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Delayed presentation of a duodenal web

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ABSTRACT

Duodenal atresia and web are common causes of intestinal obstruction in early infancy. Their incidence ranges between 1 in 10,000 to 1 in 40,000 live births. Unlike duodenal atresia which is diagnosed early, even antenatally; A web presents later depending on the size of the aperture in the web. It usually presents with bilious or non bilious vomiting. We present an unusual presentation of duodenal web in a three and a half years old boy who presented with a 12 months history of abdominal distension and vomiting every 2nd or 3rd day. Plain abdominal imaging showed radiopaque foreign bodies below the diaphragm. As the natural history for majority of ingested foreign bodies is natural passage; He was managed expectantly elsewhere. Eventually, 12 months later, the patient presented to our center where further investigation provided the diagnosis. He was treated surgically by excision of the web. Post operatively, TPN and a trans-anastomotic tube (TAT) were used until full recovery was achieved. A high index of suspicion is the key to reaching the true diagnosis in patients presenting after the neonatal period.

Duodenal atresia and duodenal web are reported causes of intestinal obstruction in children with an incidence that ranges between 1 in 10,000 to up to 40,000 live births [1]. Unlike the duodenal atresia which typically presents itself with the double bubble sign immediately after birth, perforated duodenal web may seldom remain undiagnosed until beyond infancy [2]. Presentation after the neonatal period may become a diagnostic challenge without a high index of suspicion. Webs and atresias occur due to failure of the duodenum to recanalize during the period of the 6th to the 8th weeks of gestation [3]. This abnormal process leaves behind a web made out of only the mucosa and the submucosa layers. The muscularis layer is absent [1].

1. Case report

We report a case of a three and a half year old male patient who presented to our emergency room complaining of progressive abdominal distention and various episodes of vomiting food contents every second or third day over the course of 12 months. The patient was on fluid diet only. His abdominal distention was relieved partially by vomiting but was passing stool normally. The patient was born at full term and had no previous medical or surgical history.

Nine months prior to his presentation to us, the patient was seen in another hospital and had an abdominal X-ray which revealed 2 foreign bodies in the right hypochondrium. The family was reassured these foreign bodies would pass spontaneously. Later, he was scheduled for an endoscopy to retrieve the foreign bodies since the symptoms were not improving. The patient did not undergo the procedure.

On examination, patient's weight was 14.3 kg and his height was 94 cm, which was between the 15th and the 50th percentiles for both weight and height for age according to the WHO growth charts [4,5] and his other vital signs were stable. He looked well, oriented and not in distress. He had significant abdominal distention but no tenderness or organomegally on palpation. His labs at presentation showed normal CBC but the MCV and MCH values were reduced and consistent with iron deficiency anemia. Other abnormalities included mildly decreased glucose levels at 3.2 mmol/L (N: 4.1–9.0 mmol/L), and low bicarbonate levels of 19 mmol/L (N: 20–28 mmol/L). Initial abdominal X-ray revealed a radio-opaque foreign body that appeared to be in the small bowel, no evidence of perforation was seen (see Fig. 1).

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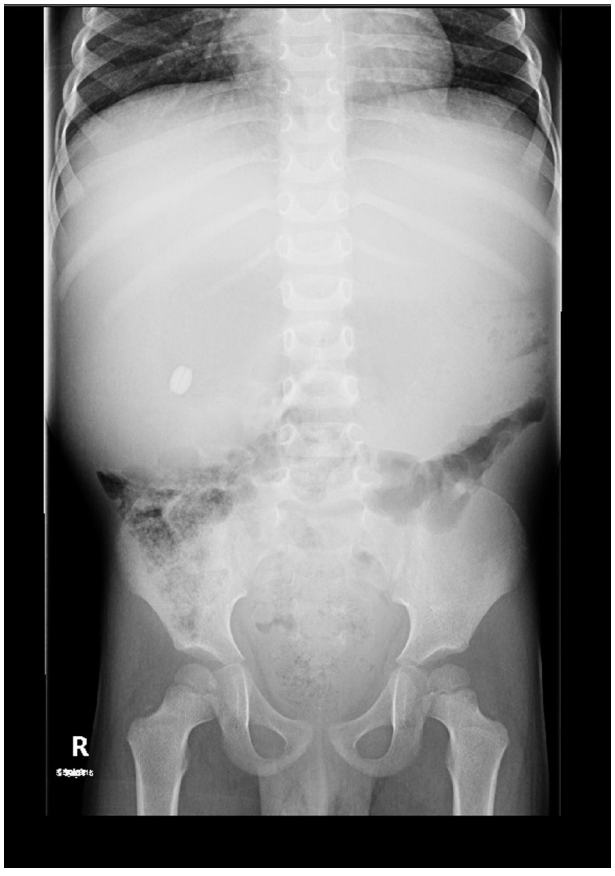

Fig. 1. X-ray abdomen that shows hugely distended stomach with a radio-opaque foreign body that is projected over the right lumbar region measuring 12 × 10 mm that appeared to be in the small bowel but with no evidence of air-fluid levels suggesting perforation.

