

Intestinal perforation by a foreign body, without identifying a perforation site at laparotomy



Ann. Ital. Chir., 2009; 80: 61-64

Georgios Velimezis, Dimitrios Filippou, Georgios Filippou, Nicolas Condilis*,
Antonios Vezakis, Evangelos Perrakis, Christianakis Eftstratios, Spiros Rizos, Nicolaos Paschalidis

Department of Surgery, Wesern Afriga General Hospital, Athens, Greece.

First Department of General Surgery, Piraeus General Hospital "Tzaneio", Piraeus, Athens, Greece

*Department of Familiar Medicine, Peripheral General State Hospital of Nikaia "Saint Panteleimon", Piraeus, Greece

Intestinal perforation by foreign bodies is a rare event with various clinical presentations.

A case is reported of a young man, who was presented with abdominal pain and an inflammatory abdominal mass resulting from intestinal perforation by a wooden spike.

Thorough surgical exploration of the abdominal cavity didn't reveal the perforation site. An inflammatory mass in small bowel mesentery was excised and the cavity drained. The patient had an uneventful recovery.

In cases of intestinal perforation by wooden spikes the site of perforation may not be identified. Healing of the opening after the passage of the spike is the possible mechanism. The outcome of these patients even without finding the opening is favorable.

KEY WORDS: Foreign body, Inflammatory mass, Intestinal perforation, Wooden spike,

Introduction

Although the ingestion of foreign bodies (fishbones, bone spikes, toothpicks, wooden spikes, needles of sewing etc) is quite common, most of them pass spontaneously through the gastrointestinal tract without causing any complications. Intestinal perforation by foreign bodies, ingested either accidentally or on purpose, is rare and requires immediate treatment. We present a case of a young man, who was presented with abdominal pain and an inflammatory abdominal mass, resulting from intestinal perforation due to a wooden spike.

Case report

A 46 years old man proceeded in the Emergency Department with diffuse abdominal pain, pallidness and perspiration. The symptoms started 20 hours ago, while last 2 hours the patient felt abrupt intense perium-

bilical pain, without vomiting or diarrhea. Past medical history included hypertension and some episodes of hiccup during the last month. Clinical examination revealed diffuse ten-

desms with guarding and a palpable periumbilical mass. A month ago he suffered a similar episode of acute abdominal pain that resolved spontaneously. There was no history of abdominal injury. The patient was stable haemodynamically. Laboratory tests showed an increased white cell count with moderately elevated liver function tests. Chest and abdominal xray (Figs. 1 and 2) showed no free gas in the abdomen but some small bowel loops periumbilically. Abdominal ultrasound (Fig. 3) was normal. CT scan (Fig 4,5) revealed inflammatory changes of pericolic fat below the transverse mesocolon with dilated loops of small bowel in the pelvic entry and without any signs of intestinal perforation.

The patient underwent a laparotomy where an inflammatory mass, 3.5 cm in diameter, was identified at small bowel mesentery. Small bowel loops were adhered to the mass. The inflammatory mass was removed and incised. A thin wooden spike (fig 6) was found inside the mass. A thorough examination of the whole gastrointestinal tract was undertaken in order to find a perforation site. Despite the meticulous examination, the perforation site wasn't found, even after injection of blue de methylene through a nasogastric tube. The postoperative course

Pervenuto in Redazione Settembre 2006. Accettato per la pubblicazione Aprile 2007.

For correspondence: Dimitrios Filippou, MD, PhD, 14 Agias Eirinis str. GR-11146 Galatsi, Athens, Greece (e-mail: d_filippou@hotmail.com)



Fig. 1: Abdominal plain X-ray film.

uneventful and the patient was discharged home the ninth postoperative day. The patient remains well after a follow up of 21 months.



Fig. 2: Abdominal CT.

That case is interesting, because we did not find any site of perforation, despite finding a foreign body into the peritoneal cavity. We have treated 3 patients with delayed peritonitis due to small bowel perforation from fishbones, but we did not manage to identify the site of the perforation in all of them.

