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Laparoscopic treatment of right colic flexure perforation by an ingested wooden toothpick



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ABSTRACT

INTRODUCTION: Ingestion of a toothpick, both accidentally and intentionally, is a rare event.**PRESENTATION OF CASE:** We present the case of a 42-years old man who was admitted to the emergency department at our Institution presenting with a 5-days history of right sided abdominal pain. Laboratory blood count reported leukocytosis and alteration of principal inflammation index; at the abdominal ultrasound no signs of perforation or collection were described.**DISCUSSION:** Indication to surgery was posed and an explorative laparoscopy was performed. The presence of local peritonitis at the right colonic flexure secondary to a full thickness bowel perforation caused by a toothpick was found. There was also an acute phlegmonous appendicitis. A laparoscopic appendectomy and a full-thickness double running suture of the perforation were performed.**CONCLUSION:** Awareness about dangers of ingested toothpicks needs to be taken and the intestinal track/trace of the toothpick is mandatory until its expulsion.© 2020 Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Ingestion of a toothpick, both accidentally and intentionally, is a rare event; dementia, young or old age or carriage of denture are described as predisposing factors [1].

Even if foreign bodies usually pass the gastrointestinal tract without complications, reported consequences include, obstruction, perforation, haemorrhage, fistula formation and sepsis. In particular, in case of sharp objects such as a toothpick, perforation or other bowel injuries can occur, reporting high rate of morbidity and mortality (9.6%) [2].

Abdominal pain is the most common symptom; only a few patients remember having swallowed a toothpick, clinical and laboratory findings are unspecific and radiological diagnosis can be negative because wooden material is radiolucent [3]. Caecum, sigmoid tract, duodenum and stomach are the most frequent location for toothpick-related perforations. While older studies reported an open approach, in the last decade laparoscopy has been recorded as viable alternative [2,13]. Location of the foreign body and surgeon's experience play an important role in the choice of the surgical approach (Fig. 1).

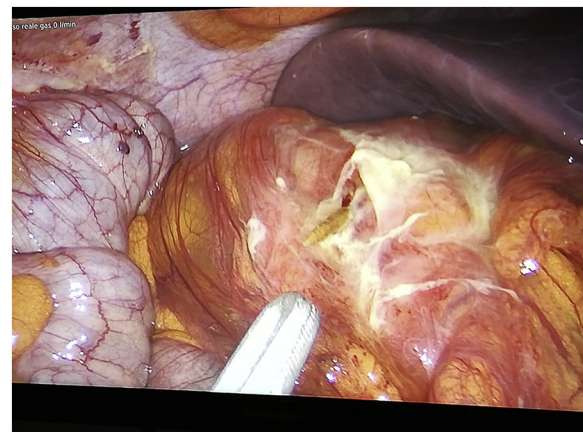


Fig. 1. The toothpick perforating the colon.

2. Presentation of case

2.1. Methods

This case reports in describe in line with *The SCARE 2018 Statement: Updating Consensus Surgical Case Report (SCARE) Guidelines, International Journal of Surgery 2018;60:132–136* [16].

A 42-years old was readmitted to ER with right sided abdominal pain, after being discharged 5 days earlier with a renal colic

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diagnosis. The patient does not take drugs chronically, there are no known hereditary pathologies and is completely autonomous in daily life. At this time, blood tests revealed leukocytosis and elevation of inflammation index. On physical examination no abdomen rebound or defense were detected. With the hypothetical diagnosis of acute appendicitis, the patient was hospitalized and an explorative laparoscopy was indicated. Surgical exploration that was initially performed by a resident at the third year of residency revealed appendiceal phlegmon associated to a large amount of fibrin material/collection located at the right hypocondrium with a foreign body that was protruding by 2 cm from the bowel. The foreign body was a toothpick. In absence of faecal contamination, probably because the wooden body was located at the antimesenteric border of the colonic right flexure without exposition of mucosa, the toothpick was removed and a double full thickness laparoscopic running suture with absorbable polyglactin was performed to close the hole/perforation by a senior surgeon. A protective omental patch was added and appendectomy was performed. A laminar drain was positioned in the peritoneal cavity. No intra or post-operative complications were registered and the patient was discharged after 10 days. The surgery performed turned out to be different from that planned but without the need for laparotomy. The patient was discharged with other 10 days of rest without other limitations. The patient was not able to remember if and when he had ingested a toothpick in the previous days.

3. Discussion

Ingestion of a toothpick rarely causes bowel perforation. The incidence is reported to be 0.2 per 100000 people every year in the USA [5]. In this case report, the patient didn't report any predisposing factors such as dementia, young or old age or carriage of denture [3]. Swallowed toothpicks are likely to cause a variety of lesions including perforation, bleeding, obstruction and haemorrhage [6]. Septic complications have also been described, sometimes related to the migration of the toothpick out of the digestive tract [4]. All the portions of the gastrointestinal tract could be concerned by the perforation [7], but the most frequent sites of location are areas controlled by sphincters and physiological narrowing [6]; most commonly described locations include the caecum, the duodenum, the sigmoid and the stomach [8]. The occurrence at the right flexure of the colon is very rare (9%) [2]. The diagnosis is not always obvious; the toothpick could be radiologically detected only in 5%–15% of cases on standard imaging [8]. Most patients consult for aspecific abdominal pain, and standard X-ray or ultrasound imaging usually fail to identify the toothpick [9]. Definitive diagnosis can be mostly obtained with laparoscopic exploration [10], and the treatment can vary from laparoscopic suture to intestinal resection based on the contamination and the severity of injury [11]. Even if endoscopic approach should be preferred to surgery whenever possible, especially in upper GI tract [14], surgical management represents today the main treatment [2,7,12,13]. The use of laparoscopy allows us to combine at the same time a diagnostic and therapeutic approach in addition to the established advantages that minimally – invasive surgery offers, in terms of increased magnification, reduced post-operative complications, less post-operative pain, and enhanced recovery [12]. The whole peritoneal cavity can be explored, performing intra or extra corporeal repair, intestinal resection with the possibility of converting into laparotomy if needed [15].

