

CASE REPORT

Intestinal Obstruction Following Ingestion of Alginate Dental Impression Material

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Abstract

Introduction: No medical intervention is required for emergency department applications resulting from foreign body ingestion. Patients who need intervention are generally with complications such as obstruction, perforation or fistula. Alginate is a non-toxic and non-irritant substance that is elastic in the form of a paste preserving its elasticity under heat, which is used as a printing material for measuring the teeth in dental prosthesis applications. A case of ileus developing as a result of ingestion of alginate impression has been presented. **Case report:** A 74-year-old male patient presented to our emergency department due to abdominal pain nausea and vomiting. He described periumbilical pain and stated that he felt mild swelling. He had vomit one time and the content of vomit was what he had eaten. On physical examination, his abdomen was slightly distended, bowel sounds had increased slightly on auscultation and there was mild periumbilical tenderness with palpation, with no defence or rebound. On the abdominal CT evaluation, a homogeneous, lobulated, hyperintense foreign body image was detected in the distal ileus and distension in the small bowel loops proximal to the foreign body was interpreted. After general surgery consultation, distal ileal resection was performed and pink, homogenous, slightly soft charactered object was extracted. Later this object was understood to be alginate impression. **Conclusion:** Elderly patients in particular, ileus may occur due to foreign body associated with dental interventions, and in such cases, patients may need surgical intervention.

Keywords

Ileus; Alginate; Dental; Intestinal obstruction

1. Introduction

Foreign body ingestion is a common presentation in the emergency department. Although it is often accidental, it can also be an intentional act. Ingested foreign bodies most commonly constitute food items, but several other kinds of ingested materials have also been described. Although it is much more common in children, it is also observed in adults, especially in the elderly, due to underlying mental disorders as well as in prisoners and drug traffickers [1]. Medical intervention is not required in most patients. In a few patients, endoscopic intervention may be required, and less frequently, surgery is inevitable [2]. Patients who need intervention are generally admitted to the emergency room with complications such as intestinal obstruction, perforation, or fistula.

Alginate is a non-toxic and non-irritant biomaterial available in a paste form, preserving its elasticity under heat, which is used as a printing material for measuring teeth in dental prosthodontics [3]. Dental prostheses have been reported as the most frequently ingested/aspirated dental materials in adults [4]. We present a case of ileus resulting from the ingestion of alginate impression material.

2. Case report

A 74-year-old man was admitted to our emergency department due to abdominal pain, nausea, and vomiting. He complained of periumbilical pain and mild abdominal swelling. He had vomited once, and the content of vomitus was the food he had eaten. He had no remarkable medical history or surgery. He was not a smoker or an alcoholic.

His body temperature was 36.7°C, heart rate was 76 beats/min, and respiratory rate was 18 breaths/min. On physical examination, his abdomen was slightly distended, on auscultation bowel sounds were slightly increased, and mild periumbilical tenderness was observed on palpation, with no defence or rebound tenderness. Rectal examination revealed an empty ampulla. Blood parameters were normal except a slight increase in the white blood cell count, $14.83 \times 10^9/L$. Few small air-fluid levels and lower intestinal loops were observed on abdominal radiography performed in the upright position. A surgical consultation was planned.

On abdominal computed tomography (CT), a homogeneous lobulated hyperintense foreign body image with a diameter of 57×32 mm and irregular borders was detected in the

