

DUPLICATION CYST OF THE STOMACH: A RARE CAUSE OF GASTRIC OUTLET OBSTRUCTION IN THE CHILDREN

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Abstract- Duplications of gastrointestinal tract are congenital anomalies found in about 0.2% of all children. These include the rare gastric duplication. We present such a cyst in a 14 years old girl with gastric outlet obstruction. She was found to have a noncommunicating antral duplication cyst. The cyst was managed by cystectomy and marsupialization. Microscopically the duplication cyst contained a mucosal, submucosal and muscularis layers. There was no evidence of ulceration or malignant cells. Her recovery was smooth. Etiology, presentation and management of duplication cyst of the stomach is discussed together with a review of literature.

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INTRODUCTION

Gastrointestinal duplications constitute a rare group of malformations, which vary in site, size, appearance and symptomatology. In 1733 Calder first reported intestinal duplication (1). Ladd introduced the term "duplication of the intestinal tract" to encompass a group of congenital anomalies that have three characteristics (2). First, they have a well developed coat of smooth muscle; secondly, their epithelial lining represents some part of the alimentary tract and thirdly, they are attached to some part of the alimentary tract. Duplications are either cystic or tubular in shape. In 1970, Richard et al presented 9 cases of gastrointestinal duplications which they noticed over 12 years (3). They identified certain consistent clinical features which have provided the basis for increased recognition of this anomaly. Duplications of gastrointestinal tract are congenital anomalies in about 0.2% of all children (4). Duplication cysts of the pylorus are the least frequent alimentary tract duplications with very few reported cases (5).

We present a case of gastric duplication that was successfully managed surgically.

Case presentation

The patient was a fourteen years old girl suffering from slowly progressive nonbilious vomiting for 2 years. She had a history of severe weight loss and cachexia and had abdominal pain after each meal that was suspected to be due peptic ulcer disease. After taking H₂ blocker and antacid for about three courses she underwent gastroscopy which showed severe pyloric canal obstruction with diffuse gastritis. She was referred to us with a diagnosis of peptic ulcer stricture. At the admission time she was 32 Kg and physical examination showed mild dehydration and severe cachexia with scaphoid abdomen that had succession splash. After correction of fluids and electrolytes, an upper GI examination by barium sulfate was done which showed a large stomach filled with barium (Fig. 1 and 2). She underwent laparotomy via upper midline incision which revealed a large stomach from diaphragm to pelvis; the pyloric canal had a near total obstruction due to cystic lesion in greater curvature near the pyloric canal. The cyst had a 6-centimeter diameter and was vascularized by right gastroepiploic artery. It was unilocular with clear white fluid and rubbery wall. It had mucosal lining with a muscular wall. The roof of the cyst was removed for biopsy and the edge of the cyst was marsupialized by 2/0 chromic. After drainage of the cyst the pyloric canal opened. Microscopically the cyst had mucosa, submucosa and muscularis layers which were compatible with gastric duplication cyst. Two months after operation her weight was 43 Kg without any complications and she was well.

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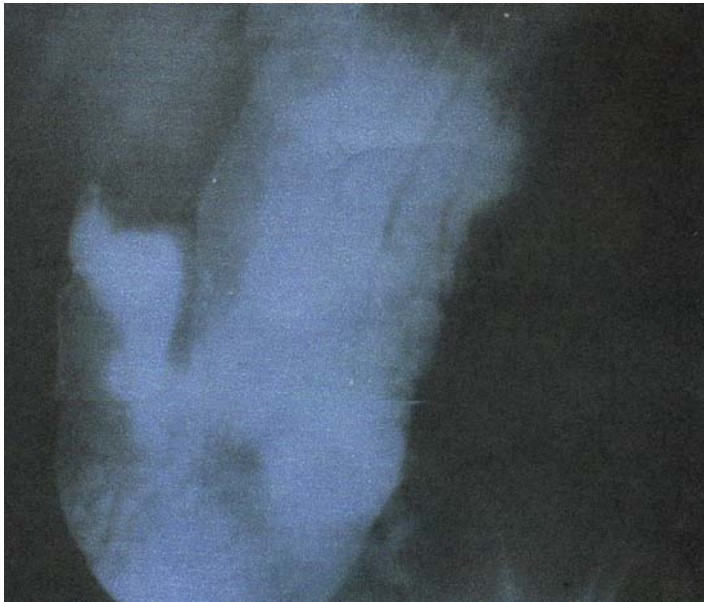


