

Successful Management of an Iatrogenically-ingested Sharp Foreign Body

Dear Editor,

A 37-year-old man with no significant medical history underwent dental treatment. An injection dental needle used in the course of root canal treatment came loose, fell into the oral cavity and became directly irretrievable.

The patient was immediately sent to our hospital. Referral to otolaryngology led to computed tomographic (CT) scans and X-rays of the neck and thorax, as well as nasoendoscopy of the patient, all of which did not reveal any foreign body in the oronasopharynx or thorax. He was admitted to the general surgical ward for continued observation.

The patient complained of mild epigastric pain a few hours after admission. Clinically the abdomen was soft with mild epigastric tenderness but without rebound or guarding. An admission abdominal radiograph revealed a linear radio-opacity measuring 3.1 cm at the right lumbar region in the distal small bowel (Fig. 1).

He was initially managed conservatively with intravenous antibiotics and kept fasted except for clear feeds, and monitored with serial clinical examination and abdominal radiographs over the next 2 days. The needle progressed in position to the proximal colon where it stalled and resided in the proximal ascending colon radiologically (Fig. 1), making no further progression by the end of the third day despite re-introduction of diet for a day. Clinically the patient had the same mild abdominal pain but without any peritonism.

In view of the poor progress, endoscopic forcep removal of the needle was attempted and achieved using a colonoscope on the third day. During colonoscopy, a 3 cm angulated approximately 26 gauge dental needle was found lodged in the caecum (Fig. 2). The rest of the large intestine was normal. The patient improved clinically and was soon discharged well.

Various iatrogenic ingested objects have been described in literature, including air-water syringe tip, screwdriver, endodontic files, dental implants, wrench, even a thermometer.¹ This was a rare case of an iatrogenically-ingested needle.

A good history and physical examination are essential in the assessment. Typically the patient, often paediatric or handicapped, presents after dental treatment with symptoms of foreign body sensation, pain, dysphagia or dyspnoea in relation to the position and nature of the foreign body.



Fig. 1. Supine abdominal radiograph at admission showing sharp foreign body in the distal small bowel (A) and another supine radiograph at 3 days post-incident showing the same foreign body in proximal ascending colon (B).

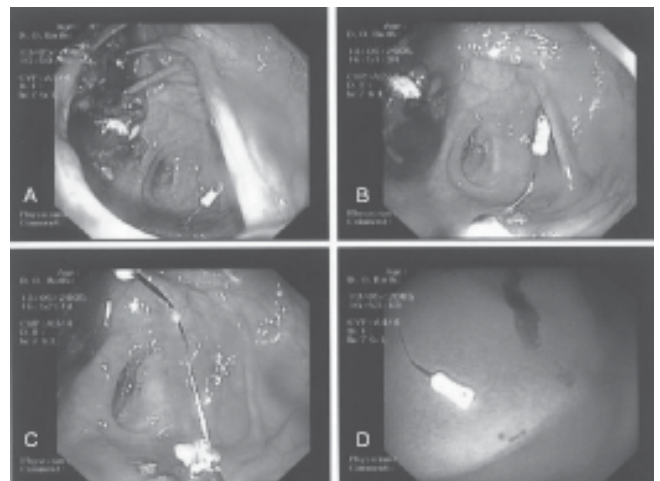


Fig. 2. Colonoscopy pictures showing the sharp needle located at the caecum (A, B), its endoscopic retrieval (C), needle ex-vivo (D).

Indirect and direct laryngoscopy, and nasopharyngolaryngoscopy are useful diagnostic modalities.²

When the object is more distal and cannot be directly visualised and retrieved, imaging, either neck and chest frontal and lateral X-rays or CT scans, should be taken to determine the object's position in the gastrointestinal or tracheobronchial system.² In the upper gastrointestinal tract, oesophagoscopy should be attempted to recover the foreign object. Aspirated objects should be removed bronchoscopically within 24 hours as delay makes bronchoscopy difficult. Acute obstruction can be life-threatening.

The use of fine small dental needles within the confines of the oral cavity increases the likelihood of iatrogenic

ingestion. This case highlights the need for careful control of sharp dental instruments, in particular injection needles, so as to avoid the grave consequences of visceral perforation, bleeding and medicolegal ramifications from iatrogenic sharp ingestion. The prophylactic use of oral dams to catch falling objects and checking instruments before usage are sound practices.

Ingested sharp foreign objects have been known to cause serious complications involving visceral perforation, bleeding, obstruction, fistulation, even object migration following perforation.³ These justify careful continuous observation and radiological monitoring. If such sharp foreign bodies lodge in a narrow gastrointestinal tract segment, perforation may occur. Ingested foreign bodies tend to lodge at certain gastrointestinal locations: upper and lower oesophageal sphincters, pyloric canal, duodenum, ileocaecal valve and anus. The sites of perforation are usually at the ileum, appendix or colon.⁴

Since 75% or more of ingested foreign bodies pass spontaneously, conservative management is justified as long as the patient remains clinically stable without turning septic or peritonitic.⁴ Evidence of peritonism and overt perforation include fever, abdominal guarding, rebound tenderness, raised total white and serum amylase, and radiological extraperitoneal air. This patient was initially treated conservatively with expectation of spontaneous passage of the needle.

However the ongoing mild abdominal pain, combined with the static position of the needle at the proximal ascending colon, and the fact that the ileocaecal and colonic region is a frequent site for foreign body impaction and perforation increased our suspicion of an impending perforation.⁴ Moreover, some may remain asymptomatic despite perforation.⁵ Early diagnosis and retrieval of a foreign body involved in gastrointestinal tract perforation is critical for reducing morbidity and mortality. Gastroduodenoscopy and colonoscopy are the preferred modes of intervention for the assessment of objects lodged in the upper or lower gastrointestinal tract because they can visualise perforated areas and allow foreign body removal.²

Laparotomy should be reserved for those who develop overt acute abdomen and in whom the object cannot be endoscopically retrieved.⁴ Iatrogenic objects lodged in the small bowel may be removed through an appendicostomy, laparotomy or laparoscopically where feasible.⁴ Fortunately, the needle was identified and removed colonoscopically without sequelae in this patient. To avoid colonic injury during colonoscopic withdrawal of the sharp foreign body, the operator should try to grasp it by its pointed end, withdraw slowly, and at all times keep it within the visual field at the lumen centre.

It is important to acknowledge an iatrogenic cause of ingested sharp foreign bodies and this must be prevented with careful surgical instrument handling. Sharp foreign bodies increase the risk of complications, in particular gastrointestinal perforation. Endoscopy in expert hands is a suitable diagnostic and therapeutic approach for ingested sharp objects lodged in the gastrointestinal tract.

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