Discussion

Foreign bodies in the peritoneal cavity are well known cause for urgent or planned laparotomy. These foreign bodies

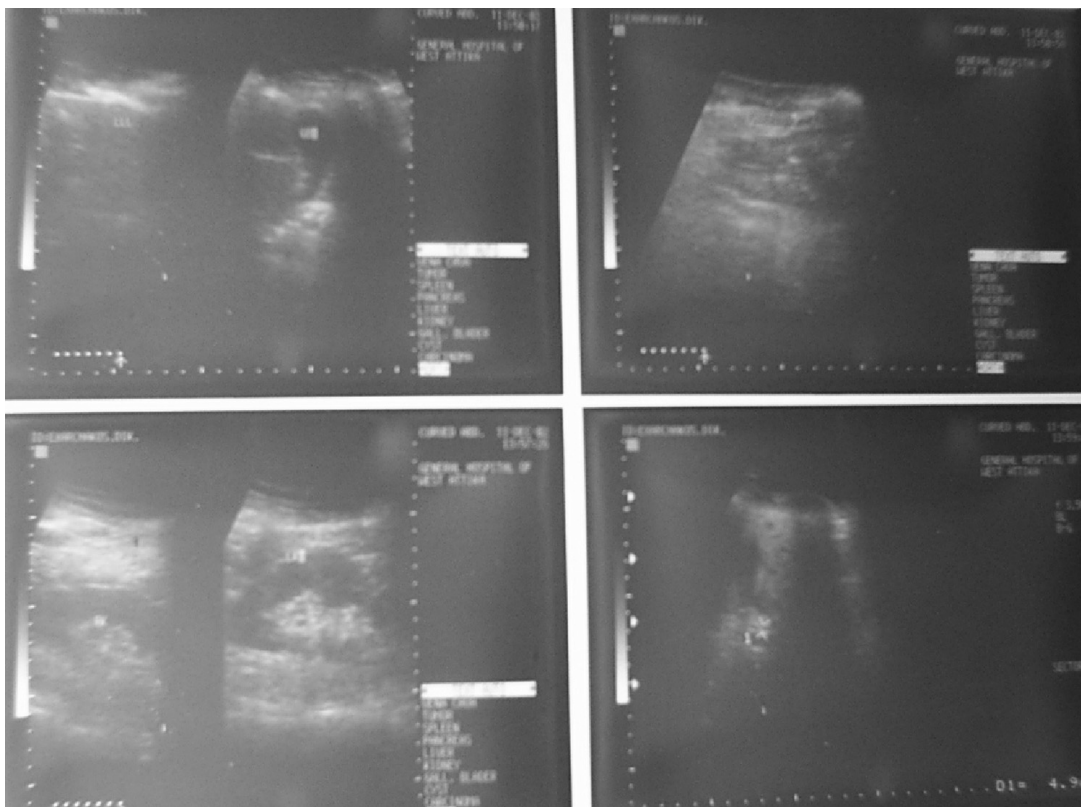


Fig. 3: Abdominal ultrasound in which the site of the perforation was revealed (arrow).

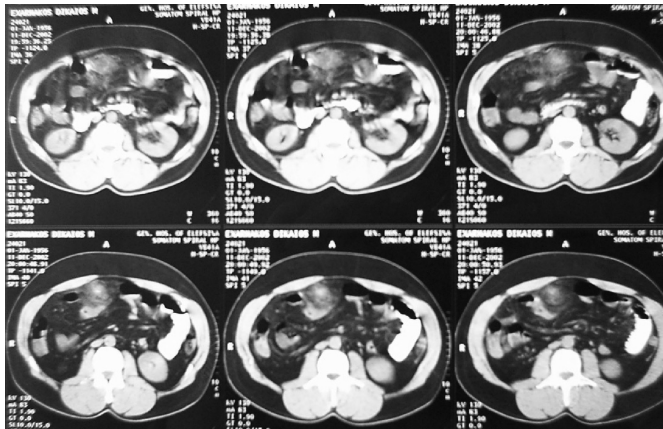


Fig. 4: Abdominal CT.