Fig. 1. Upright barium study of the patient



Fig. 2. Supine barium study of the patient

DISCUSSION

Pediatric gastric obstructive lesions produce clinical symptoms of bleeding, pain, nausea,

nonbilious vomiting and epigastric or upper abdominal distension (6). The most common etiology for nonbilious vomiting is the frequently occurring lesion of infantile hypertrophic pyloric stenosis. However, obstructive symptoms can also be produced

by other less frequently occurring and nonemergent congenital causes such as pyloric artesia, gastric atony, gastric antral web, gastric volvulus and even gastric duplication (7). Duplications can be found along the entire alimentary tract, the most common site being the ileum. Various theories have been postulated regarding the origin of duplication cysts, including abortive attempts of twinning (8), phylogenetic reversion (9), adhesions between endoderm and neuroectoderm (10), persistence of embryonic diverticuli (11) and recanalisation and fusion of longitudinal folds (12).

The differential diagnosis of nonbilious vomiting also includes nonoperative etiologies, such as feeding mismanagement (over feeding or poor technique), "Pylorospasm" (usually of short duration and self limited), chhalasia and gastroesophageal reflux (longer duration but also self-limited). Other acquired conditions e.g., peptic ulcer disease, can also produce the chronic symptoms of gastric outlet obstruction (13).

Ladd in 1937 suggested that cyst or tubular structures lined by normal gastrointestinal mucosal and having smooth muscle walls are collectively designated alimentary tract duplications. Gross in his review in 1953 defined clinical and pathological features of duplications. Duplication typically lies in proximity to the alimentary tube and frequently shares a common muscular wall and common blood supply (14). A gastric duplication cyst can produce either bilious or nonbilious vomiting, depending on the cyst's location. The cyst can occur in continuity with the gastric wall, usually near the greater curvature, or can be separated from the stomach, commonly attached to the pancreas. Four criteria are listed for the diagnosis of a gastric duplication cyst: an alimentary epithelial lining, an outer smooth muscle coat, a blood supply from the gastric vessels, and continuity with the stomach. These lesions are more common in females and are associated with other anomalies in 50% of the patients. The associated anomalies include other gastrointestinal duplications such as esophageal or even triplication and vertebral anomaly. The etiology is most likely that of the so-called split notochord deformity. The lesions sharing a common gastric wall are tubular or cystic in shape and may or may not communicate with stomach and produce nonbilious vomiting as the predominate symptom (15).

Review of literature showed that gastric duplications are managed surgically by simple excision (3) by dissecting the common wall between

the stomach and the duplication cyst, which usually can be done easily without entering the stomach. But in cases where one does not get a plane of dissection in the common wall one should excise the common wall and suture the gastric defect, as leaving behind the common wall (gastric epithelium) would expose the child to inflammatory complications. However, in our case we did marsupialization and cauterization of the epithelial lining instead of excision because we could not get a plane in the common wall. Excision of common wall in our case would have meant hemigastrectomy (excision of lower half of stomach and pylorus) which would have exposed the patient to associated complications and morbidity of gastro-duodenal anastomosis.

In conclusion, duplication of stomach is a very rare type of duplication of alimentary tract (7,16) that can present with typical symptoms of gastric outlet obstruction. One should suspect gastric duplication if a female patient presents with features of gastric outlet obstruction. Marsupialization and cauterization of the epithelial lining is a simple, safe and effective treatment option whenever it is difficult to find a plane of dissection in the common wall.

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