Hepatic abscess secondary to exceptional foreign body

Absceso hepático secundario a excepcional cuerpo extraño

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ABSTRACT
A series of three cases of hepatic abscesses secondary to foreign body ingestion is presented. The clinical presentation of this condition is variable, which complicates timely diagnosis. A high level of clinical suspicion, imaging studies, and in some instances, endoscopy, are essential to identify the underlying cause of the abscess. All cases received antibiotic treatment. Definitive treatment required surgical drainage and foreign body extraction in two of the three cases, with favorable postoperative outcomes. In one case, resolution was achieved through Upper Digestive Endoscopy (EDA) and Fine Needle Aspiration (FNA-US) successfully. This case series emphasizes the importance of considering foreign body ingestion in patients with hepatic abscesses, even in the absence of clear histories, to ensure proper management.
Keywords: Hepatic abscess; intestinal perforation; foreign body

RESUMEN
Se presenta una serie de tres casos de abscesos hepáticos secundarios a la ingestión de cuerpos extraños. La presentación clínica de esta entidad es variable, lo que dificulta su diagnóstico oportuno. Un alto índice de sospecha clínica, el uso de estudios de imagen y, en algunos casos, la endoscopia, son cruciales para identificar la causa subyacente del absceso. En todos los casos recibieron tratamiento con antibiótico. El tratamiento definitivo requirió drenaje quirúrgico y extracción del cuerpo extraño en dos de los tres casos, con resultados postoperatorios favorables. Y, en uno, se resolvió con Endoscopía Digestiva Alta (EDA) y Punción Aspirativa con Aguja Fina (PAAF) de forma exitosa. Esta serie de casos destaca la importancia de considerar la ingestión de cuerpos extraños en pacientes con absceso hepático, incluso sin antecedentes claros, para asegurar un manejo adecuado.
Palabras claves: Absceso hepático; perforación intestinal; cuerpo extraño.

INTRODUCTION

A series of cases of patients with hepatic abscess secondary to the ingestion of foreign bodies are presented, an infrequent cause for this clinical condition. Cases show the clinical presentation's variability of this entity, which hinders a timely diagnostic. The importance of a high clinical suspicion index with insistence on the correct anamnesis is highlighted, along with the use of imagery studies such as computerized tomography, and in some cases endoscopy, to identify the abscess' underlaying cause.

This series of cases highlights the necessity to consider foreign body ingestion in patients with a hepatic abscess diagnosis, even in absence of clear history, to ensure adequate handling and a complete resolution of symptoms.

Clinical evolution, treatment response, and complication presence were documented, highlighting the importance of early diagnosis and multidisciplinary handling for an effective resolution.

CASE 1

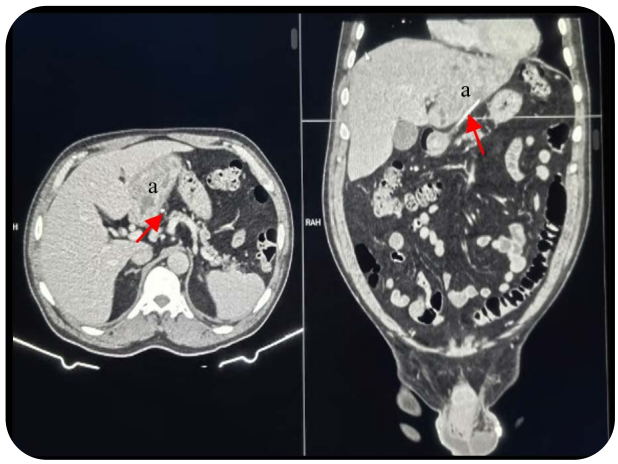

Figure 1. Axial cut, coronal, abdominal CT. (a) abscessed collection which involves hepatic S2-3; (red arrow) foreign body

59-year-old male, no pathological nor surgical history, employed, from the country's interior, reports epigastric pain, 4-day evolution, insidious, mild, puncture-type, non-irradiated, which yielded upon use of common analgesics; 8 days prior, presented a 39°C fever which yielded with antipyretics, nausea and vomiting in several occasions, anorexia and jaundice without choluria nor acholia. Conservative physiological habits. Physical examen yielded ranging vital signs, pain upon deep palpation in the epigastric and right hypochondrium, no muscular defense nor signs of peritoneal irritation.

