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Case Report
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Abdominal Wall Abscess Secondary to Fish Bone Ingestion - A Case Report

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Abstract

Foreign Body (FB) ingestion is commonly encountered in clinical practice and fish bone ingestion accounts for most of adult admissions, resulting mainly from accidental ingestions. However less than 1% of patients will need surgery for resulting complications. We report a case of a 59 year old female presented with abdominal pain resulting from an abdominal wall abscess secondary to fish bone bowel perforation. She didn't recall having ingested any fish bones. A conservative approach failed and only after FB removal did clinical resolution occur. This case highlights a chronic presentation of FB bowel perforation, with no evidence of the perforation site, and the need to remove the FB to solve the infectious process.

Keywords: Fish bone; Abdominal wall abscess

Introduction

Foreign Body (FB) ingestion can represent up to 0.04% of surgical admissions [1] and according to a 4-year survey an estimate of 8,176 toothpick-related Gastrointestinal (GI) injuries occur each year in the United States [2]. In 80% to 90% of the cases foreign bodies pass spontaneously, with less than 1% needing surgical approach [3-6]. Fish bone ingestion accounts for 46% to 88% of adult FB admissions [7] and may cause a wide range of manifestations depending on the type and site of complication [1,2]. Some reports estimate that nearly 1,500 deaths occur in the United States annually due to FB ingestion [6]. Herein we report a case of a patient who developed an abdominal wall abscess secondary to fish bone ingestion.

Case Presentation

A 59-year-old woman presented to the emergency department with pain in the left iliac fossa and flank over a 3-week period that motivated a previous observation with a general practitioner and a workup with an unremarkable abdominal ultrasound. She denied having fever, nausea, GI transit changes, stool blood loss or weight loss. She had no previous abdominal surgeries, no family history of bowel malignancy and a normal colonoscopy performed 5 years earlier. Furthermore, she denied FB ingestion or abdominal trauma but reported physical efforts in the previous weeks while moving furniture. On examination, we noted pain and apparent rebound tenderness on the left flank, normal leukocyte count but C-Reactive Protein (CRP) of 30 mg/dL. The abdominal radiography was unremarkable (Figure 1) but the Computed Tomography (CT) revealed a 5.5 cm × 4.5 cm × 3.5 cm hypodense collection in the left rectus muscle with a linear density inside (suggestive of fish bone), preperitoneal fat stranding, minimal pelvic fluid but no other intra-abdominal changes (Figure 2). We admitted a diagnosis of abdominal wall hematoma secondary to FB, and treated the patient conservatively with ibuprofen, local ice application and reevaluation 1 week later. On reevaluation she had temperature (39.1ºC), left flank tenderness and swelling with local inflammatory signs. The leukocyte count was 16700/uL and CRP was 38.1 mg/dL. Repeat CT revealed (Figure 3) a 11 cm × 8 cm × 6 cm collection with a FB inside, minimal pelvic fluid but no bowel wall enhancement or fat stranding. Empiric intravenous amoxicillin/clavulanic acid and metronidazole was started and the patient underwent surgical drainage of the abdominal wall abscess with fish bone removal and negative therapy wound dressing (Figure 4). After 1 week the skin wound was closed. The pus analysis isolated *Prevotella oris* and *Streptococcus intremedius*. The patient was discharged on the 8th postoperative day. At the 6th month of follow up the patient was asymptomatic with normal control abdominal CT and colonoscopy (Figure 5).

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Figure 1: Abdominal radiography.

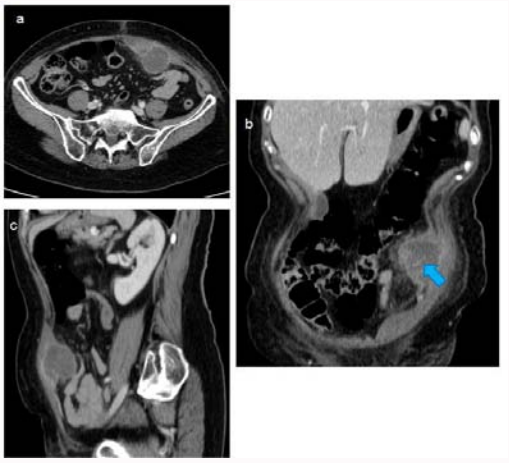

Figure 2: Abdominal enhanced CT revealing 5.5 cm × 4.5 × 3.5 cm hypodense collection in the left rectus muscle with fish bone (blue arrow) inside. **a.** axial view. **b.** coronal view. **c.** sagittal view.

