Case Report

Gastric Teratoma in Children: A Report of Two Cases and Review of Literature

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Abstract

Gastric teratomas are very rare tumours. They present with upper abdomen distension which can easily be confused with other common conditions with mass per abdomen in the paediatric age group. Surgical excision is curative for gastric teratomas. The diagnosis is confirmed by radiological evaluation followed by histopathological analysis of excised specimen. We are reporting two such cases of gastric teratomas who presented with complaints of upper abdomen distension. They were evaluated with radiological imaging and successfully managed by surgical excision.

Keywords: Gastric teratomas, histopathology, paediatric, surgical excision

Introduction

Teratomas are germ-cell tumours that contain elements from all three germ layers, i.e., ectoderm, mesoderm and endoderm. Gastric teratomas are very rare tumours. Till date, only 102 cases of gastric teratomas have been reported in the world literature.[1] They usually present with abdominal distension which has a wide differential diagnosis. We are reporting a series of two cases of gastric teratoma both of which presented as abdominal mass and were managed by surgical excision.

Case Reports

Case 1

A 6-month-old male child presented to the paediatric surgery outpatient department with complaints of the lump in the abdomen first noticed at about 1 month of age. The child was born full-term by normal vaginal delivery and cried immediately after birth. There was no history of bladder and bowel complaints. There was no past history of haematemesis and melena. Baby was feeding properly. On per abdominal examination, a hard lump of size 10 cm × 6 cm was palpable in the right hypochondrium, lumbar and epigastric regions leading to gross abdominal distension. The umbilicus was everted. His blood investigations were within the normal limits. Serum alpha-fetoprotein (AFP) was 78.2 ng/ml (age-related value normal). Ultrasonography (USG) of the whole abdomen revealed the presence of a large complex multiseptated cystic lesion in the left side of the upper abdomen extending to the midline measuring 9.8 cm × 5.5 cm. Contrast-enhanced computed tomography (CECT) of the abdomen revealed a large multiseptated cystic lesion of about 12 cm × 8 cm size in the abdomen extending from the epigastric region up to the lumbar region. No enhancing mural nodule was seen. Multiple calcifications were seen within the wall of the lesion and septations. Few hypodense areas were present at the junction of the septae suggestive of the fatty component. The findings were suggestive of calcified lymphangioma, site of origin not commented [Figure 1a]. The patient was planned for exploratory laparotomy after adequate stabilisation. On exploration through midline incision, a 12 cm × 14 cm × 15 cm multi-cystic lesion was seen arising from the greater curvature of the stomach [Figure 1b and c]. The lesion was excised with 1 cm margin of the greater curvature of the stomach and the

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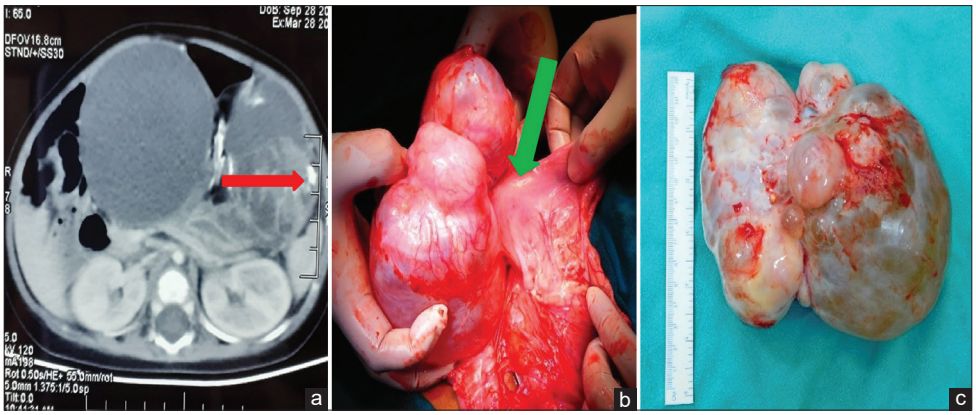


Figure 1: (a) CECT of the abdomen showing a large multiseptated cystic lesion of about 12 cm × 8 cm size in the abdomen extending from the epigastric region up to the lumbar region. Multiple calcifications seen within the wall of the lesion and the septations (red arrow). (b) Intra-operative picture showing the tumour with loss of fat planes with the greater curvature of the stomach (green arrow). (c) Resected specimen having lobulated appearance. CECT: Contrast-enhanced computed tomography

resulting defect in the stomach was repaired in two layers. The specimen was sent for histopathology. The cut section revealed a predominantly multiloculated cystic area filled with clear fluid and also containing solid components. A bony area measuring 2 cm × 1.8 cm × 0.3 cm was identified. Microscopic examination showed mature tissues derived from all three germ layers-stratified squamous epithelium, adnexal structures, mature glial tissue, mature cartilage and respiratory epithelium. No immature component/primitive neuronal components were found. The post-operative period was uneventful. The patient is doing well with no evidence of recurrence at 1-year follow-up.

Case 2

A 2-month-old male child presented with complaints of abdominal distension and loose stools for 8-10 days. There was no complaint of feed intolerance or vomiting. On examination, the baby was stable and alert. There was a large well-defined mass of size approximately 12 cm × 10 cm palpable in the epigastrium, umbilical and left hypochondrium. The swelling was firm to hard in consistency with an irregular surface. Routine blood investigations were within the normal limit. The baby was further evaluated with radiological imaging to know the nature and origin of the mass. USG of the whole abdomen revealed a large intra-peritoneal heterogeneous mass, with the possibility of teratoma in the gastrohepatic region. CECT was done which was reported as a large well-defined heterogeneous mass with epicentre in the gastrohepatic region measuring 9.1 cm × 12.6 cm × 12.4 cm with solid, cystic and fatty components along with few interspersed calcific foci within the mass [Figure 2a]. Superiorly, the mass was extending up to the inferior surface of the liver, inferiorly up to the left iliac fossa. The stomach was not seen separately, but it appeared to be compressed and stretched lateral to the mass.