Laboratory exams yielded evidence of leukocytosis and

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high hepatic enzymes. The abdomen tomography yielded an extensive, hypodense, heterogeneous area in the liver's right lobule, suggesting hepatic abscess *(Figure 1)*. Empirical antibiotic treatment started with Ceftriaxone and Metronidazole, which later rotated to Piperacillin/ Tazobactam and Vancomycin.

A consultation with the Minimally Invasive Surgery team was requested to evaluate percutaneous drainage; a linear hyperdense image on the inferior border of the liver, compatible with a foreign body, led to the recommendation of a laparoscopic or laparotomic approach. *(Figure 1)*.

At the Hospital for Surgical Diseases of Ingavi (HEQI), a midline laparotomy was performed, with operative findings including, at the level of the liver (segment III), the omentum firmly adhered to the inferior border of this segment, adjacent to a hepatic abscess of approximately 100 cc, and a 4 cm chicken bone fragment *(Figure 2)*. Extraction of the foreign body (chicken bone), drainage of the abscess, cavity irrigation, and placement of a tubular drain were carried out. The patient had a favorable postoperative evolution, with progressive clinical improvement and gradual normalization of laboratory parameters.

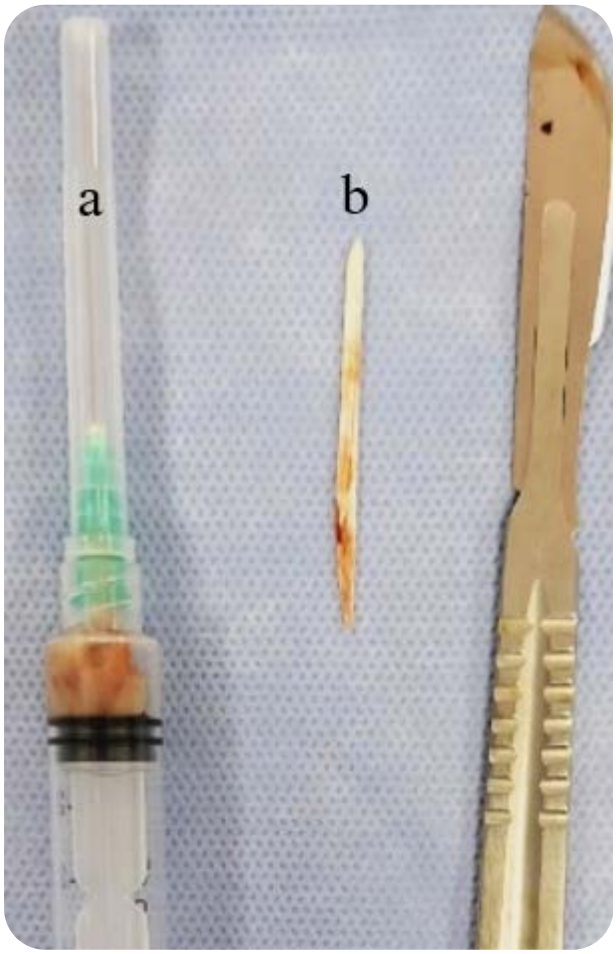

Figure 2. Surgical findings. (a) Collection sample; (b) chicken bone.

CASE 2

54-year-old male, driver, from the interior, with a history of hypertensive and ischemic heart disease, an ejection fraction of 28%, and who had undergone placement of a stent in the anterior descending artery due to acute myocardial infarction two months prior to admission; arterial hypertension, and post-traumatic pubic diastasis resolved with conservative treatment three years earlier.

He reported to the emergency department with a two-week history of retrosternal, pressure-type, moderate pain (5/10 on the pain scale) that appeared with exertion, lasted less than 30 minutes, was localized, and subsided with rest, accompanied by palpitations, exertional dyspnea, chills, and arterial hypotension. One day before admission, the pain worsened, becoming intense (10/10), lasting more than 30 minutes, not relieved by rest or analgesic positions, and radiating to the back.

The patient presented hemodynamic stability, with heart and lung sounds showing no significant positive findings. The abdomen was soft and compressible on palpation, without pain on deep palpation, and with present bowel sounds. Neurologically, the patient was alert and oriented, scoring 15 on the Glasgow Scale, with no evident neurological deficits. No edema was identified in the limbs.

