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Case Report

PRIMARY SMALL BOWEL PHYTOBEZOAR IN CHILDREN – A REPORT OF TWO CASES

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ABSTRACT
Phytobezoar is a concretion of indigestible fibers derived from ingested vegetables & fruits. Primary small bowel phytobezoar is rare and almost always obstructive. It is commonly seen in adults but is rarely reported in pediatric age group. We present the clinical profile of two children (aged 4 and 12 years) with primary intestinal phytobezoar. The case of the 4 year old son of a tailor presented here is the youngest reported case of small bowel phytobezoar of cotton threads mimicking intussusceptions while the 12 year old mentally subnormal boy presented with intestinal obstruction. Both were managed successfully by operative intervention.

Key Words: *Phytobezoar; Small Bowel Obstruction; Children*

INTRODUCTION
Phytobezoar is a particular type of bezoar composed of indigestible cellulose, tannin & lignin derived from ingested vegetables & fruits. The most common site of formation of a phytobezoar is the stomach and it is not unusual to find parts of phytobezoar into the small bowel (Quercioli, 2009). But the primary small bowel bezoar is very rare and usually forms in patients with underlying small bowel disease like diverticulum, stricture or tumour above all in the jejunum and proximal ileum, where they can become impacted and cause luminal obstruction (DeBakey, 1938). However, we have encountered two children of primary intestinal phytobezoar who presented as acute intestinal obstruction and required surgical intervention. Amongst these two patients, the younger one (4 years) had features simulating of intussusception Due to its rare appearance, the intestinal phytobezoar is usually not considered as a differential diagnosis of intestinal obstruction in children. Herewith we are reporting two cases of primary intestinal phytobezoar in children who had no other intestinal pathology.

CASES
Case 1
A 4 yr old, son of tailor, was presented to the pediatric emergency department with a 3 days history of crampy abdominal pain & bilious vomiting. His medical history was not significant. On physical examination he had anxious look & abdominal examination revealed mild tenderness with presence of vague abdominal lump in right ileac fossa. Results of laboratory study were in normal limits. Erect abdominal x-ray showed few fluid levels. Ultra sound abdomen was suggestive of intussusception. After adequate fluid resuscitation & antibiotic coverage he was operated upon through supraumbilical transverse incision. On exploration, a long bezoar from 15 cm proximal to ileocaecal junction extended in to ascending colon was revealed (Figure 1).
After unsuccessful attempt of milking, enterotomy & extraction was done as well as a search for secondary bezoar was done. Enterotomy wound closed in two layers with absorbable suture & laprotomy wound was closed in layers. Post operative period was uneventful. Psychiatric counseling was done. Histopathologic examination revealed cotton threads as content of bezoar. Child is doing well in follow up.

Case Report

Figure 1: Operative photograph showing enterotomy wound through which bezoar is coming out

Case 2

A 12 year old male child was admitted with 5 days history of bilious vomiting and pain abdomen .The child was mentally retarded and was also on antiepileptics for seizure disorder for last 3 years. On physical examination the child was dehydrated but the vitals were stable .Abdominal examination showed distension and bowel loops were palpable .Among the investigations the haemoglobin level was 8.0 gm% and rest biochemical investigations were within normal range. Ultrasonography of the abdomen revealed a mass in right iliac fossa and the echogenecity of the mass was difficult to interpret. Afterwards barium meal examination was done which revealed dilated jejunum and ileum suggesting a obstructive lesion in the terminal ileum (Figure 2).

The patient was operated and operative findings included dilated ileum with a large intraluminal foreign body going upto the caecum and colon.The foreign body was removed after a longitudinal enterotomy on the antimesenteric border of terminal ileum (Figure 3).

The wound was closed in layers.Postoperative period was uneventful and the patient was sent home after ten days of hospitalization. Histopathological examination of the foreign body revealed it as phytobezoar.

