

Massive Gastrointestinal Bleeding and Obstruction of the Ureter Caused by the Migration of a Swallowed Toothpick from the Sigmoid Colon – A Case Report

Marina Maras-Šimunić¹, Leo Grandić², Darko Brnić³, Miroslav Šimunić³ and Nikica Družijanić²

¹ Department of Radiology, University Hospital Split, Split, Croatia

² Department of Surgery, University Hospital Split, Split, Croatia

³ Department of Internal Medicine, University Hospital Split, Split, Croatia

ABSTRACT

In this study, a case of an ingested toothpick partially migrating from the sigmoid colon, causing massive lower gastrointestinal bleeding due to arterial-colic fistula, and stricture of the left ureter is presented. A 70-year-old male was admitted to the emergency department after having feces mixed with fresh and coagulated blood for the past two days. Computed tomography and retrograde ureteropyelography showed the stricture of the left ureter, 1.5 cm below the branching of iliac artery, without any signs of malignancy. Colonoscopy showed fresh blood in the rectum and sigmoid colon up to the neoplasm like granulation tissue mixed with fresh and coagulated blood, which almost obstructed the lumen. Explorative laparotomy showed a foreign body (toothpick) perforating the sigmoid colon through the mesenterial wall, and being stocked with one-third into the left internal iliac artery, causing arterial-colic fistula. The remaining part of the toothpick was surrounded by granulation tissue and chronic inflammatory process, pressing on the distal third of the left ureter. We conclude that a swallowed toothpick may cause a significant gastrointestinal injury with a wide variety of clinical manifestations, and it must be treated with caution. The imaging studies are often inadequate in detecting toothpicks, and thus, we insist on a physical examination, as the best indicator of injury.

Key words: *swallowed toothpick, arterial-colic fistula, massive gastrointestinal bleeding, obstruction of the ureter*

Introduction

Swallowed toothpick may cause damage to the gastrointestinal tract, but also to the urinary tract and to the vascular system. The diagnosis is difficult to set because of a wide variety of clinical manifestations it can produce. In this study, a case of an ingested toothpick partially migrating from the sigmoid colon, causing massive lower gastrointestinal bleeding due to arterial-colic fistula, and stricture of the left ureter is presented.

Case Report

A 70-year-old male was presented to the emergency department with feces mixed with fresh and coagulated blood for the past two days. His medical history included

peptic ulcer, ethylic liver lesion, and pulmonary tuberculosis in youth. He was on ranitidine and antacids. He confirmed smoking but denied alcohol abuse over the past two years. There was no report on abdominal pain, dysuria or hematuria.

He was skinny and pale. There was an abdominal tenderness, palpation was diffusely painful, bowel sounds were present without distension, and left lumbar succussion was painful without enlargement of liver and spleen. Digital rectal examination confirmed feces mixed with fresh and coagulated blood. Blood pressure was 100/70 mm Hg, heart rate was 105 beats/min, and temperature was 36.7 °C. The laboratory results were normal except for a red blood cells (RBC) count of 3.1, hemoglo-

bin of 89 g/L, mild leukocytosis ($12.5 \times 10^9/L$), and an erythrocyte sedimentation rate of 105 mm/h.

Esophagogastroduodenoscopy showed gastric and duodenal erosions, without ulcer or actual signs of bleeding. Abdominal ultrasound (US) showed left hydronephrosis of third degree, and computed tomography (CT) scans confirmed hydronephrosis and showed the stricture of the left ureter, 1.5 cm below the branching of iliac artery, caused by paracolic infiltration, without any signs of malignancy. Retrograde ureteropyelography showed a 2.5-cm-long left ureter stricture, with hydroureter, resulting in hydronephrosis (Figure 1). Colonoscopy without cleansing showed that the fresh blood in the rectum and the sigmoid colon came from the neoplasm-like granulation tissue mixed with fresh and coagulated blood, which almost obstructed the lumen of the sigmoid colon. During the examinations, the patient bled several times. Although he was transfused 2300 mL of packed red blood cells, hemoglobin was below 100 g/L for the whole time. Angiography was not performed because the patient's status did not allow it. Therefore, a surgeon was consulted, and he indicated urgent exploratory laparotomy.

Explorative laparotomy showed a foreign body (toothpick) perforating the sigmoid colon through the mesenteric wall, and being stocked with one-third into the left internal iliac artery, causing arterial-colic fistula (Figure 2). The remaining part of the toothpick was in the lumen of the rectosigmoid colon surrounded by granulation tissue and chronic inflammatory process, pressing on the distal third of the left ureter and causing hydroureter and hydronephrosis. The toothpick and the granulation tissue were removed, and after on-table lavage, the patient underwent a segmental resection of the colon with



Fig. 1. Obstruction of the left ureter

primary reanastomosis and ligation of the left internal iliac artery (Figure 3).

After undergoing surgery, the patient was put on antibiotics and was discharged 14 days after admission with a normal RBC count and with normal colonic and renal function.



Fig. 2. The toothpick with its clean paracolic and dirty colic part.

