Toothpick-related intestinal inflammation mimicking Crohn’s disease

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Section: Abdominal imaging
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Technique: Ultrasound
Technique: CT
Case Type: Clinical Cases
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Patient: 57 years, male

Clinical History:

The patient reported right lower quadrant pain and diarrhoeic evacuations. He had a history of appendicectomy 10 year before while he was under therapy on prednisolone for suspected Crohn’s disease. Clinical and laboratory examinations revealed a palpable abdominal mass in right iliac fossa, mild leucocytosis and elevated CRP and ESR values.

Imaging Findings:

CT examination, performed one month earlier with the beginning of the symptoms, demonstrated segmental small bowel wall thickening in right iliac fossa with adhesions to the anterior parietal wall and adjacent fat tissue stranding suggesting Crohn’s disease (Fig. 1a, b, c, d).

When the patient presented again, plain abdominal radiograph was normal. Ultrasound examination demonstrated a hyperechoic lesion in right iliac fossa with obscure boundaries, hypoechoic areas in it and free fluid in the paracolic gut suggesting inflammation (Fig. 2 a, b, c).

Barium enteroclysis and colonoscopy did not show any mucosal lesions. A new CT examination and MR enteroclysis had also normal findings. Because of the persistence of the symptoms an open laparotomy was performed. An inflammatory mass of the small intestine was identified and excised. In the surgical specimen a toothpick was detected embedded in the mucosa of the small bowel with abscess formation in that area and presence of actinomycete (Fig. 3).

Discussion:

Ingestion of foreign bodies is rather common. While most of the objects pass through the intestine without sequelae, toothpicks tend to penetrate it because they are elongated and have sharp pointed ends. Perforation of the bowel is associated with high morbidity and mortality [1]. The diagnosis is challenging since most of the patients do not recall ingesting the foreign body.

Factors associated with toothpick ingestion include decreased sensitivity of the palatal surface (dentures, very cold liquids), mentally retarded patients, children, rapid gobbling of food. The passage of the foreign bodies is usually impeded by anatomic sphincters, acute angulations or intestinal narrowing (prior surgery or congenital malformation). The complications that have been implicated include gastrointestinal bleeding, intestinal obstruction, bowel perforation, fistula formation [2, 3].

Patients usually present with vague abdominal complaints, but symptoms may mimic other abdominal diseases, like
diverticulitis, appendicitis, renal colic and inflammatory bowel disease. Due to intestinal peristalsis, the toothpick penetrates the mucosa and migrates to organs adjacent to the perforating site, reaching liver, pleura, ureter, bladder, thigh or even large vessels such as aorta and inferior vena cava [2].

Plain radiography is not helpful since toothpicks are radiolucent and cannot be detected. Free air in the abdomen (pneumoperitoneum) and intestinal obstruction secondary to perforation are rarely seen [1, 4]. Gastroroduodenoscopy and colonoscopy are modalities of choice for identification of objects trapped in the upper or lower gastrointestinal tract respectively. These techniques may also remove the ingested objects once these are traced, but their sensitivity is reduced in chronic cases because the intestinal mucosa may be healed [2, 5].

Ultrasonography is useful in demonstrating the foreign body and the complications of perforation, such as free fluid, thickened bowel wall. A toothpick appears as a linear, hyperechoic or hypoechoic image of variable length and posterior shadowing in the longitudinal axis, and a hyperechoic dot with clear, thin, sharp, posterior shadowing in the transverse section. If present, these findings may suggest the diagnosis [4, 6].

Although CT identify ingested fish bones easily, the manifestation of radiolucent materials such as toothpicks is difficult. Usually thickened intestinal wall, localised pneumoperitoneum, regional localised inflammation with fatty infiltration or intestinal obstruction is demonstrated. CT may also identify the presence of perforation and the extent of intra-abdominal inflammation either with or without abscess formation [2].

Toothpick perforation must be considered in any patient with symptoms of intestinal perforation, even when there is no history of swallowing toothpicks.

**Differential Diagnosis List:** Toothpick-related intestinal inflammation, Inflammatory bowel disease, Appendicitis, Diverticulitis

**Final Diagnosis:** Toothpick-related intestinal inflammation

**References:**

**Description:** Segmental small bowel wall thickening in right iliac fossa with adhesions to the anterior parietal wall and adjacent fat tissue stranding is demonstrated. **Origin:** Euroiatriki imaging diagnostic center, Thessaloniki
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**Figure 2**

**Description:** Ultrasound examination demonstrated a hyperechoic lesion in right iliac fossa with obscure boundaries and hypoechoic areas in it and free fluid in the paracolic gut. **Origin:** General Hospital "Agios Pavlos" Thessaloniki
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Description: A toothpick is detected embedded in the mucosa of the small bowel wall. Origin: General Hospital 'George Papanikolaou'. Thessaloniki.