A Rare Case of Ileo-ileal Fistula within a Strangulated Incisional Hernia “Fistulation by the Sneaky Plastic Perforator”

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ABSTRACT

Perforation of the hollow viscus by a foreign body is seldom observed in clinical practice. Ileo-ileal fistula secondary to perforation by ingested plastic material is rare entity. Accidental ingestion of a foreign body is often encountered in clinical practice. However, intestinal perforation due to such a cause develops rarely, because the swallowed foreign body usually advances through the gastrointestinal tract without any problems and is excreted with faeces. Only 1% of ingested objects result in gastrointestinal system perforation [1]. Commonly the material should be plastic, glass or iron with sharp edge. However, in our case it was a plastic sheath. Herein, we present a prisoner patient which admitted from casualty with suspected of having strangulated incisional hernia in view of history of previous surgery done. However, on table a plastic sheath was discovered causing an ileo-ileal fistulation with perforation. This case stands out due to the rarity of its entity, peculiarity of its clinical presentation and complexity of managing this case. This case highlights the suspicion of foreign body ingestion is imperative in diagnosing and managing acute abdominal pain cases among prisoners and drug abusers.

Keywords: Ileo-ileal fistula, Perforation, Foreign body, Prisoner.

Case Study

1. Case Presentation

A 40-year old Malay gentleman who is a prisoner with the history of an ice-chaser presented with non-radiating colicky abdominal pain over the right hypochondriac and umbilical region for past 4 months. However, there was aggravation of pain for the past 2 days. It was associated with non-projectile vomiting with food content. Patient denied fever and altered bowel and bladder habits. In further history taking, patient has undergone an operation in March 2017 for presumptive diagnosis of acute appendicitis and was identified to have caecal tumour. Hence, right-hemicolectomy with primary anastomosis was performed. However, histopathology report showed benign ulcer at ceacum. Patient later defaulted his follow-up. On physical examination patient was dehydrated. Upon per abdomen examination, a well-healed Lanz incision and midline-laparotomy scar. Abdomen was tender and fullness over the right iliac fossa (previous Lanz incision) with erythematous skin changes.

Bowel sounds were present. Digital rectal examination was unremarkable. Laboratory investigation reveals leukocytosis and microcytic and hypochromic anemia. We proceeded with ultrasound abdomen and noted herniated bowel and omental fat in the Lanz incision area with suspicious of bowel strangulation. Our provisional diagnosis was strangulated incisional hernia.

We proceeded with exploratory laparotomy with double barrel stoma creation. Intraoperative noted there were incisional hernia defect of 2 cm at previous Lanz Incision site which contained small bowel forming a knuckle. There were also fistulation between this small bowel knuckle with perforation containing localized pus. Within this fistula noted there were a small, thin and elastic white plastic material was seen.

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Post operatively patient was nursed in the ICU. In view of the severe sepsis secondary to perforated of the ilio ileal fistula patient eventually succumbed.
**Fig. 1** Intraoperative findings shows incisional hernia with defect size of 2 cm. Hernia sac containing small bowel forming a knuckle.

**Fig. 2** Intraoperative findings shows the fistulation between knuckle of small bowel within hernia sac with perforation containing localized pus.

**Fig. 3** Intraoperative findings shows 100 cm of small bowel from DJ flexure was resected and double-barrel stoma was created (small bowel and transverse colon).
Fig. 4 Intraoperative specimen shows a small, thin and elastic white plastic material within fistulation

2. Discussion

The word fistula is derived from Latin, which means for ‘pipe’ [2]. A fistula is an abnormal connection between two epithelized surfaces. Internal intestinal fistulas are relatively harmless. They manifest as symptoms unless there is significant obstruction or sepsis. As in our case, patient presented with symptoms of obstruction. The aggravation of his sepsis despite localized minimal pus is explained by his poor nutritional status and immunocompromised as he has been chronic drug abuser.

