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Case Report

Liver Abscess Secondary to Duodenal Perforation After Fishbone Ingestion: A Case Report

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Abstract: Even though ingestion of a foreign body is a common situation in the emergency department, the complications of a perforation of the gastrointestinal tract that develops into a liver abscess are rare. Early suspicion and diagnosis lead to lower morbidity and mortality. This case involves a 63-year-old man who had a history of swallowing a fish bone, followed by abdominal pain, fever and vomiting. The diagnosis of liver abscess due to possible perforation of the duodenum was made on abdominal tomographic imaging. Far from removal, the usual treatment for foreign bodies in the gastrointestinal tract, the decision was made in this case to leave the stent in situ, combined with transhepatic percutaneous drainage of the abscess and endovenous antibiotics. The patient developed well with early discharge from hospital and outpatient follow-up care.

Keywords: Perforation of the duodenum; Perforation; Hepatic abscess; Emergency surgery; Fishbone.

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1. Introduction

The foreign body ingestion is a common situation in the emergency room, as well as the unknown cases that solve themselves without complications by spontaneous elimination [1]. Around 1% of the cases evolve to hollow viscera perforation [2-4]. Gastric or duodenal perforation associated with liver trauma developing hepatic abscess is extremely rare [2]. Stomach is the most common site of foreign body perforation (40.9%) with the formation of left liver lobe abscess. Duodenal (20.5%) and large intestine (11.4%) have also been reported in the literature [7]. Fish bone was the most reported foreign body (33%), followed by toothpick (27,3%), chicken bone (12,5%) and needle (9,1%) [8].

Pathogens that spread through the portal vein from the gastrointestinal tract, the hepatic artery from systemic sepsis, or the bile duct as in cholangitis, are all recognized causes of liver abscesses [7], and cryptogenic hepatic abscesses often affect the right liver lobe, in contrast to foreign body abscess. [7, 8]. In liver abscesses from foreign body, Streptococcus species was the most isolated bacteria (72,3%), followed by Escherichia coli (17%) and Klebsiella pneumoniae (10.6%) [8].

The goal of treatment is to remove the foreign body and drain the liver abscess. The overall rate of cure without foreign body removal is low (9.5%). Methods for approaching abscess include laparotomy, laparoscopy, endoscopy and percutaneous interventional radiological approaches [8]. Most patients do not notice or remember the ingestion event manifesting nonspecific symptoms, which makes the diagnosis even more challenging [2].

Here we show a case of extra hepatic abscess formation due to fishbone migration from the gastrointestinal tract, handled with conservative treatment.

2. Case Report

A 63-year-old man, inner-city resident, was transferred to this hospital due to a diagnosis of a hepatic abscess secondary to fishbone migration from the gastrointestinal tract to the liver. The patient presented with arterial hypertension, diabetes, and coronary disease as comorbidities, with no history of previous surgery. He reports fishbone ingestion 20 days prior to admission, experiencing general malaise the following day. He was evaluated by a gastroenterologist who recommended symptomatic and home care. He evolved well for one week but then developed diffuse abdominal pain, vomiting, inappetence, and fever. Due to the new symptoms, he sought emergency care in his hometown, where laboratory tests revealed leukocytosis (24,800) with rodstonetosis (10%), elevated CRP (199), and deterioration of renal function (Cr 2.3; U67). Transaminases were not requested.

In addition to the clinical presentation, serological exams were performed, and a total abdomen computerized tomography (CT) was conducted for differential diagnosis. This revealed a collection with a necrotic and liquefied center in the lateral segment of the left hepatic lobe, measuring 4.6 x 4.5 x 3.5 cm, with an estimated volume of 37 ml. There was no signs of pneumoperitoneum. The patient was hospitalized and received intravenous antibiotics (Ceftriaxone and Metronidazole), which were later switched to Tetracycline associated with Tazobactam the following day. The patient showed moderate clinical improvement, no abdominal pain, fever or hemodynamic instability, although blood test results worsened. A repeat CT was performed on the fifth day of hospitalization, revealing a suspected foreign body perforating the duodenum, with the first portion reaching the left hepatic lobe, as well as an increase in the collection size, now measuring 430 ml.

The patient was subsequently transferred to a reference hospital as the case became more complex. Upon admission, he exhibited complete resolution of clinical complaints and stable vital signs. He underwent a new total abdominal tomography with intravenous and oral contrast, which confirmed the foreign body as a 23mm fishbone lodged within the left hepatic lobe (segment III), extending an abscess from the parenchyma to the subcapsular area (Figure 1 and 2). There was no contrast extravasation, ruling out fistula formation, and there were no signs of pneumoperitoneum, which shows the closure of the fistula that led to the formation of the liver abscess. Furthermore, a tomography image showed an abscess in which a conservative approach with percutaneous return was possible.

