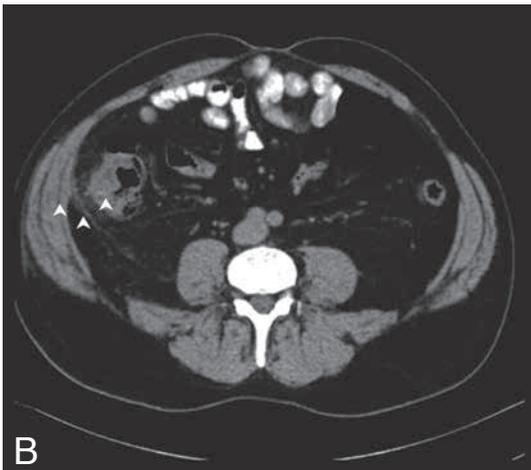


## IMAGES IN CLINICAL RADIOLOGY



### *Toothpick perforation of the caecum*

D. Nićiforovic<sup>1,2</sup>, A. Spasic<sup>1</sup>, I. Turkalj<sup>1</sup>, F.M. Vanhoenacker<sup>3,4,5</sup>

A 61-year-old male was admitted to the Emergency department with a history of increasing abdominal pain for 7 days. On physical exam pain and tenderness in the right lower quadrant were evident while laboratory examination revealed slightly elevated neutrophil count. Abdominal ultrasound was unremarkable probably due to artifacts induced by gas in caecum.

Subsequent CT showed a thin and pointy, foreign body in the caecum near the ileocaecal valve, which had perforated lateral wall of caecum and had thrust into transverse abdominal muscle (Fig. A and B, arrow). The foreign body was 65 mm long, 2 mm thick, and its density was 100 HU. The lateral wall of caecum was thickened and there was edema of the transverse abdominal and internal oblique muscle and along with fatty peritoneal tissue on the trajectory of the foreign body (Fig. A and B, arrowheads). No signs of ascites and pneumoperitoneum were present.

Surgery revealed a toothpick, which was pointed at both ends, traversing from caecal lumen through lateral caecal wall and peritoneum and thrusting into abdominal wall muscles. Right hemicolectomy with ileotransverse anastomosis was performed due to longstanding ischemic changes of the caecal wall.

#### *Comment*

Usual places of a foreign body (FB) delay and obstruction are junction of second and third part of duodenum, ileocaecal region, vermiform appendix, the junction of caecum and ascending colon and flexures and haustrae of large intestine including rectal ampulla. Protective reaction of the small intestine to FB impaction is due to contractions of muscularis mucosa which form small concavity and firmness of intestinal wall on a place of contact with sharp end of the FB. This phenomenon along with peristaltic movements of the intestine and propulsion of its content enables FB to change angulations and start advancing through the intestine with the other end ahead. This protective contractile reaction is less constant in the large intestine.

Angular insertion of ileum into the caecum and lower protective contractility compared to the small intestine make the caecum prone to perforation caused by sharp objects, such as ingested toothpicks.

A perforation of the gastrointestinal tract occurs in less than 1% of ingested FB. Toothpicks are involved in less than 0.1%. On ultrasound toothpick can be seen as hyperechoic formation, without reverberation artifact, usually with shadow artifact. CT is more sensitive than plain radiography in depicting of toothpicks. The most common signs of an ingested FB are segmental bowel wall thickening adjacent to localized extraluminal gas bubbles, infiltrated fatty tissue near thickened bowel wall and direct demonstration of FB. Toothpicks can be either hyper- or hypodense on CT, as they are usually made up of wood. Dry wood has high air content and therefore is hypodense, whereas fresh wood has higher water content and higher density. Free intraperitoneal air is less common since the FB is gradually impacted and the perforation is locally covered with fibrin.

#### *Reference*

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1. Centre of Radiology, Clinical Centre of Vojvodina, Novi Sad, Serbia, 2. University of Novi Sad, Medical Faculty, Novi Sad, Serbia, 3. Department of Radiology, AZ Sint-Maarten DuffelMechelen, Mechelen, 4. Department of Radiology, Antwerp University Hospital, Edegem, 5. University of Ghent, Faculty of medicine and Health sciences, Ghent.