

Case Report

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Multiple sewing needles ingestion: a case report and review of the literatures

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ABSTRACT

Sharp foreign body ingestion and management pose a great challenge to the surgeon. Majority of ingested foreign bodies pass through the gastrointestinal tract spontaneously. Organ perforations and possible migration should be kept in mind in patients with abdominal pain when the progress of the foreign body through the gastrointestinal tract cannot be ascertained by radiography. A 26-year-old male psychiatric patient presented with epigastric pain following ingestion of 18 sewing needles. His abdominal radiograph showed multiple metallic foreign bodies in the abdominal cavity consistent with the shape of sewing needles. He passed some needles spontaneously while the others which were retained were removed via a laparotomy after a successful pre-operative localization. Post-operative period was uneventful. A deliberate ingestion of foreign bodies should be kept in mind in patients with psychiatric disorders and mental retardation when they present with abdominal pain to the emergency department. An initial wait and see line of management may be instituted with the hope of spontaneous passage which can be monitored via radiological means. However, if the objects fail to pass naturally, surgery is indicated. Sharp foreign bodies which fail to pass spontaneously should be surgically removed after a proper localization since they could cause life threatening complications.

Keywords: Schizophrenia, Ingested sewing needles, Gastrointestinal tract, Laparotomy

INTRODUCTION

Foreign body ingestions mostly occur in the paediatric population with a peak incidence between ages 6 months and 6 years.^{1,2} In adults, it occurs commonly in people with psychiatric disorders and mental retardation. The intentional ingestion of foreign bodies occurs as a result of many factors such as self-demanding impulsivity, attention seeking behaviour in people with personality disorder and command hallucinations in the case of schizophrenia.³

Foreign body ingestion and its effective management pose a great challenge to surgeons. Foreign bodies, especially sharp ones if ingested may injure any part of the gastrointestinal tract or the solid viscera organs,

depending on the site of impaction. A majority of foreign bodies in the gastrointestinal tract pass off spontaneously and uneventfully with feces. In some circumstances, they cause obstruction and perforation of the hollow viscous. In many instances, if most of the foreign body ingestion does not cause any symptoms it may be managed conservatively but if a complication such as obstruction or perforation arises then an appropriate surgical intervention is required.⁴

Organ perforations should be kept in mind when abdominal pain ensues, and when the progress of the foreign body cannot be visualized by radiography.⁵ Fortunately, swallowed foreign bodies rarely perforate the organs and migrate into the abdominal cavity; however, if it happens, laparotomy is indicated.^{6,7}

Imaging localization of these foreign bodies is mandatory when surgical intervention is planned. Nevertheless, it is difficult to localize intraoperatively when they are disseminating throughout the digestive tract and when they are too thin and short to be palpated. Here, a metal detector may facilitate exact localization to guide accurate treatment.⁸

Food bolus impaction occurs commonly but the ingestion of a sewing needle is rare.⁸ In the present case we described the management of multiple ingested sewing needles which were surgically removed from the stomach, duodenum, transverse colon, sigmoid colon and pelvis.

CASE REPORT

A 26-year-old man with known psychiatric illness, who presented with epigastric pain that continued intermittently for a week. He had been hearing controlling voices for the past 3 years commanding him to harm himself. This prompted him into ingesting eighteen (18) sewing needles by inserting them in water melon a week earlier. He observed the passage of five (5) needles in his feces a day after. There was no abdominal distension, vomiting, hematemesis, hematochezia or fever. He claimed to have swallowed sixteen (16) nails and six (6) rings about a year earlier, all of which he claimed to have passed out in his feces.



Figure 1: Plain X-ray (chest, erect and supine abdominal) of the patient at presentation showing 11 sewing needles.



Figure 2: Plain abdominal X-ray of the patient at days 6, 9 and 22 showing 10, 9, and 8 sewing needles respectively.

He had presented to our hospital 2 years earlier when he was diagnosed with drug induced schizophrenia from cannabis abuse. He was on olanzapine tablet before he

was subsequently lost to follow up at the psychiatric clinic.

