International Medicine
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Research Article

Section: General Surgery

Trichobezoar Causing Small Bowel Obstruction, Perforation, and Meckel's Diverticulum: Rare Case

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ARTICLE INFO

Article History:

Received: 26-04-2025

Accepted: 02-06-2025

Key words:

Trichobezoar
Rapunzel syndrome
Small bowel obstruction
Meckel's diverticulum
Jejunal perforation
Trichotillomania
Laparotomy

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ABSTRACT

Trichobezoars, rare gastrointestinal masses composed of ingested hair, predominantly affect young females with underlying psychiatric conditions such as trichotillomania and trichophagia. Rapunzel syndrome, a severe form of trichobezoar, extends into the small intestine and can lead to complications such as obstruction and perforation. Meckel's diverticulum, an embryological remnant of the vitellointestinal duct, may also serve as a nidus for bezoar impaction, exacerbating the risk of intestinal obstruction. We present a rare case of a 16-year-old male with no prior psychiatric history who developed acute small bowel obstruction and multiple jejunal perforations due to trichobezoars, one of which was lodged within a Meckel's diverticulum. Clinical presentation included abdominal pain, distension, vomiting, and constipation. Imaging suggested small bowel obstruction with intraluminal hyperdense contents. Exploratory laparotomy revealed two trichobezoars, three jejunal perforations, and an inflamed Meckel's diverticulum. Surgical management included resection of the involved ileal segment with primary anastomosis, jejunal repairs, and loop jejunostomy. Postoperative recovery was uneventful. This case highlights the unusual occurrence of trichobezoar in a male adolescent with associated Meckel's diverticulum and jejunal perforation a combination scarcely documented in the literature. Early suspicion, timely imaging, and prompt surgical intervention are essential in preventing morbidity. The presence of Meckel's diverticulum should raise the index of suspicion for bezoar-related complications in unexplained small bowel obstruction, especially in younger patients.

INTRODUCTION

Trichobezoar refers to a mass of hair that occurs in a condition predominantly affecting young females, termed trichotillomania. This disorder is characterized by the repetitive act of pulling out one's hair, which is subsequently ingested. The term trichoti - llomania was initially introduced by Hallopeau1. It is categorized within the obsessive-compulsive and related disorders in the DSM-5. The average age of onset for this condition is 11 years 2.

In 80-90% of instances, foreign bodies do not become lodged in the stomach. However, in 20-30% of cases, alterations in the anatomy and physiology of the bowel can result in hair becoming ensnared within the mucosal folds, subsequently forming a mass that combines with gastric secretions. This condition may result in complications such as intestinal obstruction, intussusception, perforation, and gastrointestinal bleeding 3.

Rapunzel syndrome is a rare type of trichobezoar which of the hair extends into the small bowel 4.

Meckel's diverticulum is an embryological remnant that arises from the partial closure of the vitellointestinal duct during the fifth week of gestation. In adults, the most prevalent complication associated with Meckel's diverticulum is intestinal obstruction.5

Phytobezoars are masses formed from inadequately digested fibers derived from fruits and vegetables, which can be found in the gastrointestinal tract. They are recognized as a contributing factor to small bowel obstruction, particularly in cases involving Meckel's diverticulum, which represents 4% of such instances 5.

Most common site of perforation in trichobezoar has been found to be the stomach 6.

Trichobezoar causing acute small intestinal obstruction along with perforation in a case of Meckels diverticulum has rarely been reported, more so in a male patient. Hence our case is worth being described and recorded in literature.

CASE PRESENTATION

A 16 year old male presented to the emergency history of acute onset, colicky type of abdominal pain at the umbi lical region for 4 days associated with multiple episodes of non bilious vomiting and abdominal distension on eating food for 4 days. Patient also gave history of not being able to pass flatus and motion for 4 days. Patient did not give any history of fever or bleeding PR or hematemesis. Patient was dehydrated on presentation with tachycardia. Patient had nasogastric tube in situ (clamped) which was placed at an outside hospital. On abdominal examination patient had distension with soft, non tender abdomen with absent bowel sounds. On per rectal examination patient had fecoliths which were evacuated manually. Rest of the systemic examination were normal.

Patient had leucocytosis and hyponatremia on presentation. Rest of the blood investigations were normal.

Figure 1: X Ray Abdomen Erect Showing Air Fluid Levels

Figure 2: X Ray Abdomen Showing Dilated Jejunal Loops

After resuscitation of the patient, patient underwent abdominal xray which showed dilated bowel loops and air fluid levels. USG abdomen was suggestive of subacute small bowel obstruction with GB sludge with minimal free fluid ininterbowel space. CECT abdomen was done which showed to have focal hyperdense intraluminal content with inters persed feces and air foci in the terminal ileum, with non enhancing soft tissue component with moderate amount of luminal narrowing in the involved segment.