Figure 2: Barium meal examination showing dilated Jejuna and ileal loops

Figure 3: Operative photograph showing extracted Phytobezoar

DISCUSSION

Bezoar is classified in five subgroups according to composition, (1) phytobezoar (undigestible vegetable & fruit); (2) pharmacobezoar (composed of undigested medications) (3) trichobezoar (composed of hair); (4) lactobezoar (reported only in neonatal period & consisting of ingested milk); (5) foreign body bezoar (chewngum candy, toilet paper & sunflower seeds) (Quercioli, 2009). Phytobezoar have been ascribed to the ingestion of mainly persimmon (American Indian name of a fruit obtain from a native American tree belong to the genus Diospyros) coconut fibres, celery, skin & stems of grapes, prunes & raisins, leek, mallow & wild beets. Inzumi & co worker suggested two group of phytobezoar (1) opobezoar, composed of fruits and (2) inobezoar, those consist of fibrous matter (Teng, 2005).

The mechanism of the formation of phytobezoar from these plant substances is probably mechanical & depends upon the insoluble & indigestible fiber content. Hamedi in his study explained that after reaction with HCL + pepsin solution only plant fibers remains & entanglement of these fibers act like hairs in trichobezoar & causes formation of bezoar (Teng, 2005). In the anatomically normal gut bezoar rarely cause obstruction unless it is associated with risk factor, the main risk factors for bezoar formation in gut are poor mastication, vegetarian diet, diabetic gastroparesis, hypothyroidism, vagotomy & previous gastric surgery. However there were no risk factors in both the children of present case study.

Bezoar has various presentations according to its location in gut e.g. gastric bazoar present with mild epigastric discomfort, iron deficiency anemia, weight loss, decrease appetites, epigastric lump, haemorrhage & gastric perforation. Duodenal or jejunal bezoar may present as obstructive jaundice, pancreatitis & ileal bezoar can present as lump, protein losing enteropathy, intestinal obstruction or peritonitis (DeBakey, 1938).

Though conventional abdominal radiograph usually enough to detect sign of small bowel obstruction but rarely can detect bezoar as a cause of obstruction. The radiographic image of bezoar can be mistaken for abscess or feces in colon. Sonographic visualization of interaluminal mass with a hyperechoic arc like surface and a marked acoustic shadow is suggestive of bezoar (Ripolles, 2001). Fecal material in colon & ectopic lithiasis (gall stone ileus) produce the same sonographic finding as bezoar. Barium meal examination characteristically shows an intraluminal filling defect of variable size that is not fixed to the bowel wall with barium filling the interstices giving a mottled appearance in intestinal phytobezoar. CT scan usually reveal a well defined oval intraluminal mass with air bubbles retained within the interstices, a dilated small bowel obstruction proximal to the mass & normal or collapse distal loops. CT also helpful in detecting associated gastric bezoar & concomitant multiple intestinal bezoar. Cases of phytobezoar often have the history of prior surgery in such cases CT help in differentiation between adhesive obstruction & bezoar (Grosfeld, 1980).

After establishment of diagnosis main aims of treatment remain extraction of bezoar & prevention of recurrence by addressing the underling physical or emotional cause. Conservative management of gastric bezoar by fragmentation by enzymatic therapy with chymopepsin, meat tenderizers, cellulose & successful removal by extracorporal shock wave lithotripsy & endoscopic removal has been well documented though this reported to as cause of detachment of bezoar to small intestine. Conservative management of ileal bezoar is not established yet. Grossfield has described his experience with successful conservative management of medicinal ileal bezoar in four bedridden children with use of intravenous fluid, purgative & enemas.

Operative treatment of ileal bezoar includes either by manual fragmentation & milking of bezoar to aqdvance in stomach & extraction through gastrotomy wound or through enterotomy & extraction of bezoar but ileal resection may also be required in case of delayed diagnosis (Teicher, 2008). Careful search for residual bezoar in rest of gut by manual exploration or with endoscopic examination is mandatory; otherwise this may result in recurrence.

CONCLUSION

Intestinal phytobezoar in childhood is a rare benign condition. Strong clinical suspicion is important in making a correct preoperative diagnosis. In such cases noninvasive method like ultrasonography, barium

meal and CT scan can be of immense help. Search for residual or parent phytobezoar as important as extraction of presenting bezoar to prevent recurrence.

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