Case Report

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Gastric teratoma in a 6-month-old boy

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ABSTRACT

Gastric teratomas are very rare embryonal neoplasms, accounting for 2.6% of all perinatal diagnosed germ cell tumours. About 85% are well-differentiated mature lesions and about 15% are immature tumours with the potential of malignant transformation. The recommended therapy for gastric teratomas is surgical excision. We present the case of a 6-month-old boy with an incidentally detected epigastric mass. The histological examination revealed a mature gastric teratoma. The diagnostic imaging, therapy and postoperative follow-up are discussed.

Key words: Gastric teratoma, stomach, neoplasm, infant

INTRODUCTION

Teratomas are embryonal neoplasms that contain tissues from at least two of the three germ layers (ectoderm, endoderm and mesoderm).[1] The presenting location correlates with patient age. Teratomas occurring in infancy and early childhood are usually extragonadal. In infants less than 2 months of age, about 40% are located sacrococcygeal, followed by intracranial (13%) and cervical (13%) teratomas.[2] In female children older than 5 years of age, about 25% of all germ cell tumours are ovarian teratomas.[3] Gastric teratomas are very rare, accounting for 2.6% of all perinatal diagnosed germ cell tumours with a male-to-female ratio of 3.7.[2] About 85% are well-differentiated mature lesions and about 15% are immature, malignant tumours.

We present the case of a 6-month-old boy with an incidentally detected epigastric mass. The histological examination revealed a mature gastric teratoma.

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CASE REPORT

A 6-month-old boy was referred to our clinic because of an epigastric mass. Shortly before admission, the patient was presented to the general practitioner with an upper respiratory tract infection and subfebrile temperature. Clinical examination of the abdomen incidentally revealed a palpable mass in the epigastric area.

The patient has an uneventful medical history. He was born at 38 weeks' gestation by spontaneous vaginal delivery with a birth weight of 2970 g. Physical examination at the time of admission showed a normal age-related developed baby, well-nourished weighting 7510 g and not in distress. A soft mass, the size of an orange fruit, non-tender and slightly movable was palpable in the epigastrium. Blood examination showed a slight decreased haemoglobin and haematocrit (Hb: 4.9 mmol/l, reference range: 6-8 mmol/l; Hk: 0.264, reference range: 0.31-0.44). AFP (Alpha-fetoprotein) and hCG (human chorionic gonadotropin) were within normal limits. All other blood parameters were normal. Abdominal ultrasound showed a cystic lesion with a diameter of about 7.5 cm located near to the liver hilus [Figure 1]. There was no free fluid and all other organs appeared normal. Magnetic resonance imaging (MRI) revealed a gastric tumour arising from the front wall of the stomach body with a large intra-abdominal multi-

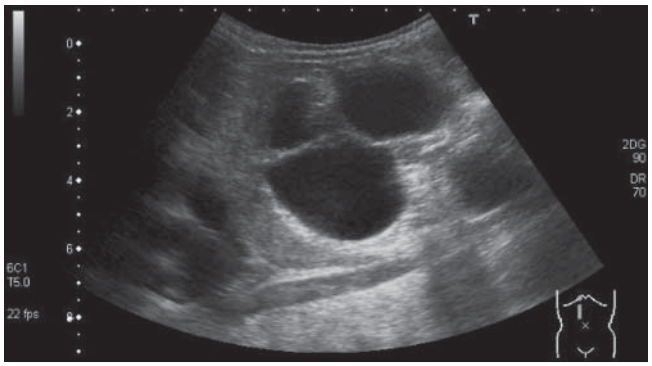


Figure 1: Preoperative ultrasound: Cystic lesion with a diameter of about 7.5 cm located near to the liver hilus

septate cystic part with solid components [Figure 2].

At operation, the large cystic tumour originated from the anterior wall of corpus gastricum [Figure 3]. The tumour was directly attached to the stomach over an area of 15 mm in outer diameter. The gastric mucosa was intact. There was no endoluminal growth of the tumour. Complete excision revealed a 3 cm defect of the anterior stomach wall, which was closed by two layers. The postoperative course was uneventful.

