Letter to the Editor

Abdominal wall abscess misdiagnosed due to accidental ingestion of a toothpicks

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Introduction

Accidental ingestion of a foreign body can cause a common clinical condition that can lead to different symptoms depending on the type of foreign body and its location. Swallowing a large foreign body that obstructs the airway can easily lead to asphyxiation. Sharp foreign bodies can easily puncture the digestive tract and lead to severe acute abdominal symptoms (1). In some special cases, such as the accidental ingestion of toxic metal foreign bodies by children, related toxic symptoms can occur. In most cases, the patients have unconsciously ingested the foreign bodies and do not present with corresponding symptoms, which makes early definitive diagnosis difficult. Some sharp foreign bodies are elongated in shape, and their material is not easily detectable in imaging examinations. Additionally, foreign bodies can hinder the progress of treatment, prolong the course of the disease, and even lead to patient death.

Case presentation

A 31-year-old woman presented at the Guangdong Provincial People's Hospital, Guangdong Academy of Medical Sciences with abdominal pain and fever for 3 days. The patient had experienced unexplained abdominal pain for the last 2 years, but had no history of tuberculosis, diabetes, or trauma, and had not travelled to any infectious areas.

The patient had been admitted to the Emergency Department of the hospital 2 years prior (in 2019) due to abdominal pain and high fever after delivery (caesarean section). An enhanced abdominal computed tomography (CT) scan of the patient revealed a mass soft-tissue density shadow in the left upper abdomen with multiple strips of high-density shadows visible (*Figure 1A*). The internal abdominal oblique muscle was involved in inflammation, and the boundary with the bowel was clear. The doctor detected neither the subtle abnormal signs on the CT scan nor the wooden foreign body in the patient's body. Thus, no surgical intervention was performed, and the patient was discharged after conservative treatment and the remission of symptoms.

Some 2 years later (in 2021), the patient presented to the hospital again due to intolerable abdominal pain and fever. A CT scan of the abdomen revealed swelling of the left upper abdominal wall internal oblique muscle and transverse abdominis muscle, and multiple short rod-like high-density shadows (*Figure 1B-1D*). The wooden foreign body in the abdominal wall again remained undetected by the doctor

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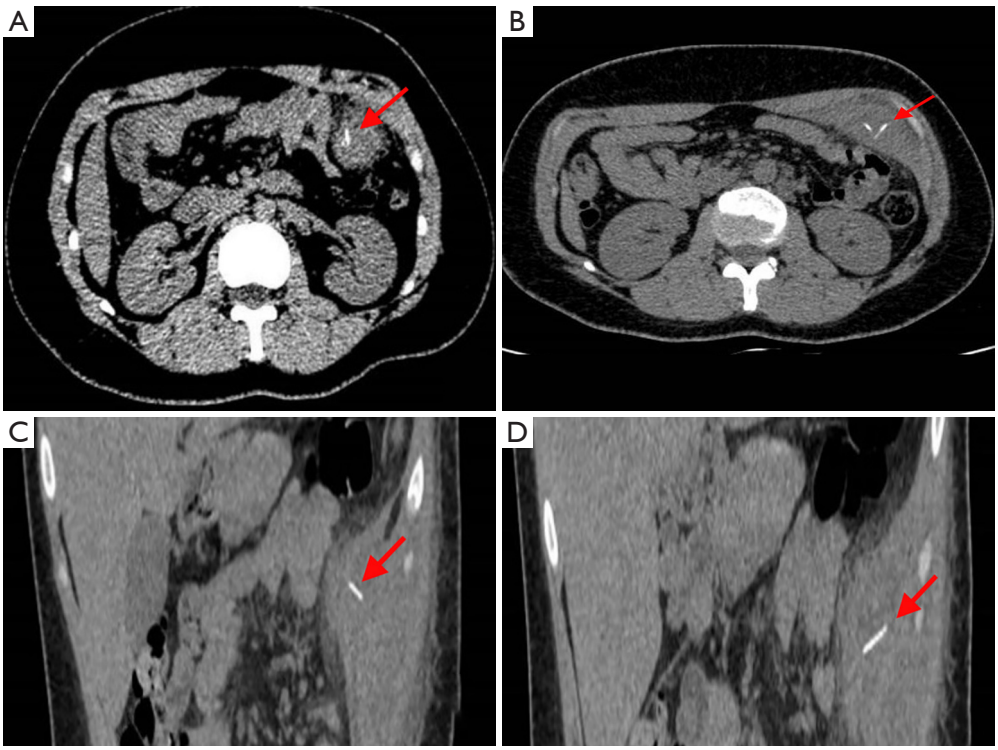

Figure 1 Imaging performed during the patient's first and second visit. The red arrows indicate the position of the toothpick. (A) A high-density cord-like shadow was observed in the abscess. (B-D) The foreign bodies were able to be seen more clearly by changing the angle of the coronal scan.

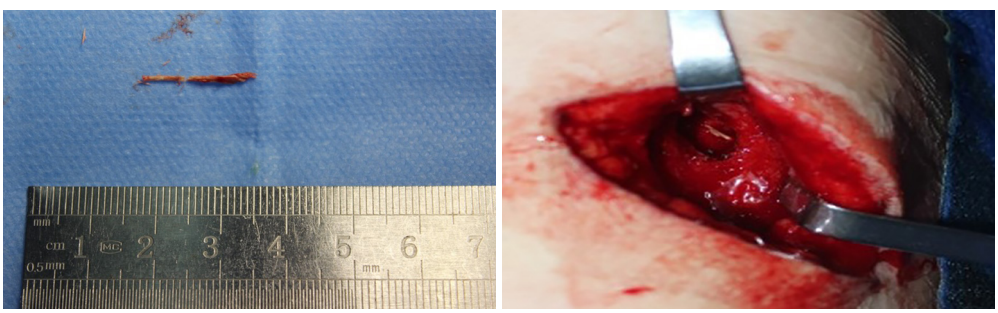

Figure 2 A toothpick was observed to be penetrating the intra-abdominal oblique muscle during the surgery.

during the visit, and thus, no surgical intervention was performed. The patient was admitted to the Department of Burns and Wound Repair Surgery after her symptoms were not able to be relieved by conservative treatment.

