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LAPAROSCOPIC MANAGEMENT OF DISTAL ILEAL OBSTRUCTION CAUSED BY PHYTOBEZOAR COMPLICATING CONGENITAL MECKEL'S BAND NARROWING: A CASE REPORT

Surgery

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ABSTRACT

Background: Congenital Meckel's Band with distal ileal narrowing causing obstruction is a rare phenomenon. We present here a case where a phytobezoar complicating a Meckel's band obstruction was managed laparoscopically. This is the first such reported case.

Case Presentation: A 34 year-old male presented to the Emergency Department with complaints of pain abdomen and progressive vomiting for 2 days. Plain X-ray abdomen showed evidence of Acute Intestinal Obstruction. A contrast enhanced CT of the abdomen revealed dilated proximal and mid-ileal loops with transition zone seen in the right lumbar region. Hence the patient was taken up for diagnostic laparoscopy which revealed a Meckel's Band from the distal ileum causing luminal narrowing. Hence an extracorporeal segmental resection and anastamosis of the affected distal ileum was done through a small incision and the bowel was pushed back inside. Rest of the surgery was uneventful. On opening the specimen, we found a ball of fibrous strands mixed with faeces plugging the Meckel's band narrowing region. Post-operatively, we were able to ascertain the history from the patient that he had consumed two full oranges two days ago. Thus we came to our diagnosis of a phytobezoar. Histopathological examination further confirmed both the Meckel's band and that of a phytobezoar. On post-operative day 2, soft solid diet was initiated and the patient was discharged once he became symptomatically better. On follow-up, the patient has had no similar complaints.

Conclusions: Phytobezoars are a rarity causing mechanical intestinal obstruction. Harmless walls of orange segments had led to this patient's undoing because of a pre-existing congenital Meckel's band narrowing. Meckel's band without a diverticulum causing luminal narrowing of the ileum is very rare. Identification of this anomaly is difficult with imaging studies. Hence laparoscopy helps in managing such scenarios with less morbidity as compared to open procedures.

KEYWORDS

Introduction:

A Vitello-intestinal Duct remnant is said to be present in about 2 to 4% of individuals. It is often difficult to diagnose pre-operatively and is only said to be a rare cause of intestinal obstruction. The remnants of the vitelline duct include vitelline fistula, vitelline cyst, vitelline cord or Meckel's Band and Meckel's diverticulum with or without a cord. These arise due to the complete or incomplete obliteration of the omphalomesenteric duct. A Meckel's cord narrowing causing obstruction usually presents within the first decade of life and acute intestinal obstruction due to a vitelline duct remnant in adults is quite rare. [1,2]

Bezoars are intestinal aggregates of indigestible materials which act as foreign bodies causing mechanical intestinal obstruction. Phytobezoars are composed of vegetables and fruit fibres and are an extremely rare cause of intestinal obstruction.[3] We present here a case where a phytobezoar complicating a Meckel's band obstruction was managed laparoscopically. This is the first such reported case.

Case Presentation:

A 34-year-old male presented to Emergency Medical Services of our hospital with a history of continuous, colicky, diffuse abdominal pain for two days. He gave a history of bilious, progressive, non blood-stained vomiting for two days. He also had a history of constipation for two days and a history of not having passed flatus for 8 hours before presenting at the Emergency Department. He had no history of fever, loose stools or dysuria. He is a known case of well-controlled systemic hypertension. He was previously treated for gastropathy and duodenitis one year ago after which he has not developed any gastro-intestinal symptoms until now. He is a non-smoker and non-alcoholic. The pulse rate was 99 beats per minute. Physical examination revealed a distended, diffusely tender abdomen with mild guarding and hyperdynamic bowel sounds. Digital rectal examination was normal but there was no stool staining of finger.

Investigations:

The blood investigations revealed a Total Leukocyte Count of 12,800 with an increase in polymorphs of 88%. Haemoglobin was 13.8 and the rest of the labs were in the normal range. Ultrasound abdomen revealed dilated bowel loops with no free fluid in the abdomen or pelvis and no evidence of any other pathology. Abdominal erect X-ray revealed significant multiple air-fluid levels with dilated small bowel loops. A contrast enhanced CT of the abdomen and pelvis was then done. CECT revealed small bowel obstruction with dilated jejunal and ileal loops with a zone of transition at the level of distal ileum seen in the right lumbar region. There was no evidence of any pneumoperitoneum or free fluid in the abdomen. The distal colon was normal.

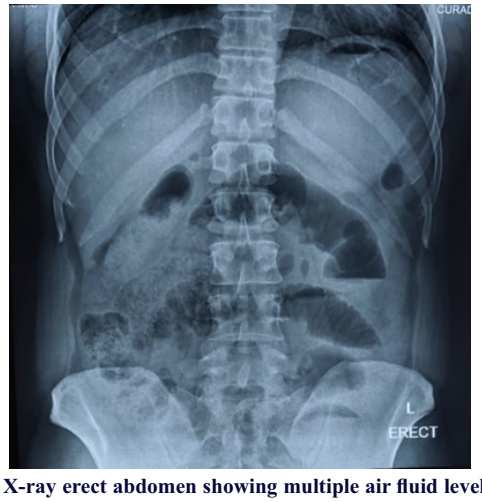

Fig 1. X-ray erect abdomen showing multiple air fluid levels and dilated jejunal loops.

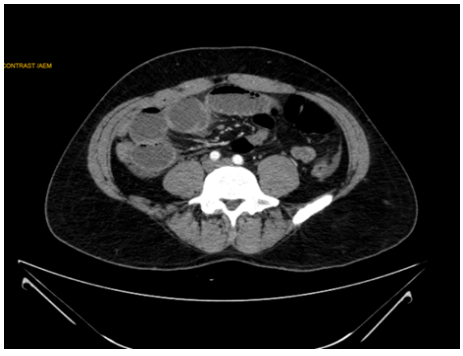

Fig 2. CECT Abdomen showing dilated small bowel loops with clear zone of transition in the distal ileum.

