

Metallic sewing needle ingestion presenting as acute abdomen

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Abstract

We reported an unusual case of a 26-year-old man presenting to surgical emergency as generalized peritonitis following an ingestion of multiple metallic sewing needles. The X-ray of his abdomen showed pneumoperitoneum and multiple metallic foreign bodies in the abdominal cavity. An ultrasonogram of his abdomen showed multiple metallic foreign bodies in the abdominal cavity and urinary bladder. Emergency exploratory laparotomy was performed. On laparotomy, gastric and duodenal perforation was found through which metallic sewing needles were protruding out. A peritoneal lavage was done, and all the sewing needles were extracted from the perforation site, paracolic gutter, liver parenchyma, and urinary bladder. The primary repair of the perforation with omental patching was done with the drainage of subhepatic space and pelvic cavity. These multiple ingested sewing needles led to the perforation of the stomach and the duodenum, which resulted in perforation peritonitis.

Key words: Foreign body, gastrointestinal tract, metallic sewing needles, schizophrenia, X-ray

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Introduction

Foreign body ingestion has been a fundamental subject in the area of pediatrics, emergency surgery, and gastroenterology.^[1-3] The intentional ingestion of foreign bodies occur as a result of many factors such as self-demanding impulsivity, attention-seeking behavior in people with personality disorder, and command hallucinations in the case of schizophrenia.^[4]

Foreign object ingestion and food bolus impaction occur commonly. The ingestion of the metallic sewing needle is rare.^[3,5] The majority of foreign bodies that reach the gastrointestinal tract will pass spontaneously with feces. However, 10–20% will require nonoperative intervention, and 1% or less will require surgery. Operative intervention is almost always with the complications of an ingested foreign body. The majority of foreign-body ingestions occur in the pediatric population with a peak incidence between ages 6 months and 6 years.^[1,2] In adults, it occurs commonly in psychiatric disorders and mental retardation.

Case Report

We report an unusual case of a 26-year-old man with known psychiatric illness, who was admitted in a surgical emergency ward with generalized pain in abdomen, guarding, rigidity, and vomiting with low-grade fever. On clinical examination, he was found to be dehydrated, with the pulse rate 124/min and blood pressure 80/60 mmHg, respiratory rate 30/min, and temperature 100°F. The abdomen was tender with guarding and rigidity. The patient gave the history of ingesting sewing needles by wrapping it on a plant leaf out of a schizophrenic disorder [see Figure 5]. We admitted and investigated him. His investigations showed Hb 10.4 mg/dl; TLC 10200/cumm; DLC P60, L35, E02, B01; RBS 92 mg/dl; S.Na⁺ 135; S.K⁺ 4.5; S.Ca²⁺ 4.49; S.Urea 27 mg/dl; S. Creatinine 0.7 mg/dl; PT 12.8; INR 1.04. In the X-ray of the abdomen Figures 1-3 and the ultrasonography Figure 4, findings were suggestive of perforation peritonitis.

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Figure 1: Preoperative X-ray of the abdomen showing metallic sewing needle



Figure 2: Intra-operative X-ray of the abdomen showing residual metallic sewing needle



Figure 3: Postoperative X-ray of the abdomen showing no residual metallic sewing needle



Figure 4: Ultrasonogram of the abdomen showing metallic foreign bodies



Figure 5: Extracted specimen of metallic sewing needles and plant leaf

After correcting dehydration and taking informed consent, we explored the abdomen under general

anesthesia. Preoperatively we found gastric perforation through which two metallic needles were protruding out, duodenal perforation through which three metallic needles were protruding out, and one metallic needle was embedded into the liver parenchyma that was visible. Peritoneal lavage was done, and needles were extracted from left and right paracolic gutter. A plant leaf was also found in the peritoneal cavity protruding from the gastric perforation, which was used for the ingestion of needles [Figure 5].

Peritoneal exploration was done, and all the metallic needles were extracted. The needle embedded into the liver parenchyma was gently pulled out without any obvious bleeding. A primary repair with omental patching of the gastric and duodenal perforation was done. The metallic needle was retrieved from the urinary bladder by opening the posterior surface of the bladder that was repaired per operatively. Finally, the abdomen was closed in layers by placing two drains.

