

## Duodenal perforation due to toothpick perforation, an uncommon cause of chronic abdominal pain



**Fig. 1** a, b Unenhanced abdominal computed tomography (CT) scan reveals, on the axial and sagittal views, a hyperdense needle-shaped structure (white arrow) passing through the duodenal wall behind the pancreas. c, d Contrast enhanced CT scan (portal phase) reveals the presence of periduodenal tissue infiltration (black arrow) without vessel injury.

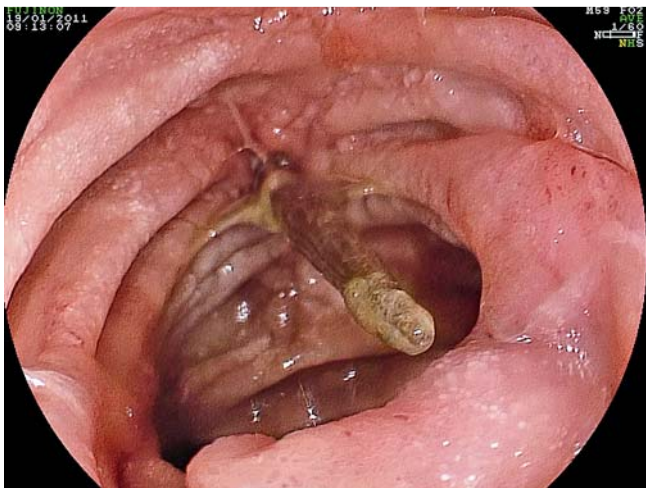
A 55-year-old woman presented with a 3-month history of chronic left upper quadrant abdominal pain. She had no previous medical history. Her symptoms were not associated with nausea or emesis. Physical examination showed an afebrile patient with left upper quadrant abdominal tenderness. Laboratory tests demonstrated an elevated white cell count of 15000/ $\mu\text{L}$  (normal range 4000 – 10000/ $\mu\text{L}$ ). C reactive protein was 50 mg/dL (normal <5 mg/mL). Liver function tests were normal. Images from ultrasonography exploration were considered normal.

An abdominal computed tomography (CT) scan demonstrated an infiltration of periduodenal tissue above the angle of Treitz and a hyperdense needle-shaped structure penetrating the duodenal wall

(**Fig. 1**). No vessel injury was seen. Upper gastrointestinal endoscopy revealed a wooden toothpick deeply embedded in the duodenal wall, and enabled it to be removed without the complications of bleeding or purulent flow (**Fig. 2**). The patient was treated with a daily dose of proton pump inhibitor and antibiotics for 7 days. She had no memory of ingesting the toothpick. The clinical course was uneventful. A follow-up CT scan confirmed regression of the periduodenal inflammation.

Most ingested foreign bodies pass through the intestinal tract without complication. Gastrointestinal bleeding or perforation are mostly observed with sharp objects like toothpicks. Other complications include peritonitis, abscess, obstruction, or

perforation into adjacent organs. Toothpicks account for about 9% of ingested foreign bodies [1, 2]. Risk factors for toothpick ingestion are mental pathology, alcohol abuse, rapid eating, and chewing of toothpicks [3]. Only 12% of patients remember eating a toothpick, therefore diagnosis of toothpick ingestion can be quite difficult. Most patients with intestinal perforation present with abdominal pain (70%) or bleeding (7%). Perforation occurs most frequently in the duodenal tract, probably related to an anatomical morphology with angulation and a C loop shape. The overall mortality rate is estimated at 18% [4]. In our case report, CT images were very useful to detect this foreign body, which appeared as a high density needle-shaped object. The CT scan made it possible to



**Fig. 2** Upper gastrointestinal endoscopy confirms an ingested toothpick embedded in the duodenal wall.

determine accurately the location of both ends of the toothpick. Moreover, the CT scan confirmed the depth of duodenal penetration and the absence of vessel injury before endoscopic removal of the toothpick. Upper gastrointestinal endoscopy is contraindicated when peritonitis or penetration of vessels is suspected.

As previously described by other authors, toothpick ingestion can be a rare cause of chronic abdominal pain [5,6]. Endoscopic retrieval of this foreign body allows a proper recovery without complications, therefore endoscopy should be done as soon as possible to avoid complications. In conclusion, we report a case of duodenal perforation due to an ingested toothpick. Despite the option for endoscopic removal and short medical treatment which permits a favorable clinical

course, toothpicks should be considered potentially dangerous.

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**Competing interests:** None

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