

CASE REPORT

Gastric Duplication Cyst Causing Gastric Outlet Obstruction in an Infant

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ABSTRACT

Gastric Duplication cysts form a very small subset of the rare Duplication anomalies involving the gastrointestinal tract. They have variable presentation and may present as an upper abdominal mass with obstructive or pressure symptoms. Excision of the lesion followed by histopathology clinches the diagnosis. We describe the case of an infant with gastric duplication cyst involving the greater curvature of the stomach with features of gastric outlet obstruction. He had upper abdominal distension with repeated episodes of non-bilious vomiting for one month. On examination, two conspicuous swellings with visible peristalsis from left to right side were found. Ultrasound and computed tomogram scan of the abdomen confirmed the diagnosis of cystic lesions in relation to the greater curvature of the stomach, suggesting a diagnosis of Gastric Duplication Cyst. There were no other associated anomalies in this patient. Excision of the lesion led to resolution of symptoms and histopathology confirmed the diagnosis.

KEYWORDS

• Cysts • Gastric outlet obstruction • Stomach

INTRODUCTION

Gastrointestinal duplication (GID) is defined as spherical structure with a muscular coat lined by a mucous membrane.^{1,2} It can occur

anywhere in the gastrointestinal tract (GIT), but most commonly is seen in the ileum (33%). Gastric duplication cyst (GDC) is rare and accounts for only 2-9% of all GID.

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They are congenital lesions, formed before the differentiation of epithelial lining, and therefore named after the organ with which they are associated.³ Duplication cysts must meet certain criteria to be called as GID including its lining with the gastrointestinal mucosa, attachment to the GIT, and the presence of a smooth muscle coat.⁴ Majority is circular in shape, non-communicating and surrounded by a smooth muscular coat. GDC are mostly located along the greater curvature of stomach and are mostly diagnosed in infants (67%);⁵ occasionally, they can present in adults. Clinically, they can be asymptomatic or present with non-specific symptoms like abdominal pain, gastric outlet obstruction (GOO) or a palpable abdominal mass.⁶ Clinical findings and imaging features can help in the diagnosis. Surgical excision is safe and offers complete cure. Excision is recommended even in asymptomatic cases due to chances of obstruction, torsion, perforation, hemorrhage & malignant transformation in the future.

CASE REPORT

A seven-month-male presented with abdominal distension and occasional non-bilious vomiting for one month; vomitus was non projectile & contained ingested food. There were no other bladder and bowel symptoms. On inspection, two separate visible lumps were present in the left upper & mid abdomen. Upper lateral lump was elongated obliquely while the lower lump was oval; lower lump was larger than upper one. Visible swellings with peristalsis occupied the left hypochondriac, lumbar, umbilical & right iliac regions. Bowel Sounds were present.

Routine blood counts including complete blood counts, serum creatinine and serum electrolytes were normal; X-ray abdomen was inconclusive & did not show any signs of bowel obstruction or perforation; Ultrasound (USG) abdomen showed a suspicious lesion (GDC) in association with the stomach. Contrast-enhanced-computed-tomography (CECT) scan of the abdomen confirmed the diagnosis (Figure 1).

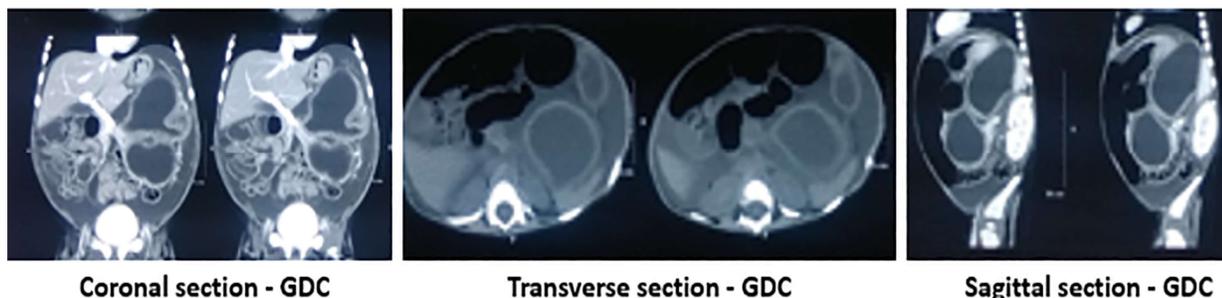


Figure 1: CT scan – abdomen pictures showing Gastric Duplication Cysts (GDC)

After pre-operative counselling, patient was taken for elective surgery under general anesthesia. Intra-operatively, a multiloculated cyst was seen along the greater curvature of the stomach; there were attachments of these cystic structures at three different locations on the stomach: near the pylorus, the body of stomach and its posterior parietal wall. All these attachments were tubular cystic structures. Cystic aspirate was colorless and mucoid (Figure 2). They had compression effects on the near-by structures; pyloric compression led to the features of GOO; cysts attached to the parietal wall appeared to have pushed down the spleen and tail of pancreas, cyst attached to the body to have pushed down the small and large bowel; due to pressure over the stomach there was necrosis of lesser omentum. Cyst was excised and defect was repaired in layers. Post-operative period was

uneventful. Patient was discharged on the eighth post-operative day. Histopathological examination (HPE) confirmed the diagnosis of GDC.