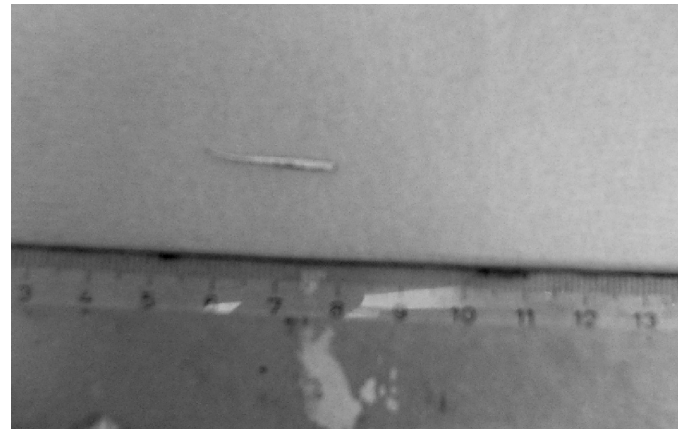


Fig. 6: The wooden spike (1=3 cm).

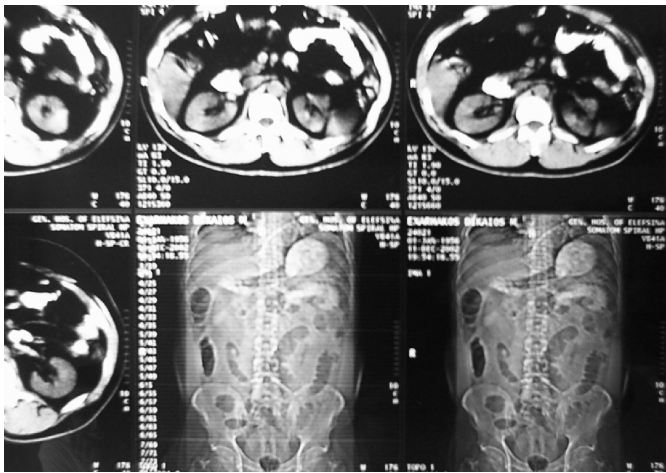


Fig. 5: Abdominal CT.

can emanate from the exterior environment (bullets), from the internal environment as immigration of medical appliances (intrauterine devices), from placement of medical appliances (laparoscopic clips, surgical gauzes or other tools, talc powder) as well as after perforations of the gastrointestinal tract (sewing needles, bone spikes or toothpicks etc). These foreign bodies may remain asymptomatic and constitute accidental findings or cause complications like abscesses and peritonitis. We have experienced three cases of peritonitis in old patients, from delayed perforation of the small bowel due to fishbones. In all of them we found and treated successfully the perforation site. In this case, however, we did not find the site of perforation despite the meticulous investigation. The foreign body was a wooden spike, either a toothpick or the tip of a stick which is used for the traditional greek food 'souvlaki'. The diagnosis usually is not preoperative, because the density of wood does not allow the radiographic localization, while in a small percentage a pneumoperitoneum can be apparent¹. It should also be mentioned that nearly 80% of the patients do not remember the incident of ingestion^{2,3}. In the literature there are several reports

of perforation of the gastrointestinal tract from toothpicks mainly in old individuals, while in a report, it did not become possible to determine the site of perforation in a young patient^[4] and in another case the site of perforation was not determined although an inflammatory mass had been created in the hepatogastric ligament⁵.

In the literature there are reported cases of immigration of toothpicks in the liver⁶, pleura, pericardium, ureter and in the urinary bladder⁷. Massive gastrointestinal bleeding through a arterioenteric fistula created by a foreign body, between the common iliac artery and the small bowel has also been described⁸, as well as lethal bacteraemia from toothpick perforation close to the inferior vena cava^{2,8}.

The treatment is surgical, and usually is simple and with minor morbidity. On the other side conservative treatment may cause dangerous and even lethal^{2,7,8}. In the case a spike is found accidentally inside an intraperitoneal abscess or inflammatory mass, it is possible not to be able to find the perforation site. In such cases, it is recommended to drain the abscess or to remove the inflammatory mass and drain the remaining cavity. When the diagnosis has been established by imaging techniques and there are no signs of peritonitis, then endoscopic or laparoscopic removal should be attempted.