The etiology of most gastro-intestinal fistula occurs as a complication of surgeries. Some fistulas can also be attributed inflammation (Chron’s disease) and infective causes (intestinal tuberculosis). However, in our case the fistula is likely to be attributed to foreign body which is a rare etiology. It is even rare in adults as incidences of foreign body ingestion are more common in pediatric age group [3]. Hence, post-operation, further history was taken from the patient. It was deduced patient was most likely to be a smuggler by swallowing condoms filled with drugs in it. The plastic material found could be a retained piece of condom. Though plastic an inert chemical, prolonged trapping within the hernial sac could have incited chronic inflammatory process and cause perforation. The perforation in turn further increases the inflammatory process and encourages the migration of granulation tissue, fibrin and adjacent bowel loop [4]. Over time, a fistula formed within the adjacent bowel loop. This hypothesis is supported by the finding of the localized pus collection within the fistula.

Based on our literature review, only 1% of foreign body ingested cause GI perforation [5]. Most pass-through gastrointestinal system without any problems and are excreted in faeces. Among those that cause perforation are usually long and sharp edged objects. However, in our case the foreign body was just a soft plastic material (likely condom). The common sites of perforation are usually the terminal ileum and recto-sigmoid region due to its anatomic angulation [4]. However, in our case perforation occurred in illeum which is uncommon location. This is because the concept, patient had incisional hernia and loops of bowel causing knuckle creates a sharp angulation and this explains the perforation that occur in our patient at the knuckle of the small bowel inside the hernial sac. Ingestion of foreign body is a common encounter in clinical practice [5]. Most often it is accidental ingestion which is more common among paediatrics age group. Approximately 80% of foreign body ingestion cases in paediatrics is
of accidental in nature [6]. Whereas in adults, accidental ingestion is usually seen in elderly age group and patients with learning disabilities and alcohol dependence [7]. Intentional ingestions are usually seen among adult patients with underlying psychiatric disorders, with suicidal intention and prisoners. The history to be elicited is challenging especially in intentional ingestions as patients tend to be reluctant in saying the truth. The same applies in our case. It has been trickier here as patient’s ingestion has been an act against the law. Even during initial retrospective history taking during the post-operative period, patient was in denial. However, after further assurance patient confessed that he has been a drug mule by ingesting condom-filled drugs before but was afraid to share the truth in view of fear towards the consequences of law. The important point to be remembered here is to have a differential of foreign body ingestion as an etiology when handling any case of abdominal pain among imprisoned patients [8]. The motives behind ingestions vary hence detailed history taking with good patient rapport are vital [9].

The dilemma in diagnosing foreign body ingestion is a challenging. A generalized protocol is necessary, however the flexibility of customization should be given as per cases. Abdominal x-ray, US and CT are useful tools in evaluation of abdominal pain. The pros and cons of each utility should be kept in mind. Abdominal x-ray is useful to detect air under diaphragm as a result of perforation or obstruction as part of intestinal fistula presentation. However, only 15.9% foreign object perforation cases present with free air under diaphragm following perforation as consequent covering by inflammatory mass [4]. CT scan is highly sensitive especially in retrospective evaluation. A study done showed CT being sensitive at 7.4% in picking up a fishbone and sensitivity was increased to 100% upon retrospective evaluation [10]. This highlights the essence of suspicion of foreign body ingestion especially in patients with high risk. However, in our patient retrospective interpretation of CT doesn’t reveal the foreign body as plastic is radiolucent. This brings the discussion to the importance of US in detecting foreign bodies that are not radio-opaque. US also have the upper hand of being highly flexible, high reproducibility, low cost and avoiding radiation exposure [11]. However, in our case imaging of US also showed target sign with possible intussusception which was not present. These mis-leading points could be attributed to the altered anatomy of bowels, adhesions and incisional hernia secondary to prior surgery. Laparoscopy is another important option as part of both diagnostic and therapeutic tool [12]. However, exploratory laparotomy was opted in this case as our provisional diagnosis was intestinal obstruction secondary to strangulated incisional hernia.

3. Conclusion

Foreign body ingestion as an aetiology should always be ruled out in acute abdomen cases among adults of high risk group including prisoners and drug abusers. A good rapport and tactful approach is essential to gain patient’s confidence. The combination of a good history-gathering skill and rational suspicion of a clinician is the most supreme diagnostic tool.

References


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