Because of his clinical improvement and hemodynamic stability, conservative management was chosen, leaving the surgical approach in case of clinical worsening. Kept fasting orally, administered intravenous antibiotic therapy, and performed ultrasound-guided percutaneous drainage once the patient was stable, without pain and the tomography showed favorable percutaneous drainage. In this procedure, 350 ml of purulent content was drained, a drain was left in place, and the material was sent for culture (negative for microorganisms). The patient showed good clinical evolution during hospitalization; drain output was around 100 ml in the first two days and reduced considerably afterward. The laboratory results also showed good evolution. On the fourth day of hospitalization, an abdominal CT was repeated with intravenous and oral contrast (Figure 3). He was discharged on the fifth day with an intra-abdominal drain.

Drain removal occurred sixteen days after discharge during outpatient follow-up. A repeat imaging examination one month later revealed a foreign body in the same location and almost complete resolution of the abscess, showing only laminar fluid in this topography and small collections of an inflammatory nature in the liver parenchyma with an estimated volume of 7mL. After six months, the patient remained well and was released. The patient continues to be monitored at the outpatient clinic, without complaints.

Figure 1. Coronal plane section of Computed Tomography (CT) showing fishbone within the liver parenchyma inside the lateral and inferior segment of the left hepatic lobe (segment 3) associated with the presence of an abscess in the liver parenchyma containing gas inside measuring 6x4x5.1 (volume estimated at 63mL) with extension to the subcapsular region around the left lobe, forming subcapsular collection with an estimated volume of 380mL.

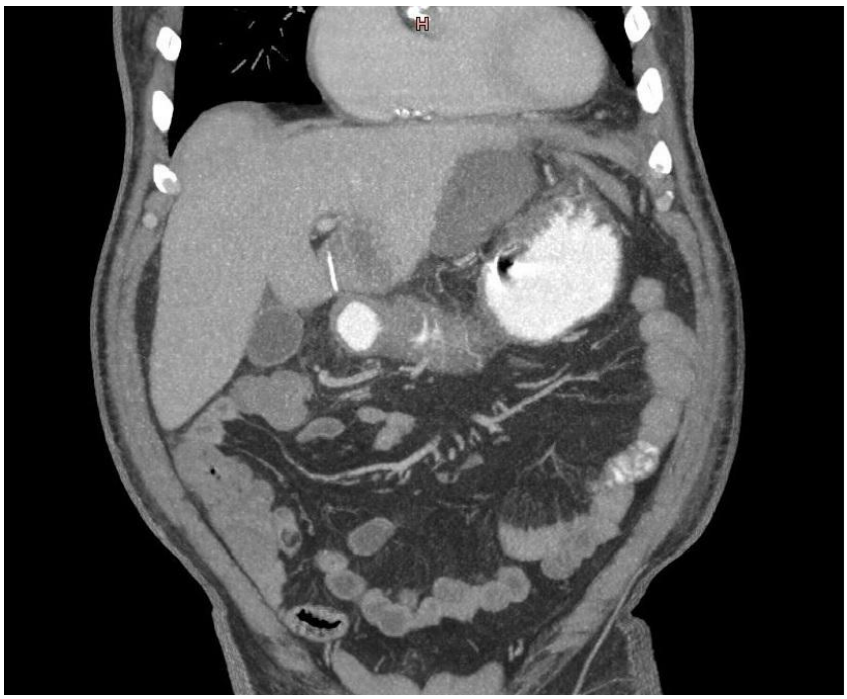

Figure 2. Axial plane section on CT showing a fishbone within the liver parenchyma with an abscess around it in the liver parenchyma containing gas inside measuring 6x4x5.1 (volume estimated at 63mL) with extension to the subcapsular region around the left lobe, forming subcapsular collection with an estimated volume of 380mL.