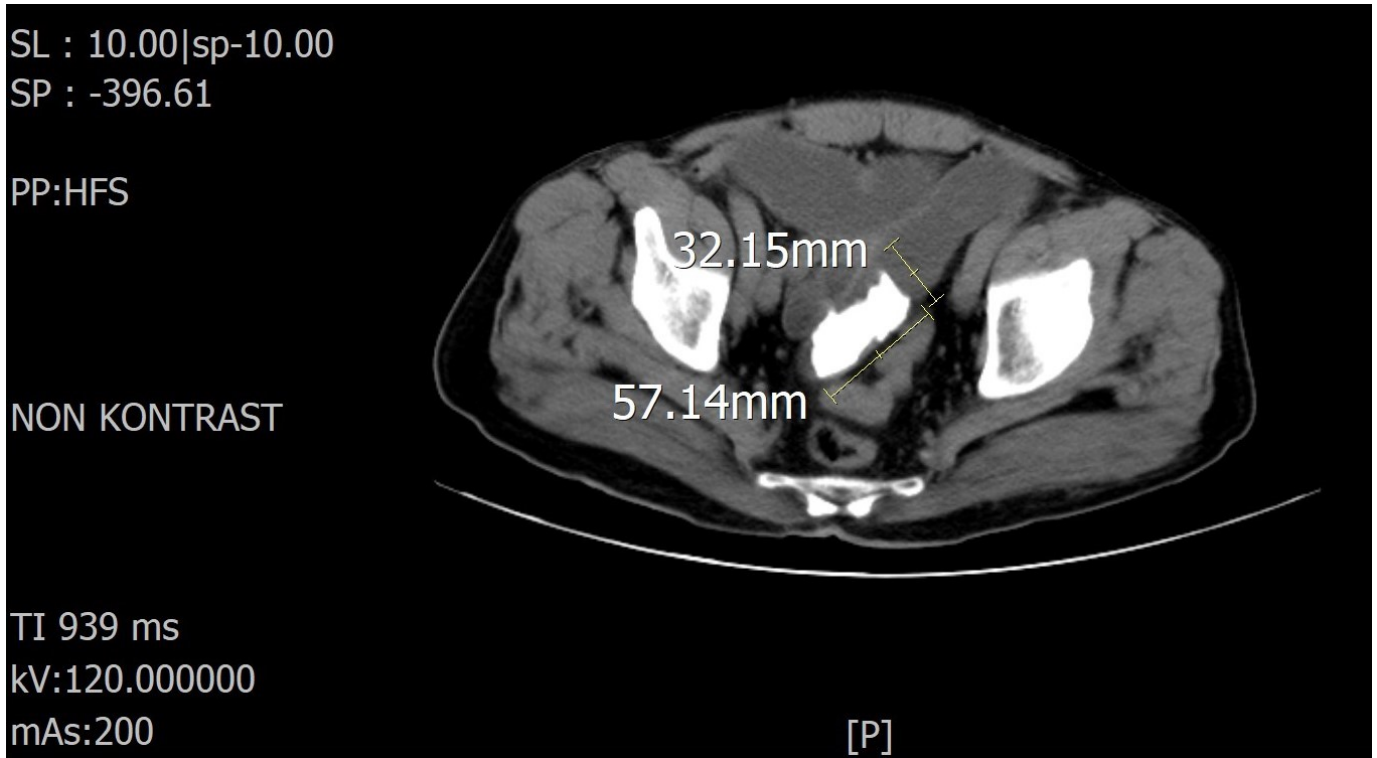


FIGURE 1. On the abdominal CT, foreign body image in the distal ileus.



FIGURE 2. The extracted object in the surgical evaluation and alginate.

distal ileum, and distended small bowel loops proximal to the mass were observed (Fig. 1). The patient underwent a laparotomic evaluation by a general surgeon with a preliminary diagnosis of foreign body-induced ileus. Distal ileal resection was performed after the observation of an occlusion during surgical evaluation. The extracted object was homogenous pink and was slightly soft in consistency (Fig. 2). After the extraction of the foreign body, the patient’s family was questioned, and we learnt that the patient had recently visited a dentist for total dental prosthesis. The patient was discharged following full recovery and was followed-up in the general surgery clinic.

3. Discussion

Recently, prosthetic and implant-prosthetic materials have undergone several improvements for use in dental rehabilitation. One of these prosthetic materials is alginate, an irreversible hydrocolloid [5, 6]. In accidental aspiration or ingestion of a foreign body, early diagnosis is the key to prevent serious consequences [7]. Any delay in the proper management and intervention of such accidents can lead serious sequelae and may even cause death [8, 9]. Although it is less common in adults than in children, its frequency is increasing, especially in the elderly, in patients with psychiatric diseases, and in the absence of teeth [10]. Considering the age of our patient, dementia status was unknown or undiagnosed.

Foreign bodies in the gastrointestinal tract are usually treated conservatively depending on the type of foreign body and clinical condition of the patient. While 80-90% of foreign bodies pass freely through the gastrointestinal tract, 10-20% require endoscopic intervention, and 1% require surgical treatment [11]. Many experts suggest that foreign bodies exceeding 2.5 cm in width and 6 cm in length may be removed endoscopically as they will not pass through the duodenum and the pylorus [12]. Colonoscopy may be required, especially in cases where foreign bodies are located in the ileocecal valve or in the presence of stenoses; open surgery may be required in cases with bleeding, perforation, and ileus. Open surgery was preferred in our case because the foreign body was located distal to the ileum and the patient presented with ileus [13].

4. Conclusions

It should be kept in mind that in elderly patients in particular, ileus may occur due to foreign body ingestion associated with dental interventions, and in such cases, patients may need surgical intervention.

The authors state that there is no conflict of interest in this case report.

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CONFLICT OF INTEREST

The authors state that there is no conflict of interest in this case report.

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