Magnetic resonance imaging (MRI) of the abdomen revealed that the muscles of the left upper abdominal wall were swollen. A large, patchy T2 weighted imaging (T2WI) hypersignal shadow with a larger lamellar area of 131 mm × 62 mm was observed. The fat space around the lesion was blurred, the peritoneum adjacent to the lesion was thickened, and a few cord-like shadows were observed. The left upper abdominal intestine was mildly compressed. Surgery was performed, during which a wooden foreign body that closely resembled a toothpick was identified and removed from the internal oblique muscle of the abdomen (*Figure 2*).

The patient's abdominal pain was relieved after surgery and then completely disappeared. She was followed up

6 months after discharge, during which time her abdominal pain had not recured.

All the procedures in this study were performed in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was provided by the patient for the publication of this case report and the accompanying images. A copy of the written consent form is available for review by the editorial office of this journal.

Discussion

Most foreign bodies, even those ingested without a patient's awareness, are excreted spontaneously, but the minority that cannot be excreted often cause symptoms of discomfort, such as abdominal pain, fever, nausea, and vomiting. When the ingested foreign body cannot be expelled, the effect of any conservative treatment is very limited. Such foreign bodies can only be removed by surgery or endoscopy (2). However, the wide variety of foreign bodies often make diagnosis difficult. The types of ingested foreign bodies are also known as exogenous foreign bodies. Exogenous foreign bodies can be broadly classified into the following categories according to their nature and imaging characteristics: (I) organic chemical materials, such as wood, plastic, polyurethane, rubber, and fibers, which cannot usually be observed in simple X-rays or CT scans; and (II) metallic materials, which are more easily detectable (1). Foreign bodies of endogenous origin are much less common, but they are usually accompanied by a clear etiology. D'cruz *et al.* (2) described a case in which a gallbladder stone caused an abdominal wall abscess; fortunately, the gallbladder stone was removed in time.

In this case, we considered the possible process by which the wooden foreign body penetrated the abdominal wall. We believe that the patient ingested the foreign wooden body unconsciously during pregnancy, and it entered the patient's digestive tract. The enlarged uterus pushed the digestive tract closer to the abdominal wall, and meanwhile, the peristalsis of the digestive tract caused the toothpick to penetrate the digestive tract and the abdominal wall muscles. As the digestive fluid slowly exudated, the omentum encapsulated the foreign body and an inflammatory sinus tract formed, which did not lead to free peritonitis. Without an enlarged uterus (due to pregnancy), it is possible that the patient might have healed naturally. We believe that it is very likely that the foreign body penetrated the intestine (jejunum), as the intestine has greater mobility than the stomach and thus it was easily pushed through by the enlarged uterus (3). The exudation of digestive fluids often causes strong abdominal pain and peritoneal irritation, but this symptom may have been covered by the abdominal pain caused by frequent contractions in late pregnancy. As a result above, clinicians failed to detect the problem in time.

During the patient's visit, several abdominal CT scans showed a clear indication of a "cord-shaped high-density shadow", and sharp light spots were observed on the image. It is possible that the coronavirus epidemic led physicians to focus more on changes in the lungs in the CT, and thus to neglect changes in the primary lesion. Additionally, the patient did not mention any history of foreign body ingestion. Due to the missed diagnosis, the receiving doctor did not find the wooden foreign body in the abdominal wall abscess and did not perform a surgical intervention on the patient, and thus missed the appropriate opportunity for effectively treating the patient.

Conclusions

Cases in which non-traumatic foreign bodies are retained in the abdominal wall are rare, which adds to the difficulty of diagnosis and treatment, especially as most patients usually ingest foreign bodies without realizing it. For patients with abdominal pain of unknown cause, clinicians need to observe the imaging examination results very carefully and find the possible causes behind the disease by combining reports and clinical knowledge.

Early image examinations can help to clarify the nature of the foreign body so that appropriate interventions can be implemented as early as possible. In this case, the MRI was highly accurate for the differential diagnosis of soft-tissue disease, but it did not provide substantial help. In the absence of a clear etiology at an early stage, simple and rapid sonographic detection should also be considered for abdominal wall abscesses of unknown origin (4).

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Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://qims.amegroups.com/article/view/10.21037/qims-22-962/coif).

The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work, including ensuring that any questions related to the accuracy or integrity of any part of the work have been appropriately investigated and resolved. All the procedures in this study were performed in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was provided by the patient for the publication of this case report and the accompanying images. A copy of the written consent form is available for review by the editorial office of this journal.

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References

1. Nastoulis E, Karakasi MV, Alexandri M, Thomaidis V, Fiska A, Pavlidis P. Foreign Bodies in the Abdominal Area: Review of the Literature. Acta Medica (Hradec Kralove) 2019;62:85-93.
2. D'cruz RT, Shelat VG. Ectopic retained gallstone causing an abdominal wall abscess. Ann Hepatobiliary Pancreat Surg 2019;23:197-9.
3. Tan EK, Tan EL. Alterations in physiology and anatomy during pregnancy. Best Pract Res Clin Obstet Gynaecol 2013;27:791-802.
4. Rioux M, Langis P. Sonographic detection of clinically unsuspected swallowed toothpicks and their gastrointestinal complications. J Clin Ultrasound 1994;22:483-90.