4. Conclusion

An increased awareness by healthcare providers on the potential dangers caused by ingested toothpicks is required, and in case of

bowel perforation surgeons should always consider ingested foreign bodies. When clinically suspected, auxiliary examination as CT scan should be undertaken to localize the foreign body and a laparoscopic exploration could be the most effective approach.

In our case a CT scan was not performed because the absence of any clinical suspect of presence of foreign body.

Declaration of Competing Interest

The authors report no declarations of interest.

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Ethical approval

This case report is exempt from ethical approval.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Gianmaria Casoni Pattacini: Concept the case report and write the paper.

Francesca Pecchini: Concept the case report and correct the paper.

Barbara Mullineris: Subjected the patient to surgery.

Roberto De Maria: Subjected the patient to surgery.

Vincenzo Trapani: Subjected the patient to surgery.

Alice Francescato: Data collection.

Micaela Piccoli: Supervision.

Registration of research studies

This case report don't need any registration to the researchregistry.com because it's not a first-in man case report and it's not a novel technology or device.

Guarantor

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References

- [1] Alain Chichom-Mefire, Perforation of the splenic flexure of the colon by an ingested wooden toothpick, *J. Surg. Case Rep.* 2015 (1) (2015) 1–2.
- [2] C. Steinbach, M. Stockmann, M. Jara, et al., Accidentally ingested toothpicks causing severe gastrointestinal injury: a practical guideline for diagnosis and therapy based on 136 case reports, *World J. Surg.* 2014 (38) (2014) 371–377.

- [3] S.F. Li, K. Ender, Toothpick injury mimicking renal colic: case report and systematic review, *J. Emerg. Med.* 2002 (23) (2002) 35–38.
- [4] Dae Ro Lim, Jung Cheol Kuk, Taehyung Kim, Eung Jin Shin, Surgery for intra-abdominal abscess due to intestinal perforation caused by toothpick ingestion two case reports, *Medicine* 98 (36) (2019), e17032.
- [5] L.D. Budnick, Toothpick-related injuries in the United States, 1979 through 1982, *JAMA* 1984 (252) (1984) 796–797.
- [6] A. Lovece, E. Asti, A. Sironi, L. Bonavina, Toothpick ingestion complicated by cecal perforation: case report and literature review, *World J. Emerg. Surg.* 2014 (9) (2014) 63.
- [7] M. Ragazzi, F. Delcò, P. Rodoni-Cassis, M. Brenna, L. Lavanchy, M.G. Bianchetti, Toothpick ingestion causing duodenal perforation, *Pediatr. Emerg. Care* 2010 (26) (2010) 506–507.
- [8] David Mark, Kathryn Ferris, Gareth Martel, Keith Mulholland, Radiological diagnosis of a small bowel perforation secondary to toothpick ingestion, *BMJ Case Rep.* (August) (2013), <http://dx.doi.org/10.1136/bcr-2013-009869>.
- [9] O. Ioannidis, E. Kakoutis, L. Sakkas, et al., Ingested toothpick fistula of the ileum mimicking Crohn's disease, *Acta Gastroenterol. Belg.* 2010 (73) (2010) 527–529.
- [10] A. Sadaf, I. Hammond, Answer to case of the month #150 right iliac fossa abscess secondary to cecal perforation by toothpick, *Can. Assoc. Radiol. J.* 2009 (60) (2009) 146–148.
- [11] I. Wani, S.A. Wani, S. Mir, K. Parra, An unusual presentation of toothpick penetration of colon, *J. Emerg. Trauma Shock* 2010 (3) (2010) 401–402.
- [12] Zifeng Yang, Deqing Wu, Dailan Xiong, Yong Li, Gastrointestinal perforation secondary to accidental ingestion of toothpicks. A series case report, *Medicine* 96 (December (50)) (2017), e9066.
- [13] Keri Elizabeth Lunsford, Ranjan Sudan, Small bowel perforation by a clinically unsuspected fish bone: laparoscopic treatment an review of literature, *J. Gastrointest. Surg.* 16 (218) (2012) 222.
- [14] M. Birk, et al., Removal of foreign bodies in the upper gastrointestinal tract in adults: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline, *Endoscopy* 48 (2016) 489–496.
- [15] Daryl K.A. Chia, Ramesh Wijaya, Andrew Wong, Su-Ming Tan, Laparoscopic management of complicated foreign body ingestion: a case series, *Int. Surg.* 100 (2015) 849–853.
- [16] R.A. Agha, M.R. Borrelli, R. Farwana, K. Koshy, A. Fowler, D.P. Orgill, For the SCARE Group, The SCARE 2018 statement: updating consensus surgical Case Report (SCARE) guidelines, *Int. J. Surg.* 60 (2018) 132–136.

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