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Toothpick Perforation Of Colon Mimicking Acute Appendicitis

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Toothpick Perforation Of Colon Mimicking Acute Appendicitis

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Case Report

A 51 year old female presented to the emergency department for evaluation of right lower quadrant abdominal pain. The pain started within 24 hours around her umbilicus and then migrated to right lower quadrant. Patient denied fevers, chills, shortness of breath, or dysmenorrhea. Patient admitted to a bowel movement the previous day, dysuria, anorexia, and nausea. Physical exam revealed a soft, obese abdomen. There was tenderness to palpation in right lower quadrant, a positive McBurney's point, negative Rovsing's sign, no peritoneal signs. Laboratory studies included a leukocytosis of 18 thousand with a left shift. Urinalysis was unremarkable. Computerized tomography scan (CT) showed no acute abnormalities; no pneumoperitoneum, no fluid collections, no evidence of appendicitis, no ureteral stones, no signs of obstruction.

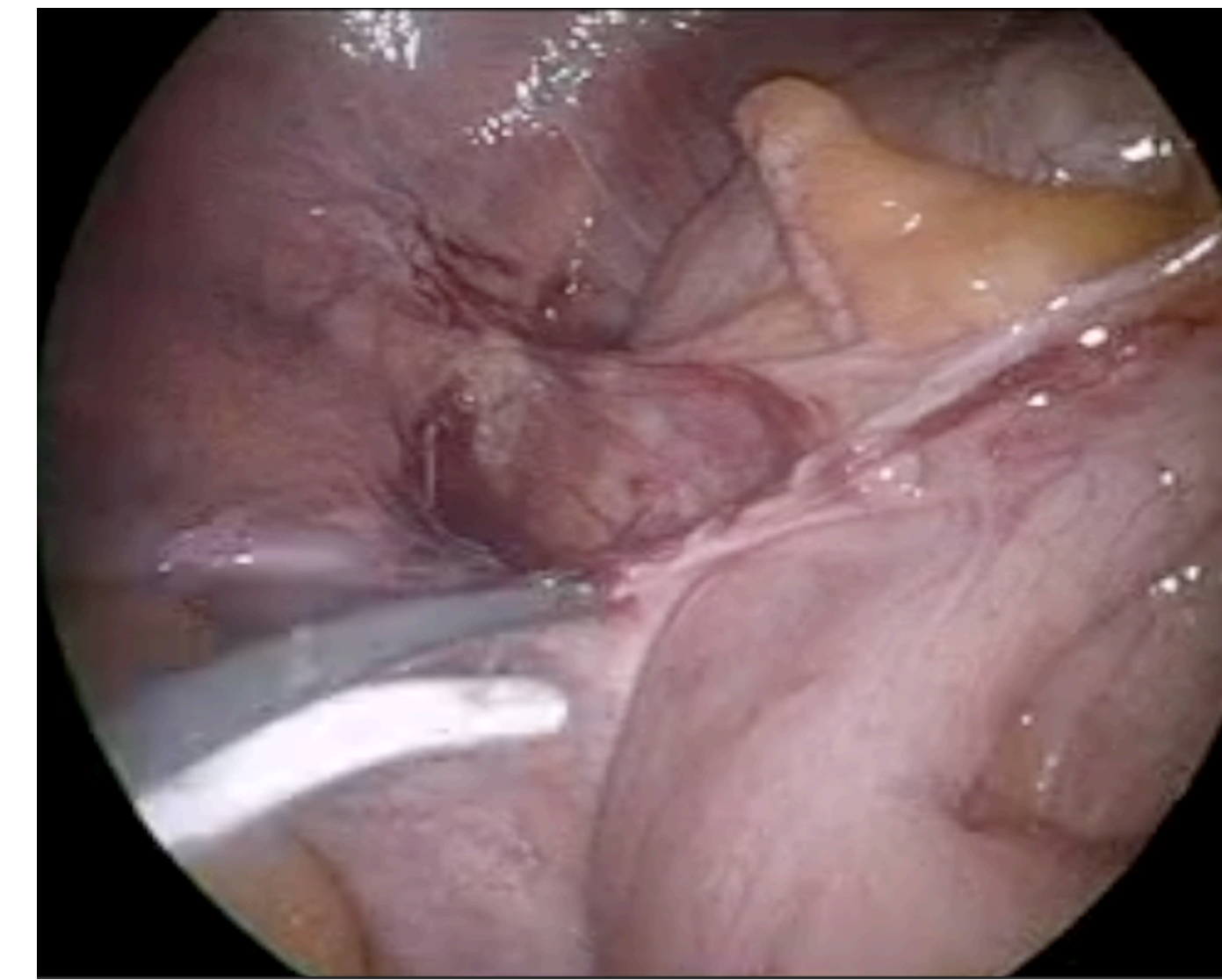
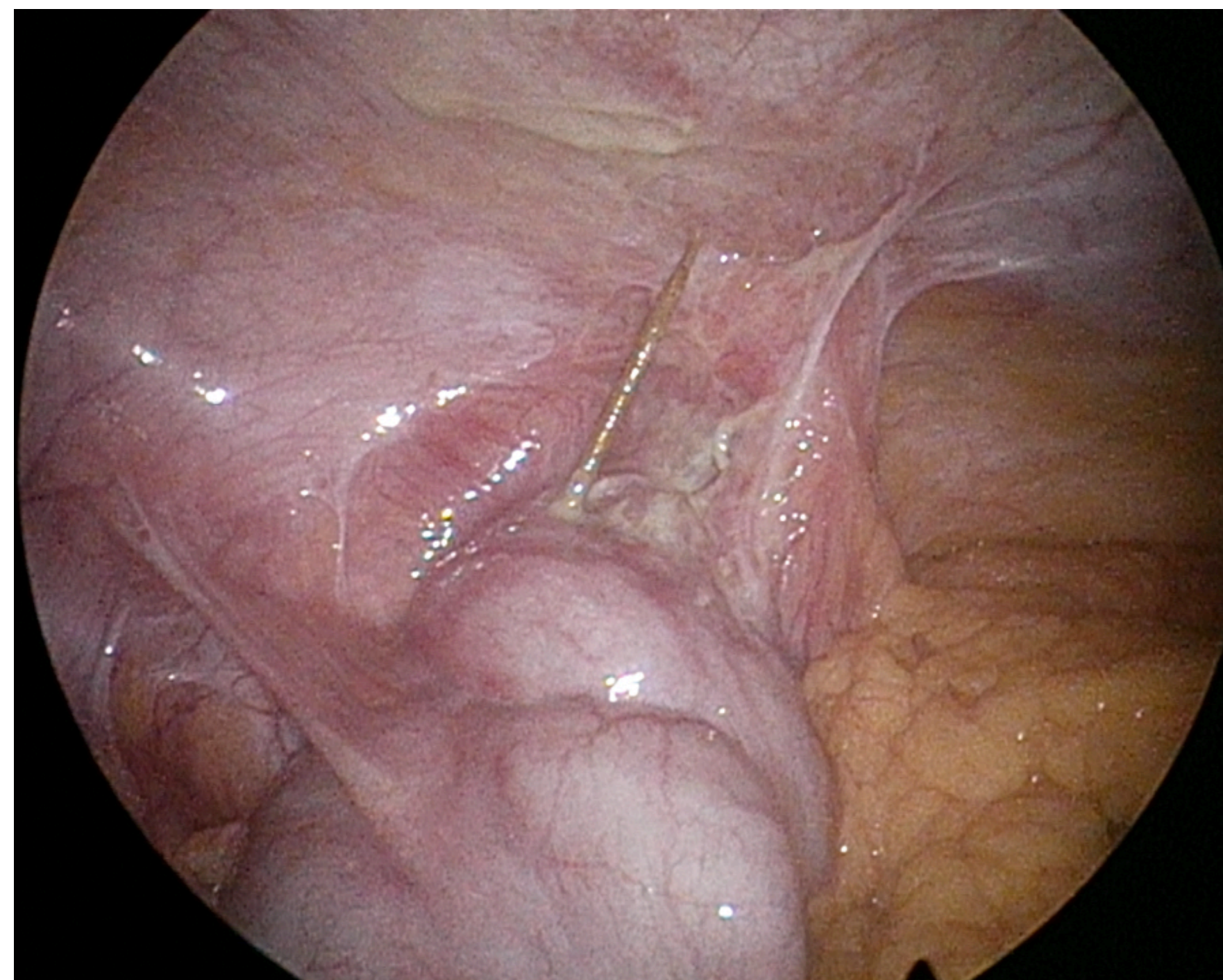
Based on physical exam findings and clinical history the patient was consented for diagnostic laparoscopy with suspicion for early acute appendicitis. Upon diagnostic laparoscopy via a 5mm Optiview trochar a toothpick was observed. The foreign body perforated the anterior, lateral ascending colon approximately 5cm from ileocecal valve. The appendix appeared normal.