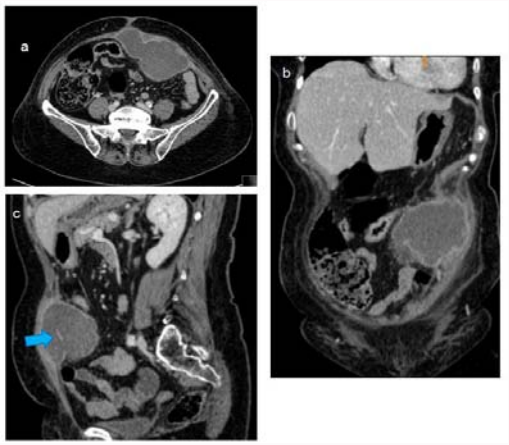

Figure 3: Abdominal enhanced CT revealing a 11 cm × 8 cm × 6 cm collection in the left rectus muscle with fish bone (blue arrow) inside. **a.** axial view. **b.** coronal view. **c.** sagittal view.

Discussion

FB ingestion is commonly encountered in clinical practice [5], and the FB can be metallic (pins, wires), wooden (toothpick) and non-digestible components of food (fish bones, bones, mollusca shells and vegetable bezoars), respectively found in 18.2% to 46%, 10% to 28.6% and 42% to 71% of the occurrences [8-10]. Fish bone is one of the most common ingested FB encountered in the emergency

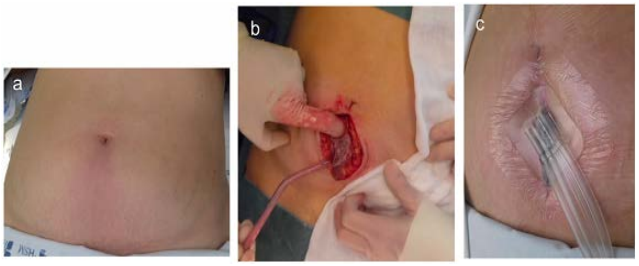

Figure 4: Surgical procedure. a. Skin redness. b. Median incision (for cosmetic reason). c. Negative pressure wound dressing.

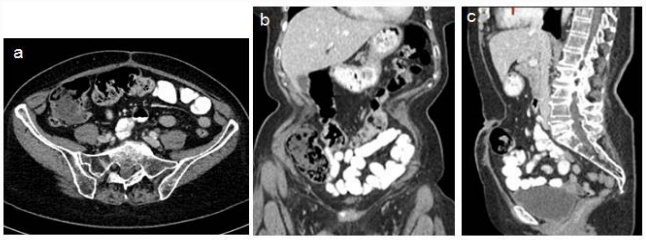

Figure 5: Abdominal enhanced CT showing resolution of the infectious process. **a.** axial view. **b.** coronal view. **c.** sagittal view.

department specially in regions with dietary habits rich in fish like Asia and the Mediterranean [7,11]. Usually FB ingestion is associated with risk groups namely children and adolescents, mentally or visually impaired patients, jail inmates, alcoholics or drug addicts, elderly specially if using dental prostheses (that eliminate the tactile sensitivity of the palate) and persons who eat rapidly [1,3,4,6,8,12]. In some series 87.9% to 100% of FB ingestion were unconscious or accidental, mostly while eating [8,10,13]. Although most FB pass uneventfully, 20% will need endoscopic removal and 1% to 4.8% will require surgery due to complications [4,5], more common in the presence of long, hard, or sharp objects [12-14] and intrinsic or extrinsic factors that affect the bowel luminal size (adhesions, stenosis, tumors) [1,15]. The most common sites of impaction or perforation occur at physiological narrowing or angulations of the GI tract like the pharynx, upper and lower esophageal sphincter, pylorus, duodenum, ileocecal valve, rectosigmoid transition and anus [5,6,8- 10,12-14]. After passing the esophagus, most FB will be eliminated after 4 to 6 days or up to 4 weeks, but FB greater than 2 cm to 2.5 cm in diameter will not pass through the pylorus or ileocecal valve [5]. FB can cause complications along the entire GI tract with different clinical presentations according to the type and location of complication, ranging from impaction/dysphagia, bowel obstruction, bleeding, abscesses and GI perforations [6,9,16,17]. In the upper GI tract there are reports of penetration to the deep spaces of the neck leading to edema, inflammation, abscess, vascular perforation, neural injury and even airway narrowing. Esophageal laceration/perforation, mediastinitis, fistulation into the adjacent trachea or great vessels and perforations of the stomach and duodenum are also described [7,11]. GI perforation is uncommon, with an incidence of 0.7% [4] most often occurring in the ileocecal region and rectosigmoid junction, being less frequent more chronic and innocuous in gastric and duodenal regions, and infrequent in the jejunum [6,11,15]. The perforation can be silent or manifest as frank peritonitis, depending on if it's a chronic inflammatory process or an acute perforation with immediate spillage [9,14]. A progressive impaction and erosion/perforation of the bowel wall, will lead to a chronic process with an inflammatory tumor or local/distant abscess with no evidence of perforation site once it's covered with fibrin and