DISCUSSION

GID is a rare congenital anomaly and may occur at any level from the oral cavity to the anus; GDC account only for 2–9% of all duplications. Ileum (33%), esophagus (20%), and colon (13%) are the common sites.^{1,7}

GDC is a foregut duplication cyst. About 50-70% of foregut duplication cysts are enterogenous and 7-15% are bronchogenic.⁸ Overall incidence of GID is only 0.2% with a slight male predominance.⁹ Although the exact cause is not known, they are formed following disturbances in embryonic development, and various theories have been put forwarded

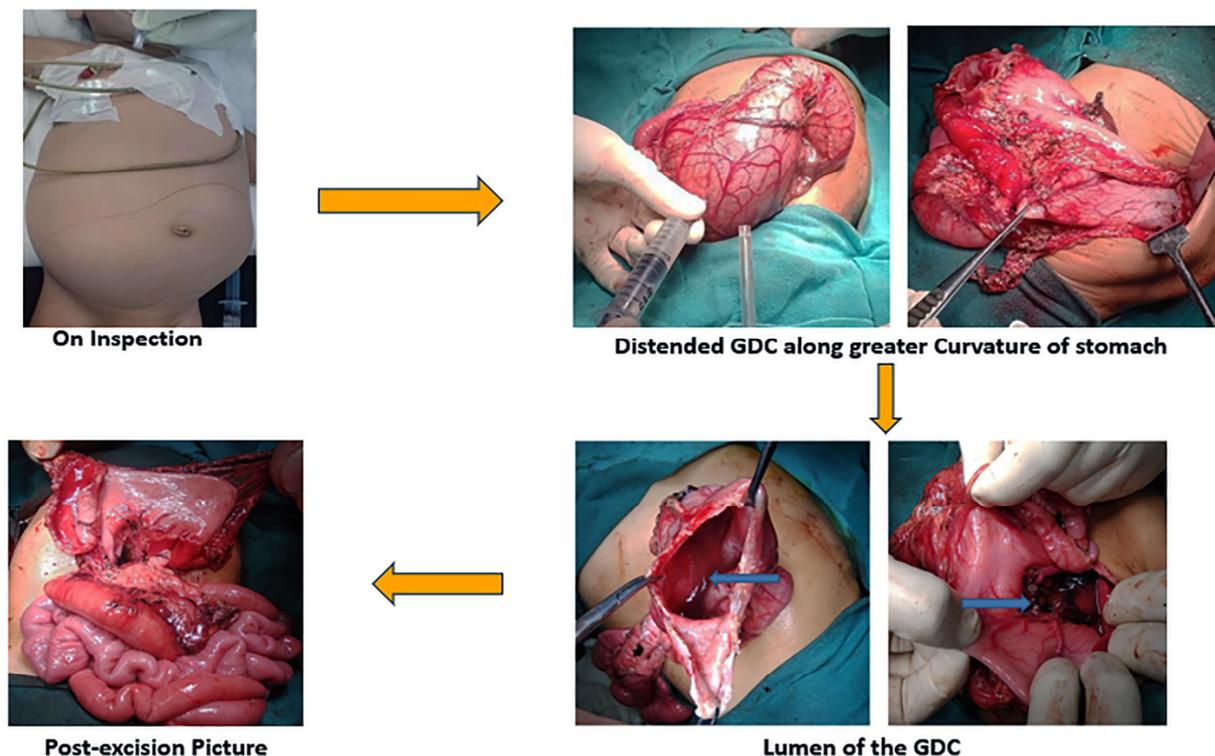


Figure 2: Clinical and Intraoperative pictures of the patient

for the actual mechanism which include bowel recanalization defects, incomplete twinning, and defects in notochord formation, abortive twinning, persistent embryological diverticula, and hypoxic or traumatic events. However, no single theory satisfactorily explains all GID. Cysts may be intrinsic when they lie within the GIT wall or extrinsic when not. Duplication cysts can also be cystic (80%) or tubular (20%). Tubular variety may have some communication. Duplication cysts of ileum is usually located on the mesenteric border, whereas location for GDC is along the greater curvature mostly and only 5.5% arise along the lesser curvature.¹⁰ GDC can be found anywhere-cardia, gastro-esophageal junction, along greater curvature or in the anterior or posterior wall of the fundus. Essential criteria for diagnosis of GDC are (a) wall of the cyst must be contiguous with the stomach wall (b) cyst must be surrounded by smooth muscle, which should be continuous with the muscle of the stomach and (c) the cyst wall should be lined by epithelium of gastric or any other type of gut [mucosa](#). In about 50% cases, it may be associated with various other congenital anomalies like; esophageal diverticulum, alimentary tract duplications, genitourinary abnormalities, vertebral and

spinal cord abnormalities (16-26%).¹¹ There were no associated anomalies in our case. Most cases occur in females (F: M = 8:1); but, in our case it was a male child. Majority of cases are diagnosed in the pediatric population (within 3 months of life) and rarely seen after 12 years of age.

