Case Report

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Gastric duplication cyst: A cause of rectal bleeding in a young child

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ABSTRACT

Gastric duplication cysts are an uncommon congenital anomaly and rectal bleeding is a rare presentation of a complicated gastric duplication cyst. This case report describes the radiological findings in a child with a complicated gastric duplication cyst.

Key words: Gastric duplication cyst, rectal bleeding, ultrasound, computed tomography

INTRODUCTION

Gastric duplication cysts are a rare form of gastrointestinal duplication cysts, the incidence is unknown, with only case reports published. Rectal bleeding is a rare presentation of this condition. This case presentation describes the radiological findings in a child presenting with rectal bleeding due to a complicated gastric duplication cyst.

CASE REPORT

A 13-month-old child presented with a history of a significant rectal bleed, pyrexia and dehydration with a background history of 6 months of intermittent rectal bleeding. The child was also found to be anaemic, suffer from chronic gastroenteritis, and chronic malnutrition. An ultrasound was performed, which excluded intussusception, however a cystic structure with the typical bowel wall signature was seen in the left upper quadrant, gallbladder wall thickening and some perihepatic free fluid were also seen [Figure 1]. A computed tomography (CT) scan was performed, which showed a cystic structure in close proximity to the greater curvature of the stomach, transverse colon and gallbladder. This structure communicated with a collection containing fluid and gas and a further fluid collection was seen anterior to the liver. Bowel wall thickening was seen in the region of the transverse colon [Figure 2]. These features were suggestive of a complicated duplication cyst. The intra-operative findings confirmed a perforated gastric duplication cyst that had eroded into the right lobe of the liver as well as the hepatic flexure of the colon. Histology showed that the duplication cyst was lined by pancreatic mucosa. Features of peritonitis were seen in the duplication cyst and colon tissue specimens. The child recovered well from the surgery; however, a prolonged hospital stay was necessary to treat the chronic malnutrition.

DISCUSSION

Gastrointestinal duplication cysts are a rare congenital anomaly[1,2] and are an uncommon cause of rectal bleeding. They may occur at any location along the gastrointestinal tract from the tongue to the anus.[3] Gastric duplication cysts are an uncommon type of



Figure 1: ultrasound image of a cystic structure seen in the left upper quadrant. Note the typical bowel wall signature of alternating hyper and hypoechoic layers representing the superficial mucosa, muscularis mucosa, submucosa, muscularis propria, and serosa respectively

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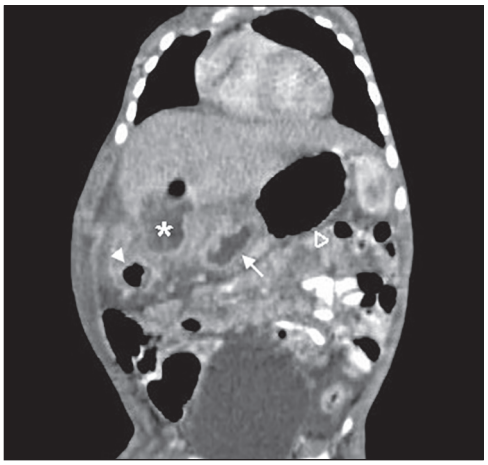


Figure 2: Coronal contrast-enhanced computed tomography image demonstrates a fluid filled duplication cyst (arrow) in close proximity to the air filled stomach (open arrow head), transverse colon (closed arrow head) and a collection with an air fluid level anterior to the liver (asterix)

duplication cyst and only account for approximately seven per cent of gastrointestinal duplication cysts.[3] The most common site is the distal ileum, followed by the oesophagus, colon, jejunum, stomach and finally the duodenum.[1,2]

Duplication cysts are described according to the gastrointestinal structure in close proximity to the cyst and not the histological composition.[1] Most cysts are composed of smooth muscle and alimentary tract mucosa, this includes gastric, squamous, transitional, ciliated, and pancreatic tissue. Often the mucosal lining of the cyst is not the same as the adjacent alimentary tract structure.[1] Duplication cysts are described as spherical or tubular. Spherical cysts are more common and account for 82% of duplication cysts and do not communicate with the bowel lumen. Tubular cysts are commonly seen in the large and small bowel and communicate with the bowel lumen.[1,2] Gastric duplication cysts are most commonly seen in the region of the greater curvature.[1,3] Several theories exist that attempt to explain the embryological development of gastric duplication cysts, however none of these theories satisfactorily explain the development of duplication cysts at all levels in the gastrointestinal tract.[1,3]

Clinical presentation of a gastric duplication cyst depends on the size and the position of the cyst.[3] It may be an incidental finding in an adult, however this rare congenital anomaly is more commonly diagnosed within the 1st year of life when a complication develops.[2] Presenting symptoms include bowel obstruction, abdominal pain or an abdominal mass. Gastrointestinal bleeding is a rare presenting feature and may be caused by peptic ulcer formation due to the cyst containing gastric mucosa.[1] Abdominal pain could be due to over-distension of the cyst, peptic ulcer formation, internal pancreatitis, infection or rupture of the cyst. A rare form of a gastric duplication cyst occurs in the distal antrum or pylorus and can cause gastric outlet obstruction, mimicking hypertrophic pyloric stenosis.[1] Malignant transformation of a duplication cyst is rare, the incidence is unknown, case reports describe adenocarcinoma as the most common type of malignant transformation.

A paragastric mass may be seen on plain film or an upper gastrointestinal contrast study. Ultrasound typically shows a cystic structure with bowel wall signature. The appearance of this signature depends on the frequency of the transducer. Low frequency probes tend to visualise only the echogenic inner mucosa and an outer hypoechoeic muscular layer, this finding is highly suggestive of a duplication cyst, known as the 'double wall' or 'muscular rim' sign. With higher frequency transducers all five layers of the bowel wall can be seen [Figure 1]. Ultrasound also assists with determining the size and location of the cyst. CT and magnetic resonance imaging can determine the size, nature and extent of the lesion.[1] CT also assists with assessing complications and associated anomalies.[2] A gastric duplication cyst is seen as a fluid filled cystic mass with an enhancing wall that typically is seen in the region of the greater curvature of the stomach. High attenuation within the cyst may demonstrate haemorrhage or proteinaceous material. Septa within the cysts and surrounding inflammation may indicate infection.[2] Enhancing solid foci within the cyst may indicate neoplastic change.[2]

Due to the risk of complications as described above as well as malignant transformation, surgical removal is the recommended treatment of all duplication cysts.

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