The surgeons proceeded with an uncomplicated laparoscopic right hemicolectomy. This was based on location of perforation in ascending colon and unknown location of non-exposed toothpick. The approach included an isoperistaltic anastomosis between terminal ileum and transverse colon utilizing a 60mm blue load staple and closure of enterotomy and oversewing via intracorporeal suturing.

The patient had uneventful post-operative course. Patient had return of bowel function on post-operative day four and was discharge to home and tolerating regular diet on post-operative day five. Pathology returned no evidence of appendicitis, no other colon pathology, and a 0.2cm ascending colon perforation with wooden toothpick. The patient denies knowingly ingesting a toothpick.

PURPOSE

This study presents a case report of a rare complication of foreign body ingestion and offers a literature review of management options. The pre-operative imaging and clinical history was reviewed. During diagnostic laparoscopy the diagnosis of ascending colon perforation with a foreign body was made and managed with a Laparoscopic Right Hemicolectomy. Literature was reviewed for case of toothpick ingestion requiring intervention, foreign body ingestion causing perforation, and management of foreign body perforations.



Literature Review

Toothpicks as ingested foreign bodies have potential for serious injury. The most common complication is perforation of duodenum, terminal ileum, or sigmoid; all locations with narrowing of gastrointestinal lumen or an anatomic sphincter. The most devastating injuries include enteric fistula or enteric-vascular fistula formation. Of all foreign bodies that are ingested, only 1% are estimated to present with a complication requiring intervention. However, that 1% of foreign body ingestion complications contribute to the estimated 1500 people per year who die from foreign body ingestion with a reported mortality of 18% for toothpick specific injuries (1,9). While more recent studies have not reproduced that high of a mortality, The American Society of Gastrointestinal Endoscopy foreign body group iii (long objects of 6-10cm) and group iv (sharp-pointed objects) are reported as the most common to cause perforation or require surgical/endoscopic intervention (6,8)

Presence of dentures and alcohol intoxication are risk factors identified for foreign body ingestion and toothpick ingestion in particular. This aligns with known risk factors for foreign body ingestion; age extremes (elderly, children) and mental impairment (intoxication or intellectual disability). The average time to onset of symptoms from identified ingestion of toothpick was greater than 7 days with presentation up to 18 months since ingestion (6, 8, 9). Abdominal pain, fevers, and peritonitis are the most common presenting symptoms. Interestingly, patients did not reliably present with leukocytosis, fevers, or tachycardia when gastrointestinal perforation was present (11). The majority of toothpick perforations are diagnosed via direct visualization with endoscopy or laparotomy. CT scans are only sensitive to localized signs of inflammation (phlegmon, abscess, wall thickening) or pneumoperitoneum.

A review of 21 cases presenting with acute abdomens due to foreign body ingestion requiring surgical repair reported less than 20% of patient's having a pre-operative diagnosis of foreign body ingestion. The most common pre-operative diagnosis was acute abdomen with uncertain origin (57%) with acute diverticulitis and acute appendicitis a combined 42% of pre-operative diagnosis. All patient's in this case series underwent exploratory laparotomy that revealed 66% of perforations located in terminal ileum and the second most common location sigmoid colon. The most common foreign bodies were chicken and fish bones with two reports of toothpick ingestion. The surgeon's repaired 52% of patient's with direct tissue repair and intestinal resection with stoma creation in 47% of cases(8).