Laboratory tests showed hemoglobin of 10.7 g/dL and hematocrit of 34%, indicative of anemia, with a platelet count of 373,000/mm^3. A slight elevation of urea (67 mg/dL) and creatinine (1.27 mg/dL) was observed. Serum electrolytes revealed mild hyponatremia (Na: 131 mEq/L), with potassium (K: 4.3 mEq/L) and chloride (Cl: 103 mEq/L) within acceptable ranges. The white blood cell count was 10,780/mm^3, with 77% neutrophils. Troponin I was elevated, showing a downward trend in serial measurements (39.9, 35.7, 29.8). The electrocardiogram showed a regular sinus rhythm, with symmetrical T waves in V1–V6 and no other significant ST-segment changes. The chest X-ray revealed an increased cardiothoracic index.

Initially, the condition was managed as unstable angina, with adjustment of cardiovascular medication by the cardiology service (days 1 and 2). The blood cultures (x2) and the urine culture (day 4) were negative, as was the viral serology (day 8).

Due to the persistence of fever spikes, an abdominal CT scan was performed, confirming a hepatic abscess secondary to a foreign body (day 7). *(Figure 3)*

Lastly, upper digestive endoscopy, performed on day 11, revealed no alterations.

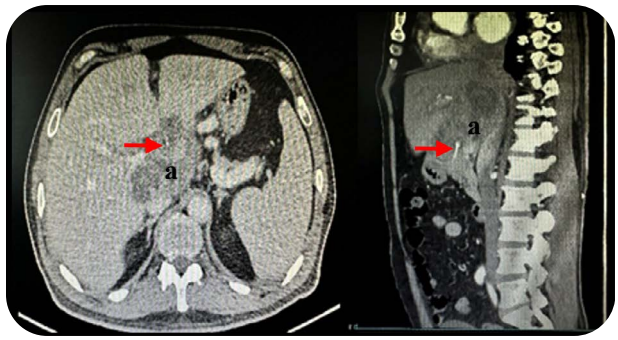

Figure 3. Axial, coronal, contrast CT. (a) Perihilar hepatic collection; (red arrow) Lineal hyperdensity inside the collection compatible with a foreign body.

In consultation with the Minimally Invasive Surgery Service to evaluate percutaneous drainage, surgical drainage was chosen due to difficult access and proximity to the hepatic hilum.

On the 18th day of admission, at the Central Hospital, an exploratory laparotomy was performed, revealing a purulent collection (approximately 300 cc) at the level of the lesser omentum, pars flaccida, and a 3 cm fish bone in relation to hepatic segment I. Aspiration and lavage of the cavity were carried out, along with extraction of the foreign body (fish bone). Postoperatively, the patient developed glottic edema as a complication, which was treated with corticosteroids.

The patient received antibiotic therapy (Piperacillin/Tazobactam, Vancomycin, Meropenem) during hospitalization, with good recovery.

CASE 3

56-year-old male, with a history of arterial hypertension, type 2 diabetes mellitus, rheumatoid arthritis, umbilical hernia, and probable hydrocele; smoker with occasional alcohol consumption.

Symptoms began 24 hours prior to admission, with insidious, colicky abdominal pain in the epigastric region, moderate to severe in intensity (7–9/10), not related to food intake. It was accompanied by vomiting and respiratory difficulty.

Physical examination revealed a painful facial expression, a tendency toward arterial hypertension, oliguria, and tachypnea requiring supplemental oxygen via a reservoir face mask at 8 liters. The abdomen was distended, tense, minimally compressible, and mildly tender to deep palpation in the lower half.

During hospitalization, the patient continued to experience abdominal pain and febrile episodes, requiring oxygen therapy and presenting bilious output through a nasogastric tube.

Laboratory tests (day 7) showed Hb 12.6 g/dL, Hct 38%, platelets 208,000/mm^3, and leukocytes 16,890/mm^3. Blood and urine cultures were negative.

An abdominal CT scan (day 10) confirmed the presence of a foreign body in the duodenum and identified a fluid collection at the hepatic level *(Figure 4)*.

The upper digestive endoscopy (day 11) identified and was able to extract the fish bone from the abdominal cavity *(Figure 5)*.