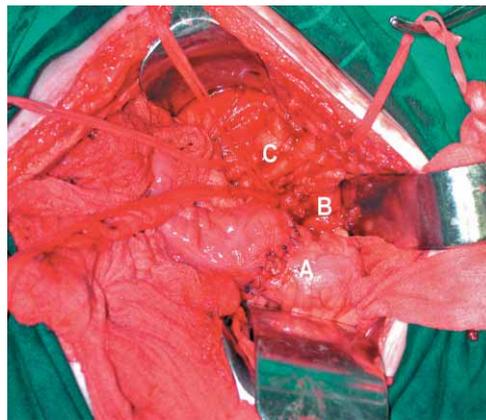


Fig. 3. Resection of the sigmoid colon with T-T anastomosis (A), ligation of left internal iliac artery (B), and dilated part of left ureter (C).

Discussion

Ingested foreign bodies usually pass through the intestinal tract without causing any damage. On some occasions they may cause severe, sometimes fatal internal injuries, and must be treated with caution. Perforation of the gastrointestinal tract by a swallowed toothpick is an uncommon, but certainly possible occurrence. Once the perforation happens, there is a wide variety of clinical manifestations ranging from mild, nonspecific gastrointestinal distress to an acute abdomen. Li et al. showed that the duodenum (25%), sigmoid colon (14%), and ileum (9%) are the most frequent sites of toothpick perforation, and that the vast majority of the patients were males (88%)¹. If penetrating the liver, a toothpick often causes abscesses resistant to conservative antibiotic therapy^{2,3}. Other unusual presentations of illness attributed

to the perforation and the migration of ingested toothpicks are fistulas⁴, small bowel inflammation⁵, and ureter obstruction⁶. Vasointestinal fistula is the most dangerous complication because of possible massive bleeding^{7,8}. In this case, periodical profuse bleeding was probably induced by peristaltic waves and movement of the foreign body. Previous abdominal surgeries and wearing of dentures were identified as risk factors for toothpick ingestion⁹. Our patient, as most of them in the literature, did not recall toothpick ingestion, but often used a toothpick to reduce smoking. In patients who remember ingestion of the toothpick, the onset of symptoms ranged from 1 day to 15 years. Some of them had those symptoms up to 9 months before the diagnosis and removal of the toothpick¹. The imaging studies (US, CT, barium enema) are often inadequate in detecting wooden toothpicks, and thus, we insist on physical examination as the best indicator of injury. Sonographic detection of linear, hyperechoic or hypoechoic image with inconsistent posterior shadowing will be of help in making early preoperative

diagnosis of toothpick-related gastrointestinal perforation. Abdominal ultrasound and CT scan are specially sensitive in establishing the diagnosis of pyogenic liver abscess caused by swallowed foreign body². Radiographic studies are not so useful in diagnostic workup because toothpick is radiolucent¹⁰.

Conclusion

Although the ingested foreign bodies usually pass uneventfully through the intestinal tract, they may cause severe, sometimes fatal injuries, which is clearly shown in our and many other case reports. The symptoms of toothpick perforation range from mild nonspecific dyspepsia to an acute abdomen. Diagnosis is difficult and often made after laparotomy. The imaging studies (US, CT, barium enema) are often inadequate in detecting wooden toothpicks, and the physical examination is the best indicator of the site and type of injury.

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N. Družijanić

*Department of Surgery, University Hospital Split, Spinčićeva 1, Split, Croatia
e-mail: ndruzija@kbsplit.hr*

MASIVNO GASTROINTESTINALNO KRVARENJE I OPSTRUKCIJA URETERA UZROKOVANI MIGRACIJOM PROGUTANE ČAČKALICE IZ SIGMOIDNOG KOLONA – PRIKAZ SLUČAJA

SAŽETAK

Prikazali smo slučaj sedamdesetogodišnjeg muškarca kod kojeg je progutana čačkalica perforacijom sigmoidnog kolona uzrokovala suženje lijevog uretera i arterijsko-količnu fistulu s posljedičnim masivnim gastrointestinalni krvarenjem. Bolesnik se javio na Hitni prijem zbog crne stolice pomiješane sa svježom krvi koja se povremeno pojavljivala u posljednja dva dana. Kompjutorizirana tomografija i retrogradna pijelografija su pokazale strikturu lijevog uretera 1,5 cm ispod grananja ilijačne arterije bez znakova malignosti. Kolonoskopski se prikaže dosta svježe krvi u rektumu i sigmoidnom kolonu sve do neoplazmi sličnog granulacijskog tkiva pomiješanog sa svježom i ugrušanom krvlju, koje je gotovo potpuno opstruiralo sigmoidni kolon. Hitna eksplorativna laparotomija je pokazala da je uzrok krvarenja čačkalica koja je probila zid sigmoidnog kolona na mezenterijalnoj strani i jednom trećinom se zabila u unutarnju ilijačnu arteriju uzrokujući arterijsko-količnu fistulu. Intrakolični dio je izazvao kroničnu upalu i granulacije koje se pritiskom na distalni dio uretera dovele do hidronefroze. Zaključili smo da progutana čačkalica može izazvati značajne gastrointestinalne ozljede s različitim kliničkim manifestacijama, te mora biti tretirana s oprezom. Radiološke pretrage nerijetko ne mogu detektirati čačalicu, pa je fizikalni pregled ponajbolji indikator ozljede.