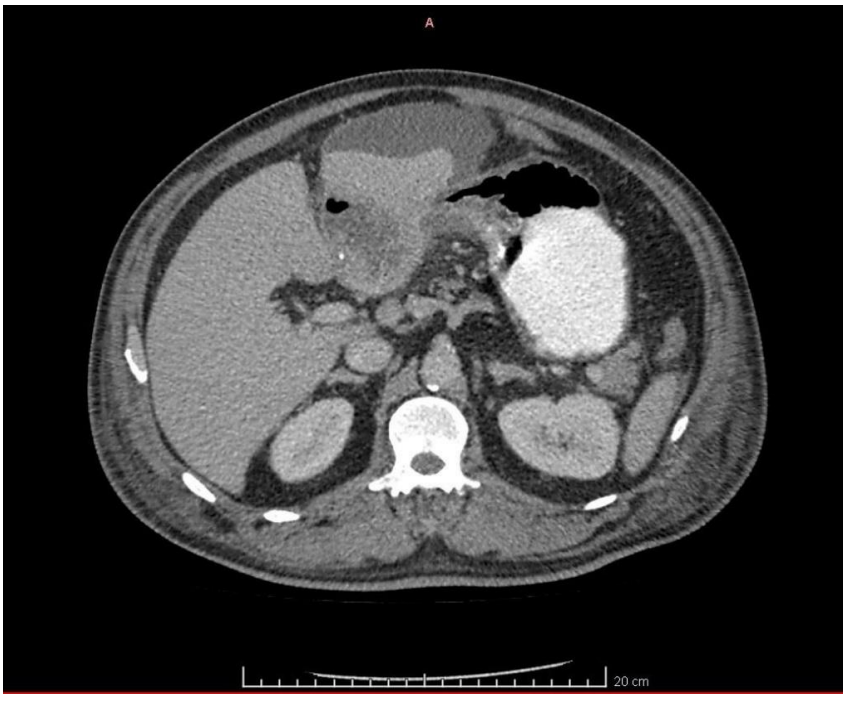

Figure 3. Axial plane section on computed tomography showing a fishbone still within the liver parenchyma without an abscess around it.

3. Discussion

The first case of gastrointestinal perforation due to a fishbone, complicated by the formation of a liver abscess, was reported by Lambert et al. in 1898 [3,4]. TGI perforation occurs following the ingestion of sharp foreign bodies, such as chicken bones, needles, toothpicks, and fishbones, with the latter being the most prevalent, accounting for 33% of perforation cases [3]. While there is some variation in the literature regarding the specific site of perforation, most studies indicate the duodenum as one of the primary locations [5], consistent with the current report.

Due to the nonspecific clinical presentation, diagnosis can be challenging and often delayed [3]. The classic triad of liver abscess symptoms—fever, jaundice, and abdominal pain—is not always present, and most patients exhibit nonspecific symptoms such as vomiting and inappetence [5]. As noted by Grayson, Shanti, and Patel [6] (2022), the most common symptoms include anorexia, epigastric pain, and fever. Additionally, many patients do not recall ingesting the foreign body [3,5]. Our patient partially aligns with this information; despite experiencing vague symptoms like diffuse abdominal pain, fever, and vomiting, he remembered ingesting the fishbone.

During the investigation, comprehensive laboratory tests should be requested, including liver profile and function, blood count, and inflammatory markers, along with imaging exams, prioritizing a total abdomen CT, which offers high diagnostic accuracy [3,5]. Morbimortality is influenced by the speed of diagnosis; the sooner the diagnosis is made, the better the prognosis [3].

Most reports indicate that abscess drainage is associated with antibiotic therapy and the removal of foreign bodies, either surgically or transcutaneously [3,5]. Approximately 10% of cases were managed conservatively, relying solely on antibiotic therapy and non-invasive procedures [3]. However, despite being more invasive, most professionals favor the surgical approach in cases of TGI perforation [5]. This preference likely stems from the necessity to intervene directly and the challenges in the patient-physician relationship when explaining the risks and benefits of conservative treatment after mentioning “perforated stomach/intestine”.

In the case report presented by Kfouri [2], the patient presents hemodynamic instability and clinical signs of peritonitis and pneumoperitoneum. Then, exploratory laparotomy was chosen to resect segment III of the liver and gastric wall raffia. In the case presented by Moustafa, the patient's liver abscess could not be drained because it showed multiloculated, therefore, the patient was treated only conservatively with intravenous antibiotics and parenteral nutrition for approximately 1 month.

The literature recommends the extraction of the foreign body, since remaining there may prevent the fistula from closing [8]. But, in environments with limited surgical resources, conservative treatment may be the only option. In this report, like the case described by Allam and Pericleous [3], the foreign body was not removed. However, despite managing the case with antibiotic therapy alone, we performed percutaneous drainage due to the abscess volume. In the three cases, including the one presented here, where conservative treatment was selected, the patients showed good progress and were discharged from the hospital within one month.

4. Conclusion

Liver abscess resulting from the ingestion of a foreign body is a condition that poses a challenge for diagnostic suspicion, with total abdomen CT being the most effective examination. Although it is not the most adopted approach, we observed that conservative management is feasible. Therefore, despite the recommendation of surgical treatment, we saw with this case and others similars that a conservative approach with percutaneous drainage and antibiotics is possible. Always considering the patient's clinical status and hemodynamic instability that require more aggressive treatments. In this regard, it is crucial to maintain clinical and radiological follow-up until the liver abscess resolves.

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