



Diagnostic Dilemma of Duodenal Web

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Abstract

One of the reasons for duodenal blockage is a thin, spherical, partially permeable structure that resembles a web. This is called a duodenal web. It is an uncommon condition; the literature reports between 1 in 10,000 and 1 in 40,000 cases [1, 2, 3, 8]. Partial obstruction of the congenital duodenal web may cause sporadic symptoms that worsen until the obstruction is fully present. The primary symptom is vomiting. Patients may initially show a greater tolerance for liquids than for solid food. Patients may eventually experience severe weight loss as a result of inadequate calorie intake. When obstruction persists, patients may develop significant and progressive gastric dilatation. Eventually, the stomach's ability to contract is lost. Food that has not fully digested builds up and could always pose a risk of aspiration pneumonia. Depending on the size, location, and degree of obstruction caused by the web, there are differences in the age at which symptoms first appear and in their severity. Thus, a delayed presentation and a more difficult diagnosis may be associated with partial obstruction caused by duodenal web [3, 7, 8, 10, 11]. Nearly all duodenal web cases (85%–90%) occur in the second part of the duodenum, making it the most

common site. Twenty percent of cases involve the third and fourth segments of the duodenum, respectively [5,6,7]. Furthermore, an upper gastrointestinal barium study, an abdominal X-ray and CT scan, a flexible endoscopy, and the clinical presentation all contributed to the diagnosis of duodenal web with partial obstruction. [2, 5, 10]. The first line of treatment is surgery, either by open or endoscopic methods. Duodenal web, on the other hand, can occasionally present in a very different way, with a delayed onset in late infancy or early childhood and a variety of symptomologies [1, 3, 10]. Here, we describe the case of a 1-year-old cachectic child who began experiencing recurrent vomiting, abdominal distention, and weight loss at the age of one year. During the exploratory laparotomy, it was discovered that the child had a duodenal mucosal web.

Case report

A 1.5-year-old cachectic child who was vomiting and experiencing abdominal distention was admitted in pediatric wing of SMS medical college Jaipur on 16 april 2021. The patient was suffering from fever, recurrent vomiting, abdominal distention, weight loss, constipation, and painful defecation. The patient's parents

were consanguineous and had a normal prenatal history. The child vomited four to five times daily, forcefully and non-biliously, often 30 min to an hour after feeds, according to his mother's explanation. The patient also experienced constipation, fever, and stomach distention since one year. His diet was primarily composed of milk and small portions of semisolid food.

His parents took him frequently to their local general practitioners, who would give him medical treatment, but no remedy was achieved. As he did not have any overt signs and symptoms of intestinal obstruction, the local general practitioner did not think of the underlying organic cause of the vomiting the parents were concerned as the vomiting was persistent and associated with weight loss. The reason for his referral to the capital and then to our paediatric service was the ongoing deterioration of his condition.

He is the first child of his parents; was born normally at term, and since birth, he has received on-demand breast milk. At 7 months old, the mother tried complementary feeding, but she was unsuccessful due to the infant's ongoing vomiting.

On physical examination, in the abdomen, bowel sounds were normal. There was no enlargement of the liver and spleen, but the abdomen was distended. The rest of the physical findings were normal.

On the imaging study, the upright abdominal X-ray showed marked distension in the stomach and duodenum, and the "double bubble" sign was observed. The gas detected within the distal intestinal loops pointed to a partial obstruction (Fig. 1).

The abdominal CT scan with contrast noted severe distension in the stomach and duodenum; furthermore, there was stenosis in the distal aspect of the third-to-fourth portion of the duodenum, as well as distension in the first and second portions. The web between the third

and fourth portions of the duodenum was present, but the distal intestinal loops still showed contrast, suggesting a partial obstruction there (Fig. 2).

The patient was admitted to the surgical ward, the parents were counselled, and informed consent was taken for an exploratory laparotomy. The abdomen was opened by the right upper transverse incision. Between the third and fourth portions of the duodenum, a large duodenal bulb with distal collapse was discovered. There were small food particles like beans, nuts, and seeds of the date palm in the dilated part of the duodenum. The web was removed, duodenoplasty (figure 4) was performed, and the abdomen was then sutured layer by layer. Intravenous fluids, broad-spectrum antibiotics (ceftriaxone and metronidazole), and proton pump inhibitors were administered for 7 days. Adequate analgesia was given. An NG tube was used to decompress the stomach. NG drainage was high for 3 days postoperatively, which gradually reduced, and the NG tube was removed on the fifth postoperative day. Oral feeding was started gradually, and the patient tolerated full oral feeds on the 8th postoperative day. On the 12th day post-op, he was discharged from the hospital in good condition. The patient was scheduled for follow-up, and after 40 days of follow-up, he was doing well, accepting a normal diet, and gaining weight of about 1 kg. He had no episodes of vomiting or abdominal pain.

Discussion

There are two types of congenital duodenal web obstruction: partial and complete. While the partial type is more common in infancy and childhood, the complete congenital duodenal obstruction caused by the web is more common in newborns. The literature indicates that more cases of congenital duodenal web are reported in the complete form than in the partial form. [1, 2, 7].