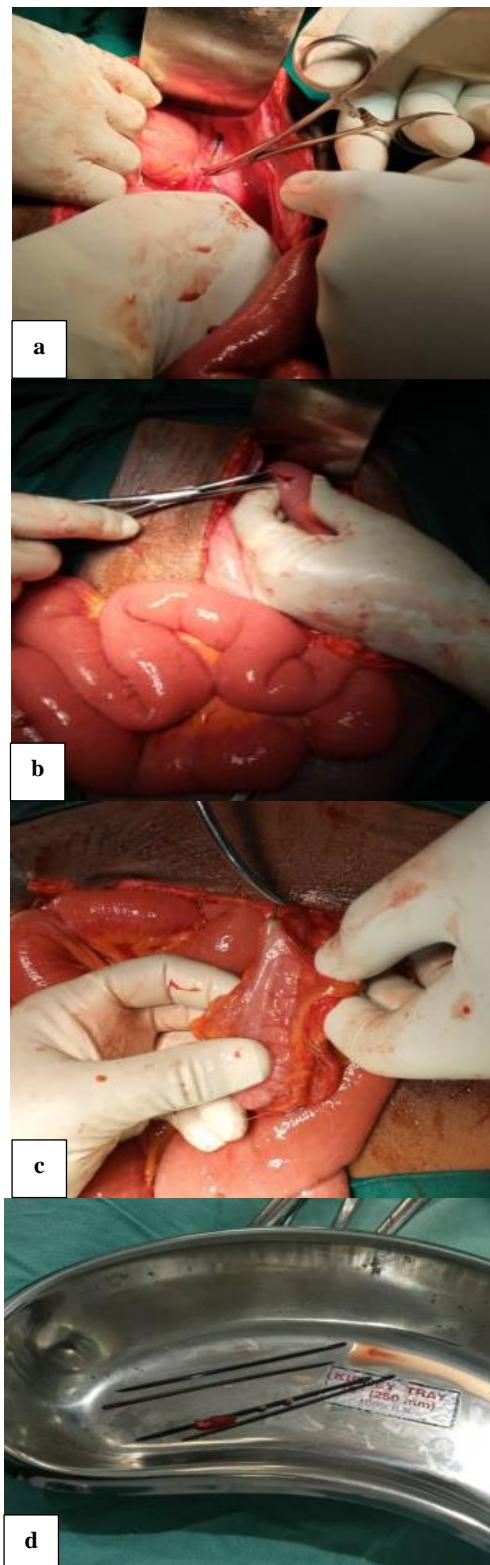


Figure 3: Intraoperative clinical photographs; (a) A sewing needle lying freely in the pelvis; (b) extraction of a sewing needle from the stomach; (c) removing a sewing needle from the transverse colon; (d) some of the sewing needles removed.



Figure 4: Immediate postop X-ray showing sewing needles at the right upper abdomen and right paravertebral region of L3-L4.



Figure 5: Metallic keys used as improvised radio-opaque markers for better localization.



Figure 6: Plain abdominal radiograph showing the metallic needle most likely in the retroperitoneum on 11 days after surgery.

Abdominal examination revealed soft abdomen with some tenderness in the epigastrium. Laboratory evaluation revealed a white blood cell count of 11,900

/mm³ with 73.8% neutrophils, a haematocrit of 35.4%, a haemoglobin level of 12.6 g/l and a platelet count of 296,000. Kidney function test was normal. Plain X-ray of the chest and abdomen showed multiple (11) radioopaque foreign objects of varying sizes with identical shape, consistent with sewing needles, from the epigastric region to the pelvis (Figure 1).



Figure 7: Plain abdominal radiograph after 3 months of surgery showing the broken needle in the right lateral margin of the lumbar vertebrae (L3/L4).



Figure 8 (a and b): Plain abdominal radiograph after 1 year of surgery showing the edges of the broken needle being pulled apart.

He was admitted to the ward, put on high fibre diet, advised to monitor his stool for passage of more foreign bodies, and was on close observation. He was also reviewed by the psychiatrists on the ward as he kept hearing voices telling him to carry out further actions. He was given IM fluphenazine 25 mg stat and tablet olanzepine 10 mg nocte.

Repeat plain abdominal X-ray on days 6, 9 and 22 of admission noted a reduction in the number of radio-opaque foreign objects to 10, 9 and 8 respectively (Figure 2). However, it was uncertain at what time the foreign objects were passed out during defecation due to improper monitoring of his feces. With the persistence of his abdominal pain, it was decided to perform an exploratory laparotomy.

At surgery, finger palpation was carefully used to localise the needles in the gastrointestinal tract because the C-arm in our hospital was faulty at that time. A total of six (6) sewing needles were extracted. One (1) needle was found lying freely in the pelvis. Five (5) needles were localised within the GI tract, partly embedded in its wall. These were removed by piercing each through the wall of the intestine, with the tip of the sharp needles as lead: two (2) from the stomach, one (1) from the proximal 3rd of the transverse colon and the last two (2) from between the sigmoid colon and the abdominal wall. Exit were repaired using vicryl 2/0. Clinical photographs taken during surgery are shown in Figure 3.

An immediate post-operative check x-ray done showed the presence of two (2) residual needles in the abdomen. One was located in the right upper abdomen and the other in the right paravertebral region at the level of L3-L4 (Figure 4). Surface markers were further used for a better localization (Figure 5). A re-exploration was done the following day wherein one of the needles was extracted from the 2nd part of the duodenum and repaired. The single needle stalled in the right posterior abdominal wall was not explored because of its position and concerns about the likelihood of injury to the great vessels during exploration. A flatus tube and peritoneal drain inserted at surgery were removed respectively at 6 and 9 days post-operatively. Post-operative course was uneventful.