Figure 4. Endoscopic findings. Left: (black arrow) fish bone located through UDE, piercing the duodenum. Right: (a) Extracted fish bone

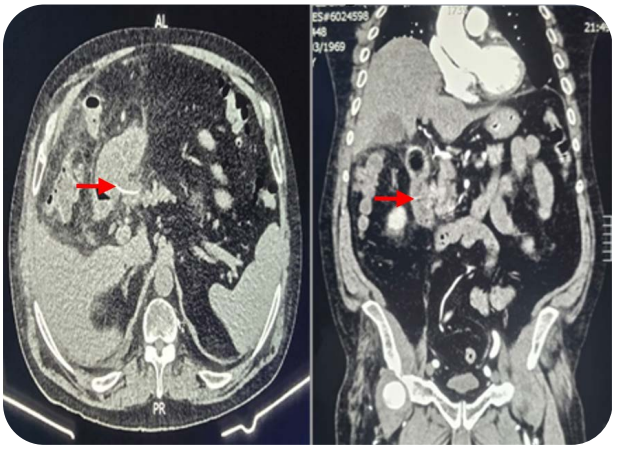

Figure 5. Coronal and axial CT. (red arrow) Foreign body which punctures the duodenum's inner wall towards the pancreas.

Subsequently, an ultrasound-guided fine-needle aspiration (FNA) of the hepatic collection was performed by the Minimally Invasive Surgery Service, yielding 60 cc of purulent fluid *(Figure 6)*. Three days later (day 14), 20 cc of similar fluid was aspirated, recurring at the site of the previous puncture.

The patient was later discharged after receiving Meropenem for 16 days, along with oral Amoxicillin plus Sulbactam, with instructions for an outpatient follow-up ultrasound.

Figure 6. Purulent fluid extracted by ultrasound-guided FNA.

DISCUSSION

Secondary liver abscesses caused by the ingestion of foreign bodies constitute an uncommon yet clinically significant condition, as illustrated in the present case series. While the most frequent etiologies of hepatic abscesses are bacterial, fungal, or parasitic infections, in secondary cases such as those presented here, it is essential to identify and treat the underlying cause in order to achieve complete resolution of the clinical condition [1].

In our series, the patients' clinical presentation was variable, which is consistent with what has been reported in the literature [2,3]. Case 1 presented with several days of epigastric pain, accompanied by fever and abnormal laboratory test results, which initially complicated the diagnosis. In Case 2, the patient sought care for chest pain, which misdirected the initial diagnostic work-up, delaying the detection of the hepatic abscess until further studies were performed. Case 3 manifested as acute abdominal pain, which guided the diagnosis toward an abdominal etiology, but identifying the foreign body as the cause of the abscess required imaging and endoscopic studies.

Identification of the foreign body in this case was key to establishing the definitive diagnosis. In all three cases, abdominal CT played a crucial role in detecting the hepatic abscess and raising suspicion of a foreign body, consistent with what has been reported in the literature [4]. Although ultrasound is a useful tool as an initial imaging modality [1], it may be insufficient in complex cases, as was evident in these patients, where CT provided greater diagnostic precision. In Case 3, esophagogastroduodenoscopy (EGD) made it possible to identify and remove a fish bone from the duodenum, underscoring the value of this procedure in both the diagnosis and treatment of this condition.

The management of liver abscesses secondary to foreign bodies requires a multidisciplinary approach. Abscess drainage—whether by percutaneous or surgical methods—is essential. In our series, two out of three patients required surgical drainage of the abscess, which is consistent with the need for this procedure in cases where the underlying cause is a foreign body [1,5]. The removal of the foreign body, when feasible, is crucial to preventing recurrence of the abscess. In Case 3, endoscopic extraction of the fish bone was successful, highlighting the importance of considering this minimally invasive approach whenever possible [2]. However, in Cases 1 and 2, removal of the foreign body was performed during surgical drainage of the abscess, reflecting the need to adapt treatment to the location and characteristics of the foreign body.

It is important to note that, in patients with a history of a healthy liver, special attention should be paid to medical history to identify possible risk factors, such as the ingestion of foreign bodies. Likewise, clinicians and radiologists should consider this unusual etiology when a hepatic abscess is present, regardless of the patient's medical history [1]. In our series, all three patients denied any history of foreign body ingestion during the initial interview, underscoring the importance of maintaining a high index of clinical suspicion for this diagnostic possibility.

Our findings, together with evidence from similar cases reported in the literature [2,3,5], highlight the importance of considering foreign body ingestion as a rare but possible cause of hepatic abscess. A high index of clinical suspicion, appropriate radiological assessment, and a multidisciplinary treatment approach are essential for the successful management of this condition.

In conclusion, the presentation of this case series adds to the medical literature by highlighting the variability in the clinical presentation of this entity, the importance of imaging studies for diagnosis, and the need for an individualized treatment approach.

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