Macroscopic examination showed a polycystic tumour with solid, calcified and soft white hyaline parts. The tumour had a volume of $13 \times 8 \times 5.5$ cm^3 and a weight of 220 g. The tumour capsule was intact. The cysts contained either clear serous or brown viscous fluid. Microscopic examination showed tissue from all three germ layers. Ectodermal tissue was presented by sebaceous glands, sweat glands, hair follicles and differentiated ganglion cells. In addition, cartilage, fatty-, connective- and bone tissue and smooth muscle formed by mesodermal germ cells have been found. Another portion of the specimen revealed intestinal tissue like small bowel mucosa representing endodermal germ cell tissue. All elements appeared benign.

At 1-year clinical follow-up examination with abdominal ultrasound, there was no evidence of recurrence.

DISCUSSION

Gastric teratoma is a rare neoplasm and usually benign in nature. It might be associated with gastric outlet obstruction and therefore may produce polyhydramnios antenatally. The most common initial finding is an abdominal mass.[2] Clinical presentation may involve abdominal distension, vomiting, constipation and respiratory distress caused by upward displacement of the diaphragm. Haematemesis is uncommon and this might be explained by the absence of endoluminal tumour growth with mucosa ulceration. Elevated serum AFP concentrations may indicate the presence of yolk sac tumour foci known to correlate significantly with stage and grade of immature teratomas.[4] Elevated beta-hCG (β-hCG) levels might be indicative for malignant germ cell elements like germinoma.

One imaging tool for diagnosis is ultrasound. Cystic or pure solid appearance might give information about the tumour grading. It has been shown that mature ovarian teratomas have a predominantly cystic appearance (70%), whereas immature teratomas appear purely solid in 30%. No pure solid appearance was seen in mature teratomas.[5] MRI findings other than size, location and cystic solid composition are important in lesion characterisation. Demonstration of fatty and calcified tissue as the most frequent components of the tumour is almost pathognomonic for teratomas.[6,7]

Complete excision of the gastric teratoma followed by reconstructive surgery is the treatment of choice.[8] The tumour should be resected with a minimal excision margin.[2] Mature gastric teratomas are benign tumours and have an excellent prognosis after complete surgical resection. The 6-year relapse-free survival for completely resected mature teratomas is 96% *vs* 55% for incomplete resection.[9,10] Immature extragonadal teratomas are reported to have a recurrence rate after complete surgical resection of 18%.[11] Close follow-up with repeated physical

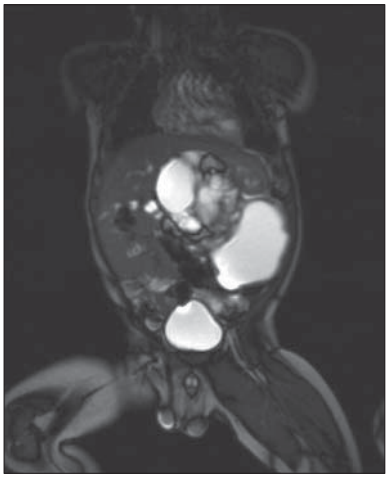


Figure 2: Preoperative magnetic resonance imaging: Gastric tumour arising from the front wall of the stomach body with a large intra-abdominal multiseptate cystic part with solid components

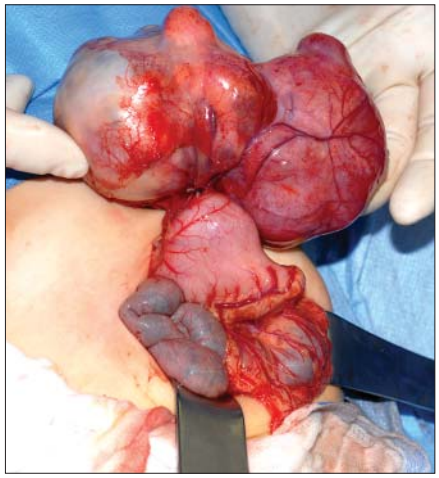


Figure 3: Intraoperative photograph showing the teratoma arising from the anterior wall of corpus gastricum. The tumour was directly attached to the stomach over an area of 15 mm in outer diameter

examinations, ultrasound and control of AFP or β-hCG, if elevated at diagnosis, is recommended since most recurrences develop within the first year after surgery. However, a recurrence two decades after complete excision of a mature gastric teratoma during infancy has been reported.[10] Our patient follow-up protocol includes examinations and ultrasound every 3 months for the first two years post-operation and every 6 months for postoperative year 3 and 4. Five years after surgery, annual follow-ups will be scheduled. Now one year after tumour excision, our patient is doing well with no evidence of recurrence.

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