Plain abdominal radiograph done on post-operative day 11 only showed the metallic needle in the retroperitoneum (Figure 6). He was jointly reviewed by the surgical and psychiatric teams and was discharged for subsequent follow up at the outpatient clinics. His condition has remained satisfactory. Plain abdominal radiograph done 3 months later is displayed in figure 7 showing two radio-opaque metallic densities noted in the right paravertebral region, adjacent to L3 and L4 vertebral bodies. It appeared the sewing needle that was left behind had broken into two pieces. The plain abdominal radiograph after 1 year was similar to the previous one except for the edges of the broken needle which were far apart and the distal piece appearing deep

in the retroperitoneum with its tip appearing to remain in the same position behind the vertebral body, overlying the pedicle of L4 (Figure 8).

DISCUSSION

Foreign body ingestion has been a fundamental subject in the area of paediatrics, emergency surgery and gastroenterology.^{1,2,9} A myriad of ingested sharp/pointed objects have been described. The ones most commonly associated with complications were chicken and fish bones, paper clips, toothpicks, metallic nails, needles and dental bridgework.⁹ In our patient, the foreign bodies were long sharp sewing needles.

At times foreign body ingestion was intentional and at other times it was accidental.¹⁰ A deliberate ingestion of foreign bodies should be kept in mind in patients with psychiatric disorders and mental retardation when they present with abdominal pain to the emergency department.³ This was the case with our index patient.

Majority of ingested foreign bodies entering the stomach passed through the gastrointestinal tract without any side effect.¹¹ Most of these objects were passed within 4 to 6 days, though some took up to 4 weeks.^{9,12} However, a foreign body lodged in the gastrointestinal tract may cause local inflammation leading to pain, bleeding, scarring and obstruction or it may erode through the gastrointestinal tract. The site of perforation due to foreign bodies appear to be variable in the gastrointestinal tract. Although, McManus et al identified ileocaecal region as the most common site of perforation secondary to foreign body ingestion, duodenum had been reported as the most common site by Spitz et al and Gracia et al.¹³⁻¹⁵ Other studies had reported the cricothyroid ring, cardia, pylorus, c-loop of the duodenum, ligament of Treitz (duodeno-jejunal junction), Meckel diverticulum, ileocaecal valve, appendix and rectosigmoid junction as the common sites of perforation.¹⁶ The perforations in our patient were noticed in the sigmoid colon. And within 29 days of ingestion, one of the needles had completely extruded from the bowels to lie free in the pelvis while another has migrated further into the retroperitoneum and posterior abdominal wall.

The treatment modality depended on the effective localization of the foreign body. It was often difficult to localize ingested sewing needles because they disappeared in the gastrointestinal tract during manipulation and may be impalpable manually. Metal detectors had been widely used in the localization of ingested metallic bodies, but the availability of these instruments is questionable in many institutions.¹⁷ In our case, we used X-ray with improvised radio-opaque markers for the identification and localization of the sewing needles. The plain radiography was effective in localizing most of the radio-opaque objects.¹⁸ Computed tomography (CT) scan was rarely indicated but may

enhanced the detection of foreign bodies or complications (e.g., perforation and migration) in special cases.

For foreign bodies that had been ingested and were in the stomach or duodenum, the general management was usually the conservative approach. There may however be an indication for surgery in situations, as in our present case, if there was a history of foreign body ingestion with failure of progression or in the event that the patient develops acute abdomen.^{6,19} Although open surgical approach was widely used, for diagnosed abdominal foreign body extraction, in modern surgical platforms, laparoscopic approach was advocated in stable non-acute patients due to its advantages of less post-operative pain, lower incidence of wound infection and minimal surgical stress, in turn improving wound healing.^{20,21} In our case, we performed laparotomy with the use of finger palpation to localize the needles in the gastrointestinal tract because of the unavailability of C-arm fluoroscopy.

Foreign objects had been removed from the stomach, small intestine and colon by opening the walls of these organs. As in our case, slim-spiculated needles may be removed less invasively without doing gastrotomy, enterotomy or colotomy by piercing them through the wall of these hollow organs at the direction of the tip of the sharp needles.

The needle left behind in our index patient appears to have broken into two pieces. This was very apparent in the three months and one-year post-operative images. The findings were similar to what was obtained in the immediate post-operative radiograph with almost no change in the positions of the foreign bodies. It was difficult to determine when the needle got broken. It was even possible it was broken before the surgery because the pre-operative images when reviewed again showed reduced density at the mid portion of the needle which can be seen if it was broken and slightly distracted but perfectly overlapping. It was possible that over time, with migration, the edges were being pulled apart.

Psychiatric management should be an essential part of the treatment of these patients in the post-operative period. All persons with a history of psychiatric disorder with complaints of foreign body ingestion should be properly reviewed and managed by a psychiatrist to help in preventing reoccurrence of the problem.³ In our case, the patient was reviewed and put on antipsychotic medications. He has been doing well on follow up with no features of schizophrenic episodes.

CONCLUSION

Ingested foreign bodies infrequently cause severe problems. However, complications such as perforation and migration should be suspected in situations where sharp and spiculated objects fail to progress or extrude through the gastrointestinal tract spontaneously.

Radiological localization and appropriate surgical intervention should be expedient in such cases.

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