Presentation of children with GDC is highly variable and nonspecific, ranging from vague abdominal pain to nausea, typically non-bilious vomiting, epigastric fullness, weight loss, anemia, dysphagia, dyspepsia, gastric outlet obstruction, ulcerated antral mass, bloody stools, feeding difficulties or failure to thrive with abdominal tenderness and epigastric mass on physical examination. Sometimes, it does simulate other diseases, like pseudocyst of pancreas or cystic neoplasm of pancreas. Ectopic pancreatic tissue may be present in 10% cases which may lead to pancreatitis. Sometimes, there is a communication with the pancreatic ductal system that also gives rise to abdominal pain and/or pancreatitis.¹² Large Cysts can potentially compress the organs in the vicinity such as the Pancreas, kidney, spleen, adrenal gland, small and large gut. Patients may present with complications like infection, gastrointestinal bleeding, perforation, ulceration, fistula formation,

obstruction, or carcinoma arising from the cyst. In non-communicating cysts, fluid production may increase leading to pressure necrosis of the mucosa. This may also lead to bleeding into the cyst or perforation into the peritoneal cavity & gastric lumen. GDC can be rarely complicated with other associated malformations like intestinal atresia and spinal cord deformities.

Duplication cysts have high potential of neoplastic transformation, adenocarcinomas being the most common variety. Because of their unusual symptoms and difficulty in diagnosing malignancies arising from cysts, such cases are likely to present at advanced stage.

Contrast x-ray may show an intramural filling defect indenting the gastric contour. CT scan, USG and endoscopic USG are the ways to identify GDC showing a cystic lesion that is contiguous to or continuous with the GIT. Surgical excision is both diagnostic and therapeutic.

CONCLUSION

GDC is rare and may have variable presentation. Surgical excision is curative but histopathology is important to confirm the diagnosis and the secondary changes in the lesion.

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REFERENCES

1. Scatizzi M., Calistri M., Feroci F., Girardi L.R., Moraldi L., Rubio C.A., *et al.* Gastric duplication cyst in an adult: case report. *In Vivo* 2005; 19: 975-8.
2. Doepker M.P., Ahmad S.A. Gastric duplication cyst: a rare entity. *J Surg Case Rep.* 2016 May 5; 2016(5): rjw073.
3. T. Theodosopoulos, A. Marinis, K. Karapanos *et al.*, "Foregut duplication cysts of the stomach with respiratory epithelium," *World Journal of Gastroenterology*, vol. 13, no. 8, pp. 1279-1281, 2007.
4. Bower R.J., Sieber W.K., Kiesewetter W.B. Alimentary tract duplications in children. *Ann Surg.* 1978 Nov; 188(5): 669-74
5. Johnston J., Wheatley G.H., El Sayed H.F., Marsh W.B., Ellison E.C., Bloomston M., Gastric duplication cysts expressing carcinoembryonic antigen mimicking cystic pancreatic neoplasms in two adults. *American Surgeon*, 2008; 74: 91-4.
6. Abdalkader M., Al Hassan S., Taha A., Nica I. Complicated Gastric Duplication Cyst in an Adult Patient: Uncommon presentation of an uncommon disease. *J Radiol Case Rep.* 2017; 11: 16-23.
7. Sangüesa Nebot C., Llorens Salvador R., Carazo Palacios E., Picó Aliaga S., Ibañez Pradas V. Enteric duplication cysts in children: varied presentations, varied imaging findings. *Insights Imaging.* 2018; 9: 1097-106.
8. Diehl D.L., Cheruvattath R., Facktor M.A., Go B.D. Infection after endoscopic ultrasound-guided aspiration of mediastinal cysts. *Interact Cardiovasc Thorac Surg.* 2010; 10: 338-40.
9. Rattan K.N., Bansal S., Dhamija A. Gastrointestinal Duplication Presenting as Neonatal Intestinal Obstruction: An Experience of 15 Years at Tertiary Care Centre. *J Neonatal Surg.* 2017; 6: 5.
10. Passos I.D., Chatzoulis G., Miliak K., Tzoi E., Christoforakis C., Spyridopoulos P. Gastric duplication cyst (gdc) associated with ectopic pancreas: Case report and review of the literature. *International Journal of surgery case reports.* 2017; 31: 109-13.
11. Halder P., Mandal K.C., Debnath B. and Mukhopadhyay M. Gastric Duplication Cyst in Children: A Case Report and Literature Review. *SM J Pediatr Surg.* 2016; 2: 1031.
12. D'Journo X.B., Moutardier V., Turrini O., Guiramand J., Lelong B., Pesenti C. *et al.* Gastric duplication in an adult mimicking mucinous cystadenoma of the pancreas. *J Clin Pathol.* 2004; 57: 1215-8.