Fig 3. Diagnostic laparoscopy showing dilated mid and distal ileal loop with collapsed terminal ileum.

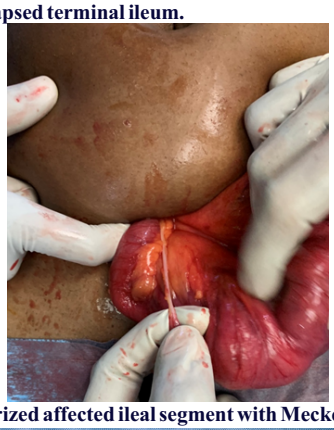

Fig 4. Exteriorized affected ileal segment with Meckel's band.

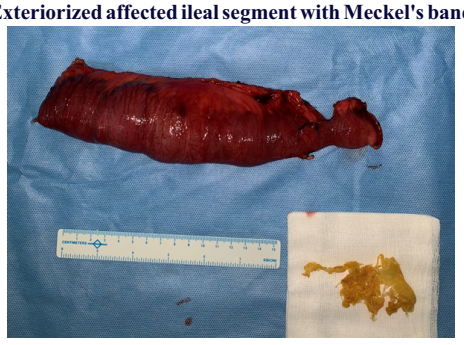

Fig 5. Resected ileal segment showing region of narrowing and phytobezoar.

Provisional Diagnosis:
Acute Intestinal Obstruction with zone of transition in distal ileum and the exact cause unclear.

Treatment:
Fluid resuscitation was given to the patient and anesthetic fitness was obtained after the patient consented to a diagnostic laparoscopy +/- bowel resection.

On diagnostic laparoscopy, small bowel loops were found to be dilated with a zone of transition in the distal ileum in the Meckel's region. Bowel walk revealed a Meckel's band from the serosa at the level of the zone of transition approximately 60 cm proximal from the ileocaecal junction. The Meckel's band caused a narrowing of the ileum at that level and the adjacent bowel on either side was dark and edematous suggestive of ischemia. There was no signs of perforation of the dilated bowel loops. Hence, a small suprapubic transverse incision was made and the involved segment of ileum was exteriorized. The Meckel's band was ligated and cut. A 15 cm ileal resection was done extracorporeally using bowel staplers and ileal side-side anastomosis was done. The anastamosed segment was checked for viability and was pushed back into the peritoneal cavity and the port sites and the incision was closed in layers. The resected specimen on examination revealed a ball of fibrous strands mixed with faeces plugging the Meckel's band narrowing region. The patient had an uneventful post-operative hospital stay; tolerated normal diet on day 2 and was discharged on the 5th post-operative day. On further inquisition after surgery, the patient revealed that he consumed three oranges two days before presenting to the Emergency Department.

Outcomes and follow up:
The final histopathological examination revealed the segment of ileum with stricture at the level of the band narrowing. The band was a well-circumscribed connective tissue made up of adipocytes, fibromuscular and vascular tissue consistent with a Meckel's band with correspondence to the site and nature of the band. The fibrous strands plugging the ileal narrowing was confirmed to be phytobezoar on microscopic examination. There was no evidence of any active inflammation, tuberculosis or malignancy. On follow-up at 3 and 6 months, the patient is doing well and has had no similar complaints.

Discussion:
Phytobezoars are a rarity causing mechanical intestinal obstruction. Harmless walls of orange segments had lead to this patient's undoing because of a pre-existing congenital Meckel's band narrowing. Phytobezoars are noted commonly in the stomach, small intestine and rarely in the large intestine. It is more common in the terminal ileum due to the narrow lumen. In an isolated case of phytobezoar causing intestinal obstruction, conservative management with lavage and enemas or endoscopic removal of bezoar, where feasible, may be attempted to prevent major surgery.[4,5,6]

In our case, considering that there is a clear zone of transition with an obvious narrowing at the level distal ileum, the CT picture not conclusive of phytobezoar and the patient had already been symptomatic for two days, we did not want conservative management of the obstruction and wanted to intervene immediately. On hindsight, we feel that we were right in doing so as the mechanical obstruction would likely have only worsened due to the Meckel's cord narrowing and could have led to dangerous complications.

Vitello-intestinal duct remnants are a result of incomplete obliteration of the omphalomesenteric duct and are among the commonest congenital anomalies in the gastrointestinal system[7]. A Meckel's cord narrowing without a diverticulum is rare and is seen on the antimesenteric border of the distal ileum[8]. A Meckel's band obstruction usually presents in the first decade of life [1,2]. The age of our patient and no evidence of a band on CT had not made us suspect in terms of Vitelline band. Hence, it is difficult to identify preoperatively and is usually a per-operative finding.

The onset of Minimally Invasive Surgery has greatly impacted outcomes in both elective and emergency abdominal surgeries. Emergency laparoscopy, when skillfully performed in cases of intestinal obstruction and acute abdomen, drastically mitigates the post-operative morbidity. Hence, Laparoscopic management of our case had expedited recovery and made the entire hospital stay uneventful.

Conclusion:
A Meckel's band narrowing must always be suspected when there is a case of distal ileal obstruction along with other differentials. Phytobezoars, albeit rare, can also be a cause of obstruction and a thorough history is required. Our case describes the first such report of a phytobezoar causing distal ileal obstruction in the background of a Meckel's band narrowing. Early diagnosis and treatment is the key.

Conflicts of interest:
There is no conflict of interest amongst the authors publishing this case report.

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