The postoperative period was smooth and the patient was discharged on the seventh postoperative day. In this case, we used intraoperative X-ray abdomen for the identification and localization of the needles and this approach obviated exploration and shortened the operation time [Figures 1-3].

Discussion

A myriad of ingested sharp/pointed objects has been described. The ones most commonly associated with complications are chicken and fish bones, paper clips, toothpicks, metallic nails, needles, and dental bridgework. Patients suspected of swallowing sharp/pointed objects must be evaluated to define the location of the ingested objects.^[3] 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.^[4]

The mortality following foreign-body ingestion has been extremely low. Impaction, perforation, or obstruction occurs at the areas of physiologic narrowing or acute angulations, such as the cricopharyngeal sphincter or ileocecal valve.^[3,6,7] Once a foreign body, even sharp/pointed ones, has entered the stomach, it will pass uneventfully. Most objects are passed within 4-6 days, though some may take even 4 weeks.^[3,6]

In our case, abdominal examination showed hollow viscous perforation. After a foreign body has perforated a viscous organ, it may lie in the lumen or adjacent to the perforation site or it may lie in the lumen or adjacent or distant organs or fall back into the lumen to perforate again or pass out without complication. This case is interesting because the sewing needles perforated the stomach, the duodenum, moved to liver parenchyma, and perforated the urinary bladder to lie in the urinary bladder. Even after extensive search of the literature, such a presentation of the trajectory of a sewing needle has not been described following gastric and duodenal perforation; the course of its trajectory cannot be predicted. In this case, peritoneal exploration was done and all the metallic needles were extracted. The needle embedded into the liver parenchyma was gently pulled out without any obvious bleeding. The primary repair with the omental patching of the gastric and duodenal perforation was done. The metallic needle was retrieved from the urinary bladder by opening the posterior surface of the bladder that was repaired per operatively. The treatment modality depends on the effective localization of the foreign body.

It is hard to localize the ingested sewing needle because they disappear in the digestive tract during manipulation and are impalpable manually. Metal detectors have been

widely used in the localization of ingested metallic bodies, but the availability of these instruments is questionable in many institutions.^[5]

In our case, we used X-ray for the identification and localization of the needles and this approach obviated exploration and shortened the operation time. The successful localization and surgical removal of an ingested sewing needle under mini C-arm fluoroscopy has been attempted with great success.^[8]

Nonpharmacological (supportive psychotherapy, cognitive behavioral therapy) and pharmacological psychiatric management, as indicated, should be an essential part of the treatment in the postoperative period. All the patients with the complaints of foreign body ingestion out of the psychiatric episode should be well consulted and counseled by a psychiatrist and should be put on psychotropic drugs. Proper psychiatric counseling and consultation helps in preventing such psychiatric disorders in future.^[4] In our case, the patient was given psychiatric consultation and was put on psychotropic drugs. During follow-up, the patient was doing well and no signs and symptoms of schizophrenic episodes were seen.

Postoperative adhesions are well-known clinical entity following abdominal surgeries and pose a challenge to surgeons if the patient is subjected to another surgery. Every effort should be made that such psychiatric episodes are not repeated, and to prevent such episodes, proper psychiatric counseling and consultation is required and the patient can be put on psychotropic drugs and regular follow-up is required.^[4]

If, however, second-look surgery is required for abdominal adhesions, it could be challenging and appropriate surgical management can be provided depending on per-operative findings.

Conclusion

Foreign-body ingestion and its effective management pose a great challenge to a surgeon. Foreign body if ingested may injure the solid viscera organ and hollow viscous organ or any part of the digestive system, depending on the site of impaction. A majority of foreign bodies that reach the gastrointestinal tract pass off spontaneously and uneventfully with feces. In some circumstances, this causes obstruction and perforation of the hollow viscous organ. In many instances, if most of the foreign body impaction does not cause any symptoms it may be managed conservatively but if complications such as obstruction or perforation arises then an appropriate surgical intervention is required.

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