Steinbach et al. identified 136 cases of toothpick specific gastrointestinal injury and published a guideline for diagnosis and therapy. Correct diagnosis of toothpick ingestion occurred most frequently with direct endoscopy with 65% of patient's requiring multiple diagnostic studies and 34% of patient's having no correct diagnosis prior to intervention. They reported sensitivities of each modality: ultrasound 32.6%, CT Scan 42.6%, and Endoscopy 72.1%. For stable patient's less than 24 hours from ingestions they advocate esophagogastroduodenoscopy as first line diagnostic and interventional therapy. For patient's presenting greater than 24 hours from ingestion, stable condition they advocate preceding with ultrasound and only obtaining a CT scan for patient's with acute abdomen. They only recommend proceeding with operative intervention in the presence of pneumoperitoneum and recommend colonoscopy for colonic toothpick location. Their data shows 30% (n=40) of cases were managed via endoscopy with no operative intervention; n=21 for stomach and duodenum, n=18 for colorectal toothpick locations. Exploratory laparotomy remains the most common therapy at 49% of case with Laparoscopy successfully managing 9% of toothpick intestinal injuries.

- Budnick LD. Toothpick-Related Injuries in the United States, 1979 Through 1982. *JAMA*. 1984;252(6):796-797. doi:10.1001/jama.1984.03350060040026
- Chichom-Mefire, A. (2015). Perforation of the splenic flexure of the colon by an ingested wooden toothpick. *Journal of Surgical Case Reports*, 2015(1), 1-2. <https://doi.org/10.1093/jscr/1.1.149>
- Lee, D. H., & Choi, Y. H. (2018). Toothpick injury mimicking acute cholecystitis. *Hong Kong Journal of Emergency Medicine*, doi: 10.1177/1024907918761928
- Li, S. F., & Ender, K. (2002). Toothpick injury mimicking renal colic: Case report and systematic review. *Journal of Emergency Medicine*, 23(1), 35-38. doi:10.1016/S0736-4679(02)00458-4
- Patel, V. G., Gonzales, J. J., Fortson, J. K., & Weaver, W. L. (2008). Laparoscopic management of cecal perforation by an ingested foreign body. *American Surgeon*, 74(8), 778-780.
- Rodriguez-Hermosa, J. I., Codina-Casador, A., Sivrent, J. M., Martin, A., Gironés, J., & Garsot, E. (2008). Surgically treated perforations of the gastrointestinal tract caused by ingested foreign bodies. *Colorectal Disease*, 10(7), 701-707. doi:10.1111/j.1463-1318.2007.01401.x
- Sarici, I. S., Topuz, O., Sevim, Y., Sarigoz, T., Ertan, T., Karabiyik, O., & Koc, A. (2017). Endoscopic management of colonic perforation due to ingestion of a wooden toothpick. *American Journal of Case Reports*, 18, 72-75. doi:10.12659/AJCR.002004
- Sarmast, A. H., Showkat, H. I., Patloo, A. M., Parry, F. O., Lone, R., & Wani, K. A. (2012). Gastrointestinal tract perforations due to ingested foreign bodies: A review of 21 cases. *British Journal of Medical Practitioners*, 5(3), 529.
- Steinbach, C., Stockmann, M., Jara, M., Bednarsch, J., & Lock, J. F. (2014). Accidentally ingested toothpicks causing severe gastrointestinal injury: A practical guideline for diagnosis and therapy based on 136 case reports. *World Journal of Surgery*, 38(2), 371-377. doi:10.1007/s00268-013-2307-z
- Zakościelny, A., Zgodziński, W., Wellner, G., & Zinkiewicz, K. (2018). Endoscopic removal of an impacted wooden toothpick in the wall of the sigmoid colon. *Wideochirurgia i Inne Techniki Maloinwazyjne*, 13(3), 417-419. doi:10.5114/witm.2018.75863
- Zouros, E., Okonomou, D., Theoharis, G., Bantias, C., & Papadimitropoulos, K. (2014). Perforation of the cecum by a toothpick: Report of a case and review of the literature. *Journal of Emergency Medicine*, 47(6), e133-e137. doi:10.1016/j.jemermed.2014.06.065