sealed [5,8,9,14,17]. In MacManus' review [9] of bowel perforations secondary to FB ingestion, 60% of the cases had chronic presentation with localized abscess or indurated inflammatory tumors. Only 1% to 25% of the patients recall ingesting a FB and symptoms often nonspecific occur mostly weeks to years later, resulting in delayed difficult diagnosis [1,9,13,14,18]. Most fish bones are radiolucent and even when sufficiently radiopaque they might be easily obscured by other anatomic structures, contributing to low radiograph sensitivity of only 32% [5,6,11,14,15]. CT scans have a higher sensitivity (90% to 100%) and specificity (93.7% to 100%) and can accurately identify and localize the ingested FB and characterize resulting complications [5,6,11,18]. Common indicators of intestinal perforation are thickened bowel wall at the point of FB impaction, increased mesenteric fat density and associated intestinal obstruction. Pneumoperitoneum is seldom found, but it can be localized, adjacent to the point of perforation [5,8,11,12]. Bone window settings may allow better detection of calcified FB [13] and bowel contrast should be avoided as it can completely obscure or mimic the FB [6,11]. Fish bone perforations can mimic acute or chronic inflammatory processes like diverticulitis or malignancy [8,11,15] with definitive diagnosis reached at abdominal CT in only 9% of the cases in some studies [8]. Our patient was completely unaware of an episode of FB ingestion, and had complaints for more than 3 weeks. We found 6 similar case reports with abdominal wall abscesses/masses with days to months of evolution, and none reported the episode of FB ingestion [16,17,19-22]. CT scan revealed fluid collections with spontaneous dense linear image, highly suggestive of FB in all but one case report [21]. Treatment of bowel perforation includes removal of the responsible FB and closure of the perforation defect, if found during surgery and if local conditions allow it. Before a big defect, dense inflammatory tissue, high degree of contamination or patient instability, partial resection of the affected segment with or without anastomosis are options [8,10]. In all cases FB extraction and peritoneal lavage are mandatory [8]. Leggieri et al. [23] reported low success rate (9.5%) of liver abscesses when treatment didn't include FB removal. Bowel perforation is associated with major morbidity with 21.2% of patients admitted in intensive care unit due to multiple organ failure, sepsis or respiratory insufficiency and mortality rates ranging from 0% to 6.1% and 25.9% in older series [4,8,9]. Localized processes like abscesses seem to be more insidious and with less morbidity/mortality [9,15]. In our case and 3 other with similar presentation a [16,17,20] conservative approach failed until the FB was removed, so we think this is an essential step for infectious resolution. As in our case, it was not possible to find the site of perforation in 12 cases of the literature with intra-abdominal/abdominal wall abscesses secondary to FB ingestion [9,17,19-22]. There was no morbi/mortality in clinical cases with localized intra-abdominal/abdominal wall [16,17,19-21] abscess and direct abscess drainage with FB removal solved the infection, avoiding laparotomy in abdominal wall abscesses without intra-abdominal extension [20].

Conclusion

In most complications secondary to fish bone ingestion, the patient is unable to recall history of the incident and CT scan aids in the appropriate diagnosis and defining treatment strategy. In abdominal wall abscesses, direct drainage avoiding laparotomy is sufficient as long as there is no suspicion of active bowel perforation/intra-abdominal extension and the FB is removed.

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