If the site of perforation is found, then it should be oversewed or a segmental bowel resection may be required. Laparoscopic techniques have been recently applied the treatment of such patients^[9], but there is no evidence to whether a thorough examination of the gastrointestinal tract can be performed by using laparoscopic approach.

Conclusion

Ingestion of wooden spikes can be asymptomatic or there may be a long interval between the ingestion and the commencement of symptoms. The preoperative diagnosis is uncommon because they are not apparent in the

radiographic imaging. Clinically these patients can be presented with acute abdominal pain, intraperitoneal mass or even with signs of sepsis. When left untreated, lethal complications can be developed. The mainstay of treatment is the removal of the spikes by laparotomy or by endoscopic or laparoscopic techniques. In some cases the site of perforation cannot be detected and oversewed. In such cases, after a thorough exploration of the abdominal cavity, we have to drain the abscess or remove the inflammatory mass and drain the remaining cavity. That kind of treatment seems adequate for these patients.

Riassunto

La perforazione dell'intestino da corpi estranei, è un'evento raro con vari aspetti di presentazione clinica. Presentiamo il caso di un giovane uomo, che si è recato nel nostro ospedale, in quanto era in preda da intenso dolore addominale ed inoltre presentava una ben evidente e palpabile massa infiammatoria in sede addominale, esito a sua volta della perforazione intestinale che gli ha provocato l'accidentale ingestione di uno stuzzicadenti. L'esplorazione chirurgica della cavità addominale non rivelò la sede esatta della supposta perforazione. Una massa infiammatoria è stata escissa dal mesentere dell'intestino tenue ed in seguito la cavità addominale venne drenata. Il paziente, dopo un breve ricovero, senza sgradevoli sorprese, fu dimesso.

Nei casi di perforazione intestinale provocata da frammenti accuzzi di legno in generale (e non solamente da stuzzicadenti, come nel caso da noi riportato) è spesso possibile che non si possa riuscire ad identificare il sito esatto della perforazione da loro causata. La rapida guarigione del foro traumatico, dopo il passaggio dell'ogget-

to acuminate è forse il meccanismo più plausibile per spiegare il suddetto fenomeno. La prognosi per detti pazienti, pure se non si riesce ad identificare il forame traumatico d'apertura dell'intestino, è favorevole nella maggior parte dei casi.

References

- 1) Pinero Madrona A, Fernandez Hernandez JA, Carrasco Prats M, Riquelme J, Parrila Paricio R: *Intestinal perforation bodies*, Eur J Surg, 2000; 166(4):307-09.
- 2) Schwartz JT, Graham DY: Toothpick perforation of the intestine, Ann Surg, 1977; 185(1):64-66.
- 3) Li SF, Ender K: *Toothpick injury mimicking renal colic case report and systemic review*, Emergency Medicine, 2002; 23(1): 35-38.
- 4) Konig PS, Kronenberg F, Joanidis M, Dietl P, Lhotta K: *Recurrent abdominal pain caused by a toothpick in a CAPD patient*, Advanced Peritoneal Dialysis, 1991; 7:96.
- 5) Porcu A, Dessanti A, Feo CF, Dettori G: *Asymptomatic gastric perforation by a toothpick. A case report*, Digestive Surgery, 1999; 16(5):437-38.
- 6) Kanazawa S, Ishigaki K, Miyake T, Ishida A, Tabuchi A, Tanemoto K, Tsunoda T: *A granulomatous liver abscess which developed after a toothpick penetrated the gastrointestinal tract. Report of a case*, Surgery Today, 2003; 33(4):312-14.
- 7) Dicicco BS, Heit HA, Peterson JE, Harshaw WG, Cooper JN: *Massive bleeding due to arterial-enteric fistula from an ingested toothpick*, Clinical Gastroenterology, 1985; 7(4):292-95.
- 8) Cockerill FR 3rd, Wilson WR, Van Scoy RE: *Travelling toothpicks*, Mayo Clinic Proceedings, 1983; 58(9):613-16.
- 9) Winchmann MW, Huttel TP, Billing Ajauch KW: *Laparoscopic management of a small bowel perforation caused by a toothpick*, Surgical Endoscopy, 2004; 18(4):718.