An undigested cherry tomato as a rare cause of small bowel obstruction

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ABSTRACT

Small bowel obstruction due to undigested fibre from fruits and vegetables is a rare but known medical condition. We report a case of small bowel obstruction caused by a whole cherry tomato in a patient without a past medical history of abdominal surgery. A 66-year-old man presented to the emergency department complaining of lower abdominal pain with nausea and vomiting. His last bowel movement had occurred on the morning of presentation. He underwent abdominal computed tomography (CT), which showed a sudden change of diameter in the distal ileum with complete collapse of the proximal small bowel segment. Laparoscopy confirmed a small bowel obstruction with a transition point close to the ileocaecal valve. An enterotomy was performed and a completely undigested cherry tomato was retrieved. To our knowledge, this is the first reported case of a small bowel obstruction caused by a whole cherry tomato.

KEYWORDS

Small bowel obstruction – Cherry tomato – Adult

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Small bowel obstruction caused by undigested fibre from fruits and vegetables is a rare but known medical condition termed phytobezoar. We report a case of small bowel obstruction caused by a whole cherry tomato in a patient without a past medical history of abdominal surgery. The peel was completely intact, and had been able to resist the acid hydrolysis of the stomach and bypass the pyloric protective function.

Case History

A 66-year-old man presented to the emergency department complaining of a 10-hour history of worsening lower abdominal pain with nausea and vomiting. His last bowel movement had occurred on the morning of presentation. His medical history was significant for arterial hypertension, peripheral artery disease and coronary heart disease including two percutaneous coronary interventions within the previous 12 months. Apart from antihypertensive drugs, his medication included aspirin and prasugrel. Owing to suspected gastrointestinal bleeding after initiation of dual antiplatelet therapy, a gastroscopy and colonoscopy had been performed three months previously without any pathological findings. The patient denied any past abdominal surgery.

On physical examination, he was in apparent discomfort, tachycardic at 120bpm in sinus rhythm (otherwise normal electrocardiography) with a blood pressure of 160/95mmHg and normal body temperature (36.2°C). An abdominal

physical examination revealed tenderness of the lower abdomen without guarding and rebound tenderness. Auscultation revealed a silent abdomen with missing bowel sounds. Laboratory test results were significant for an elevated white blood cell count of $18.2 \times 10^9/l$ and a haematocrit level of 43.8%. Urine analysis was normal.

Owing to the patient's medical history and worsening abdominal pain, he underwent abdominal computed tomography (CT) with intravenous contrast medium administration after a plain abdominal x-ray was taken (Fig 1). The CT (Fig 2) showed a sudden change of diameter in the distal ileum approximately 15cm proximal to the ileocaecal valve with complete collapse of the proximal small bowel segment. This finding was consistent with a small bowel obstruction and the patient was taken immediately to the operating theatre for an emergency laparoscopy. In agreement with the CT findings, laparoscopy confirmed a small bowel obstruction with dilated small bowel loops and a small bowel transition point close to the ileocaecal valve. An enterotomy was performed through an umbilical mini-laparotomy and a completely undigested cherry tomato was retrieved (Fig 3). The small bowel enterotomy was closed with 4/0 polydioxanone interrupted sutures in two layers.

Discussion

Tomatoes consist largely of moisture (over 90%) but also have a solid skin rich in pectin. This serves as a major

Figure 1 Plain x-ray of the abdomen

Figure 3 Distal ileum after retrieval of undigested cherry tomato

Figure 2 Contrast enhanced computed tomography of the abdomen

component in securing durability against harmful environmental influences. The fruit is known for its high amount of dietary fibre and chemical analysis of the peel has revealed high amounts of non-starch polysaccharides (cellulose/hemicellulose) and lignin as well as pectin.^{1,2} The American Association of Cereal Chemists defines fibre as 'the edible parts of plants or analogous carbohydrates that are resistant to digestion and absorption in the human small intestine'.⁵

In the industrial peeling process, lye (sodium hydroxide) is predominantly used to cleave the 14 bond between the individual galacturonic acid units of pectin and (hemi-)cellulose.⁴ In humans, dietary fibre undergoes acid hydrolysis

before entering the duodenum, which breaks it into fragments and softens it enough to pass through.⁵ In the case reported here, the completely intact peel was able to resist the acid hydrolysis and bypass the pyloric protective function in terms of early gastric emptying.

Conclusions

Small bowel obstruction due to undigested fibre from fruits and vegetables is a rare but known medical condition termed phytobezoar. Predisposing factors consist mainly of previous gastric surgery, other medical conditions accompanied with gastric dysmotility or excessive consumption of fibre.⁶ In our case, however, none of this applied. To our knowledge, this is the first case report of small bowel obstruction caused by a whole cherry tomato.

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