With these above findings, the patient was planned for surgery. The abdomen was opened through a rooftop incision extending in the right subcostal region. There was a 15 cm × 13 cm × 8 cm mass of variable consistency noted in the lesser sac arising from the lesser curvature of the stomach [Figure 2b and c]. The mass was a stretching stomach which appeared tubular in structure. While resecting the mass, a 1 cm margin of the lesser curvature had to be excised and the defect was repaired in two layers. Postoperatively, the patient made an excellent recovery. He was allowed breastfeed on day 7 and was discharged in good health on day 10 of surgery. Histopathological analysis of the specimen revealed the presence of stratified squamous epithelium, ciliated columnar epithelium, glial tissue, cartilage, choroid plexus, adipose tissue and nerve bundles, consistent with mature teratoma. At one and half year of follow-up, the patient is doing well and there is no evidence of recurrence.

Discussion

Teratomas are common tumours of infancy and childhood. The most common site is sacrococcygeal teratoma followed by gonadal, mediastinal, presacral and other sites.[2] The gastrointestinal tract is an unusual site for teratomas with the stomach being the most common site. Nevertheless, gastric teratomas constitute very rare variants of teratoma comprising <1% of all teratomas found in infants and children.[3] The first case of gastric teratoma was reported by Eustermann and Sentry.[4] Since then many cases have been reported across the world.[1,5-10]

Majority of gastric teratomas are exophytic (>60%), endophytic growths are present in about 30% of cases; mixed exophytic and endophytic growth patterns are present in only few cases. They can arise from any part of the stomach; however, the common sites are the lesser curvature, antrum and fundus of the stomach along the posterior wall. Some of these tumours are pedunculated.[11,12] Histologically, gastric teratomas can be mature and immature based on the presence and differentiation of neuroglial tissue. Mature glial tissue is an important constituent of mature gastric teratomas along with other derivatives of all germinal layers. Mature gastric teratomas are benign in nature, whereas immature gastric teratomas are considered to have malignant potential. Gastric teratomas are mostly mature and benign with only two cases

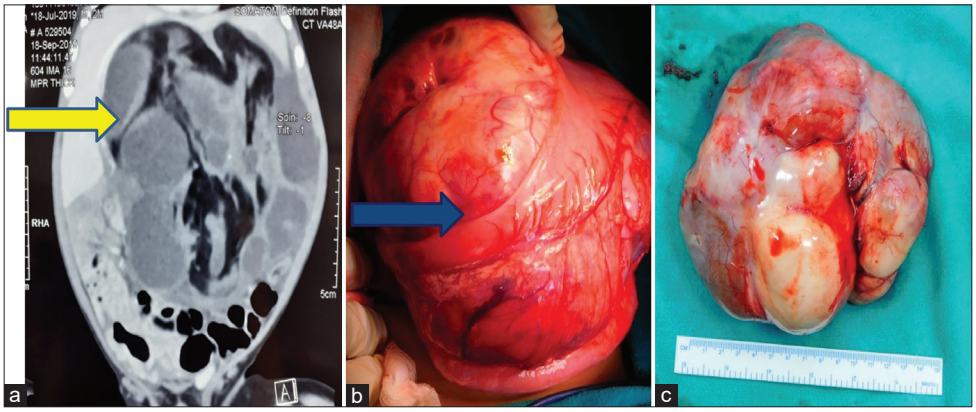


Figure 2: (a) CECT of the abdomen showing a large well-defined heterogeneous mass with epicentre in the gastrohepatic region measuring 9.1 cm × 12.6 cm × 12.4 cm with solid, cystic and fatty components along with few interspersed calcific foci within the mass (yellow arrow). (b) Intra-operative picture showing the tumour with stretched out tubular stomach (blue arrow). (c) Resected specimen showing the tumour with lobulated appearance. CECT: Contrast-enhanced computed tomography

of malignant transformation reported so far.[13] In the present case series, both cases were mature teratomas with the presence of glial tissue noted in both of them.

The most common presentation of gastric teratoma is as a palpable mass (75% of reported cases) or abdominal distension (56%) or both. Some cases may present with haematemesis, gastrointestinal obstruction.[14] The pre-operative diagnosis of gastric teratoma is often difficult. Plain abdominal film usually shows a soft-tissue mass which displaces bowel gas to one side and is associated with calcifications and bone densities. USG of the lesion demonstrates a heterogeneous mass with mixed echogenicity. CECT demonstrates a heterogeneous mass with solid cystic components with or without calcifications in the wall. The presence of fat attenuation within a cystic mass is the characteristic of a mature teratoma.[2]

Complete surgical excision of the teratoma is the treatment of choice for gastric teratoma. Immature gastric teratoma needs adjuvant chemotherapy and follow-up with the serial measurement of AFP to detect early recurrence.

Conclusion

Gastric teratomas are the rare causes of abdominal distension in paediatric patients. Mostly, they are benign and surgical excision is curative. We are reporting these two cases to focus on keeping this rare tumour in the differential diagnosis of upper abdominal distension to decrease diagnostic dilemma.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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