the stomach remnant is anastomosed to the most proximal loop of jejunum.

DISCUSSION

Ingestion of foreign bodies is not uncommon. Fish bones are particularly notorious culprits; however most will pass through the gastrointestinal tract uneventfully (1, 2). Symptoms, should they occur, tend to occur later as the abscess/reaction progresses2. Serum amylase and liver function tests are generally within normal limits (3, 4,5) or occasionally raised (4), but all these inflammatory response markers are non-specific and therefore unreliable.

Perforation of the gastrointestinal tract due to fish bone ingestion is rare (6,8,9). Less than 1% of patients with foreign body ingestion develop perforation (9), however this number encompasses all ingested foreign bodies and is not fish bone specific. In this case, the patient developed signs of peritonism, probably secondary to the enlarging associated abscess. However, if perforating foreign bodies are identified early, namely in the absence of peritonism, endoscopic retrieval may be possible. In the case of gastric perforation by a chicken bone, endoscopic extraction and clipping has been described in cases without peritoneal irritation (11). Gastric perforations by fish bones have been described before. Goh et al describe a case where a fish bone perforated the posterior wall of a stomach and migrated into the pancreatic body resulting in a pancreatic abscess (9). More recently, Bajwa et al have described a similar case where an ingested fish bone also presented as a gastric submuscosal tumour (6) with the patient eventually undergoing elective distal gastrectomy for the suspected malignant mass.

The pre-operative diagnosis of foreign body may be difficult, especially - as in this case the patient may not remember actually ingesting the foreign body as it had occurred a fortnight prior to the development of any symptoms (2,5,7,8,9,10). Plain radiography of fish bones has a low sensitivity of 32% which varies according to species, in contrast to the higher sensitivity of chicken bones due to their higher density (6,8,11) . In contrast, chicken bones are almost always radiopaque (8). Even when fish bones are sufficiently radiopaque to be visualized on radiographs, large soft-tissue masses and fluid can obscure the minimal calcium content of the bone, particularly in altered or obese patients (8). Of note is that the fishbone was not visible on the plain abdominal radiograph, even in retrospect. CT scanning has also proven beneficial in diagnosis where a linear calcified lesion (6,8,9) is very commonly demonstrated with a sensitivity of 71.4%, increasing to 100% retrospectively (8).

In our case, the radiologist was confident there was a fish bone/ foreign body within the mass as the cause of perforation. In theory one could consider a lymphoma or gastrointestinal stroma tumour but these demonstrate a more diffuse pattern of enhancement usually and do not contain curvilinear opacities.

Potential limitations of CT scanning include:

1) Lack of observer awareness
2) CT scanning thickness- thinner slices better
3) Use of oral and IV contrast- can cause difficulty identifying fish bones (8).

TEACHING POINT

The clinical lesson in this case was that CT interpretation of foreign bodies may be difficult but is the most sensitive means of diagnosis. The differential diagnosis of foreign body must be borne in mind by clinicians, even when the history of ingestion is not recalled by the patient.

ABBREVIATIONS

CT = Computerized tomography
MRI = Magnetic resonance imaging

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FIGURES

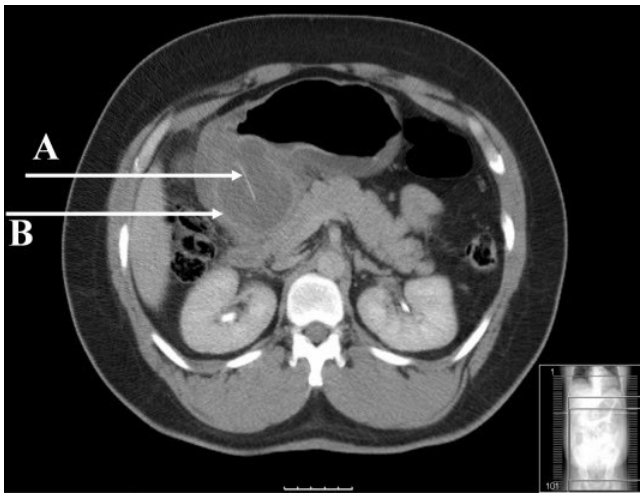

Figure 1: 34 year old man with pseudotumoural gastric lesion caused by fish bone perforation. Axial contrast enhanced CT of the upper abdomen demonstrates the curved appearance of a density (A) within a soft tissue mass (B), posterior to or involving the stomach**.**

Figure 2: 34 year old man with pseudotumoural gastric lesion caused by fish bone perforation. The macroscopic picture shows the cut surface of the abscess cavity in the stomach with the fish bone clearly visible.

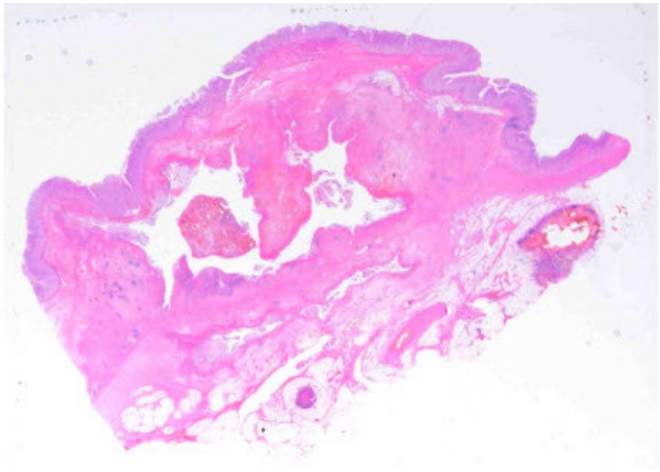

Figure 3: 34 year old man with pseudotumoural gastric lesion caused by fish bone perforation. Haematoxilin and eosin stain. From the antrum of the stomach, (greater curvature) showing normal gastric mucosa with an underlying abscess cavity filled with puss and fibrin and walled off by overlying fatty omentum. (Magnification x1).

Figure 4: 34 year old man with pseudotumoural gastric lesion caused by fish bone perforation. The relatively radiolucent fish bone could not be identified on the radiograph.

KEYWORDS

Fish bone, perforation, stomach, gastric

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