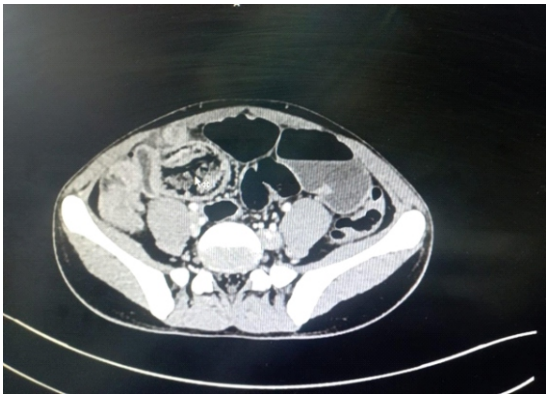

Figure 3: Cect Abdomen Showing Trichobezoar

Patient was taken up for emergency exploratory laparotomy in which patient was found to have a 3x2cm perforation in the jejunum 140cm from DJ flexure and 2 pin point perforations in the jejunum at 150 and 160cm from the jejunum, Meckels diverticulum present 50cm proximal from IC junction. Two 7x4cm trichobezoars present; one in the jejunum and one at the Meckels diverticulum.

The segment of the ileum containing the Meckels diverticulum was resected and primary anastomosis was done. The trichobezoars were milked along the bowel and expelled from the proximal most perforation. Primary repair of the pinpoint perforations were done. The proximal most perforation was exteriorised as loop jejunostomy.

Post- operatively stoma was functional on post op day 2 and patient was allowed orally. Patient is currently admitted in ward.

Figure 4: Intra Op Showing Meckels Diverticulum

Figure 5: Trichobezoar (Intra Op Specimen)

DISCUSSION

A bezoar is defined as a mass of foreign material located within the gastrointestinal tract. When this mass is primarily composed of hair, it is specifically referred to as a trichobezoar. Other classifications of bezoars include phytobezoars, which consist of plant matter; pharma cobezoars, formed from medications; and lectobezoars, which are made from processed milk products. Trichobezoar is seen to be associated with trichotillomania (hair-pulling) as well as trichophagia (hair swallowing). Only after the tricho bezoar attains a specific size the patient becomes symptomatic for the same.

The commonest complication of trichobezoar is perforation of the stomach which has an incidence of 10.1%. Incidence of intussusception, pancreatitis, and cholangitis are 1.85%, 0.92%, and 0.92%, respectively 7.

In a case series, Mirza et al. found that 15 patients (88%) had complaints of abdominal discomfort and vomiting, and 8 patients (47%) had abdominal distension. One patient was diagnosed with perforation of the stomach with bleeding per rectum. The patient had later died in the postoperative period 8. A 30-year-old female had a gastric perforation for which she underwent a laparotomy followed by an uneventful recovery 9.

Investigation of choice in trichobezoars are CECT and endoscopy.

The pathophysiology of perforation in trichobezoar has not been defined yet. It could be due to the pressure necrosis and the mucosal irritation of an enlarging hairball. Tricho bezoar causes malabsorption which can lead to hypovolemia. Hypovolemia decreases perfusion of the mucosa. This causes a delay on the healing process after minimal injury to the mucosa10. These mechanisms are described mostly for perforation of the stomach. Mechanisms specifically for intestinal perforation have not been described adequately on literature. In our patient small bowel got obstructed due to the trichobezoar as well as the Meckels diverticulum. The proximal bowel(the jejunum and proximal ileum) was dilated and got perforated.

In adults, the most common complication is caused due to intussusception, volvulus around adhesion band formed due to inflammation, incarceration of the diverticulum within a hernia (Littre's Hernia) In children, gastrointestinal hemor rhage is the most common11, 12.

The poor peristaltic waves at the site of the Meckel's diverticulum decreases ileal motility and cause obstruction due to bezoars. CT scan can be used to detect the bezoar along with its complications like perforation and obstruction. Only a few cases of phytobezoar impaction in a Meckel's diverticulum have been reported in literature 13. Most of these were managed with open exploratory laparotomy. Only one case of using laparoscopic treatment was published in 2011. A retrospective study by Yau et al indicates that laparoscopy may be superior to laparotomy for treatment of small bowel obstruction which is caused by bezoar14. But laparoscopy is not recommended in cases of perforation which are associated with small bowel obstruction because this is a scenario of surgical emergency. Like in our present case, clinical assessment was consistent with bowel obstr - uction and the CT findings were not conclusive in identifying the cause; hence patient was taken up for emergency exploratory laparotomy to delineate the cause and treat the underlying pathology.

CONCLUSION

Meckel's diverticulum may lead to intestinal obstruction. There is a possibility of an association with various types of bezoar impaction, particularly phytobezoars, which should be considered in adult patients experiencing bowel obstruction of unknown origin, especially those adhering to a predominantly vegetarian diet. In children with a history of trichotillomania, trichotillophagia, or body dysmorphic disorders, trichobezoars should be suspected. To date, there have been no reports of recurrence of such episodes.

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How to cite: Rima Mondal, Pradeep Saxena, Trichobezoar Causing Small Bowel Obstruction, Perforation, and Meckel's Diverticulum: Rare Case. *International Medicine*, 2025;11 (1) :1-5