The patient was admitted as a partial intestinal obstruction. A barium enema was done to rule out Hirschsprung's disease and showed a normal caliber colon. A CT abdomen and pelvis with IV and oral contrast followed. It revealed a hugely distended stomach with multiple (around eight) foreign bodies that are most likely rosary beads. Distal to the second part of the duodenum the rest of the bowel was collapsed. Malrotation was ruled out (see Fig. 2A and B).

With a working diagnosis of a partial duodenal obstruction, the parents were counseled and the patient was prepared for operative exploration.

At laparotomy, normal rotation was found. Evidence of duodenal obstruction in the form of a huge duodenal bulb with distal collapse was found. The NG tube failed to pass beyond the duodenum. Duodenotomy revealed the windsock like web with a pin point hole in the center. The web was excised and the foreign bodies were retrieved. The foreign bodies were mostly rosary beads, dates seeds and a plastic piece that was thought to be a toy part (see Fig. 3).

Upon excising the web, however, the CBD and the ampulla of Vater were found to be right at the insertion of the web into the duodenal wall. Reconstruction of the ampulla was done around a 4 French stent after excision of the web. A nasogastric tube was used to decompress the stomach and a trans-anastomotic (naso-jejunal) tube (TAT) was inserted through the other nostril for feeding. A peritoneal drain was left close to the duodenum for drainage.

The patient was admitted to PICU for pain control and observation for 24 h then he was discharged to the regular ward. He was well covered with triple antibiotics (Ampicillin, Gentamycin and Metronidazole). Proton pump inhibitor and Octreotide were also started to minimize his gastric, bile and enteric secretions.

The patient needed TPN for 10 days. A contrast study at day 8 post operatively ruled out any leak and showed a hold up in the duodenum where it changes caliber between the 1st and 2nd part with subsequent passage of contrast material to the jejunal loops.

Jujenal feeding was started through the TAT after the contrast study. TPN was weaned accordingly. On the 8th post-op day, antibiotics were ceased. Two days after that, the NG tube and the drain were removed, and the octreotide was stopped.

Oral feeds were started gradually on the tenth post-op day. Domperidone was started to help gastric motility. Surprisingly, he fully tolerated his oral feeds in 5 days, so, the TAT was removed and he was sent home. The pathology of the material sent was consistent with a duodenal web.

His first follow up visit was 1 month post discharge. He was doing well, tolerating his normal diet and had no vomiting episodes. He was vitally stable and his height was 95 cm and weighed 17.7 kg and (increased by 3.4 kg since discharge). Which put him above the 25th percentile for weight/age and above the 75th percentile for height/age according to the WHO growth charts [4,5].

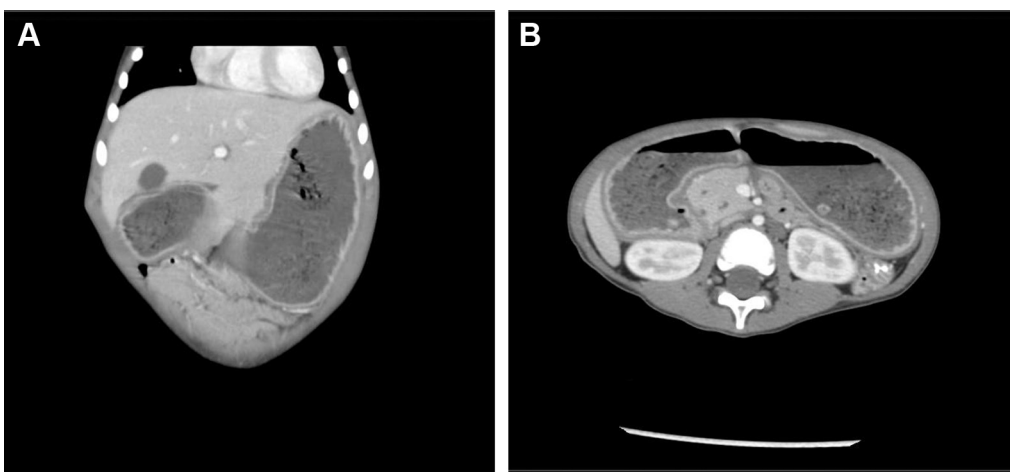

Fig. 2. A CT abdomen showing a hugely distended stomach in addition to multiple hyperdense structures seen within the stomach and 1st part of the duodenum the largest of which is measuring 1.8 × 1.4 cm, one of which was of a metallic density. A) Coronal cut B) Transverse cut.