Symptoms of complete duodenal web are more significant, like vomiting, abdominal distention, weight loss, dehydration, water and electrolyte imbalance, and constipation, which are seen in the neonatal period [1, 2, 9,10,11]. In this case report, the child did not have any overt signs and symptoms of intestinal obstruction, and the local general practitioners did not think of the underlying organic cause of the vomiting, but they misdiagnosed the case as gastroenteritis.

The signs and symptoms of partially congenital web increase after the intake of complementary foods [6, 8]. In this case, however, the patient could tolerate a small amount of milk and fluid and was gradually losing weight daily. The problem was increased by the occlusion of the duodenum lumen due to small food particles such as beans, nuts, and dates, which were observed during the surgery.

The majority of the duodenal web (85% to 90%) occurs in the first and second portions of the duodenum. However, the third and fourth parts of the duodenum represent 20% and 10% cases, respectively. [5,6,7]. In this finding, the obstruction was seen in the 3rd and 4th portions of the duodenum.

50% of congenital duodenal web cases are associated with other anomalies like Down syndrome, CHD, gut malrotation, hypospadias, inguinal hernia, cleft palate, and microphthalmia with ptychis bulbi [2, 6, 7], but this patient did not have these anomalies.

Most of these cases can be diagnosed by a simple X-ray and abdominal CT scan with contrast [2, 5, 10], but in this case, because the overt signs and symptoms were not present due to partial obstruction, the local general practitioners did not recommend diagnostic exams. When the patient was admitted in our hospital, we recommended an abdominal CT scan with contrast. The result of the CT showed severe distension in the stomach

and duodenum; besides, web was reported to be seen in the 3rd and 4th portions of the duodenum.

The final diagnosis of duodenal web was made after the surgical procedure, the investigation of the area, and seeing the webs.

In the differential diagnosis, other diseases such as congenital pyloric stenosis, duodenal atresia, annular pancreas, superior mesenteric artery syndrome, periduodenal portal vein, duodenal duplication cysts, and midgut volvulus must be considered. [3, 4, 7]. The detailed history, physical examination, imaging examination (CT scan, ultrasound, endoscopy, X-ray), and laboratory exams are done to ensure a final and accurate diagnosis of congenital duodenal web.

Conclusion

This patient did not have specific signs and symptoms of duodenal web due to the partial obstruction, which occurred in a later stage of childhood, and the web being attached to the 3rd and 4th portions of the duodenum. In developing countries such as India, due to a lack of access to equipped medical services, most such cases are put aside and not considered specifically.

Our recommendation for local general practitioners is that when they encounter such cases of recurrent vomiting, abdominal distention, constipation, and weight loss, the diagnosis of duodenal web should be kept in mind, and the patient must be referred to a well-equipped medical facility for further investigation and treatment.

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Legend Figures

Figure 1:

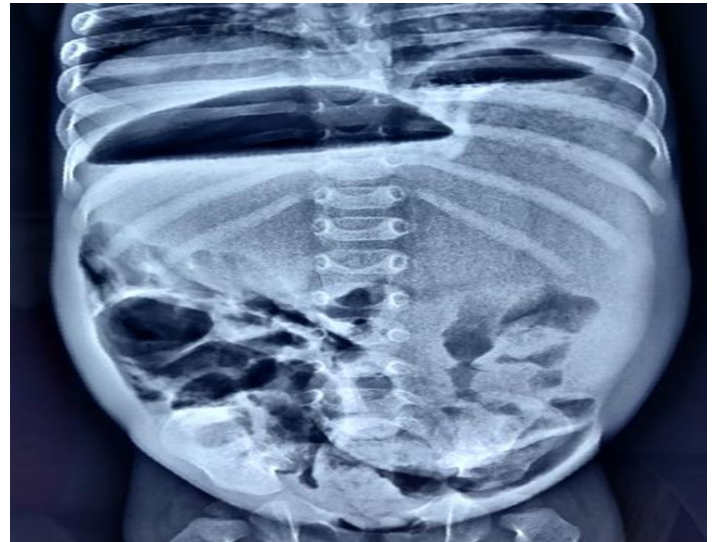


Figure 2:



Figure 3:

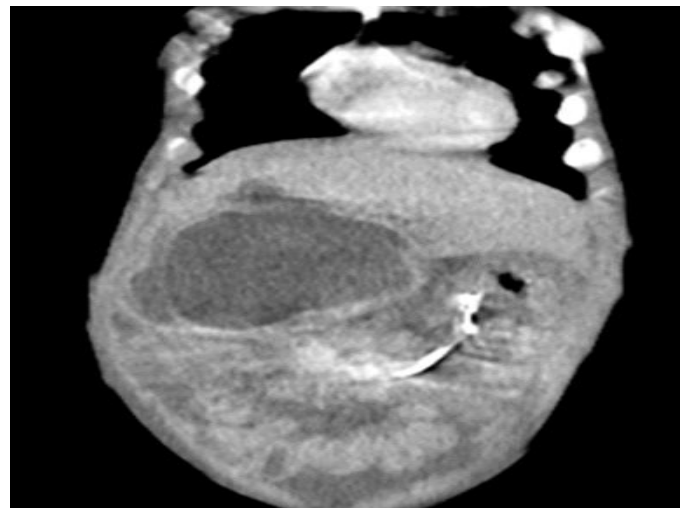


Figure 4:

