Gastric teratoma

S. R. MEADOW*
M.A., M.R.C.P., D.C.H.

The Royal Alexandra Hospital for Sick Children, Brighton

A TERATOMA is a congenital tumour derived from more than one of the three primary germ layers and occurring in a site foreign to its tissue components. The commonest sites for these rare tumours are sacral, sacro-coccygeal and retro-peritoneal. They can occur anywhere; gastric teratomas appear to form a distinct sub-group and in contrast to those in other sites carry a good prognosis.

The case reported is the first from Britain and unique in that the size of the mass not only made delivery of the baby difficult, but led to respiratory distress necessitating immediate treatment.

Case report

Baby P. is the son of English parents. His mother's previous two pregnancies were normal and for this pregnancy delivery at home was arranged. She was healthy during pregnancy until at 38 weeks' gestation she had marked abdominal swelling thought to be the result of hydramnios. Spontaneous labour occurred at term; the head presenting by the vertex was delivered easily, but there was great difficulty in delivering the baby's trunk because of its huge abdomen. During the second stage the liquor was meconium stained, and eventually a 9 lb male baby was delivered. He was limp and blue at birth: spontaneous breathing occurred within 3 min. Because of his distended abdomen he was transferred to the Royal Alexandra Hospital, Brighton.

On examination he was a cyanosed baby with rapid shallow respirations. The abdomen was greatly distended and felt like ascites. Through it a craggy lobulated mass could be palpated on the left side of the abdomen.

X-ray examination at the age of 2 hr (Figs. 1 and 2) showed the large partly calcified mass to be lying mainly on the left side of the mid-abdomen. Some of the calcified elements had the appearance of skeletal structures.

*Present address: Department of Paediatrics, Guy's Hospital, London, S.E.1.

FIG. 1. X-ray at the age of 2 hr showing the huge partly calcified mass mainly in the left side of the abdomen. (The object in the right corner of the picture is a pair of forceps clamping the umbilical cord.)

Operation (Mr L. W. Lauste). Laparotomy was performed at the age of 5 hr under a local anaesthetic (15 ml 0.5% procaine with 1 in 200,000 adrenaline). The very tense abdomen was opened by a transverse sub-umbilical incision and the peritoneal cavity contained a large quantity of blood-stained fluid under tension. A lobulated mass arose from the greater curvature of the stomach. It was adherent to the posterior abdominal wall, the pancreas and spleen; there was a strand of vessels running to it from the region of the body of the pancreas. The mass was dissected free from the posterior structures but it could not be separated from the stomach

FIG. 2. Lateral X-ray at the age of 2 hr; skeletal components can be seen anteriorly.

and a portion of the greater curvature of the stomach was removed together with the tumour. The spleen was damaged and therefore removed. A blood transfusion was given.

Pathology (Dr R. I. K. Elliott). 'A large apparently well-encapsulated ovoid tumour $13.5 \times 12 \times 5.5$ cm with a weight of 450 g. On opening the tumour was found to be partly cystic, the cavity containing large quantities of soft pulpy tissue, heavily blood-stained and floating in blood-stained fluid. Some firmer areas were also present, and in one area about 3 cm in diameter was bony tissue which it was impossible to cut through.

The main feature of the histology of this tumour was the remarkable multiplicity of the tissues which it contained; smooth muscle, cartilage, ovarian stroma and Fallopian tube and several types of mucus-secreting columnar epithelium were readily identifiable. The main ingredient, which made up the bulk of the pulpy tissue was nervous tissue closely resembling brain. This is quite clearly therefore a teratoma and the evidence available from the samples examined suggest that it is a mature one which has not undergone malignant change, confirming the good encapsulation noted macroscopically.'

Post-operative progress. Immediately after

operation the baby's colour and respirations improved. During the next 3 days he had some stridor and respiratory distress which responded to treatment. Further progress was uneventful. Despite having had a considerable portion of his stomach removed, he fed well and had no regurgitation, vomiting or other feeding difficulties.

At the age of 9 months he was a healthy boy weighing 22 lb and normal in all phases of development. He is now 2 years old.

Discussion

This is the twelfth recorded case of a gastric teratoma. The main features of the previously reported cases are summarized in Table 1. This tumour shared most of the features of the others; it was unusual in that its great size caused a difficult delivery and subsequently respiratory distress and cyanosis immediately after birth.

Reviewing the twelve cases of gastric teratoma it can be said that it occurs in boys (12/12). It usually presents with abdominal swelling or the finding of an abdominal mass (10/12), which may be noticed at birth (3/12) or at any time up to the age of 7 months. Other symptoms are non-specific and in particular gastro-intestinal bleeding is rare (2/12). A firm mass is palpable (11/12), which on straight X-ray is visible (10/12) and may show calcified elements (6/11).

The size of the tumour varies from 5 to 17 cm in diameter. It can occur at any site on the stomach. The treatment is surgical removal necessitating either partial gastrectomy or the removal of the disk of stomach from which the tumour arises. This can be expected to result in complete cure (10/12). Two deaths have occurred in marmoset infants. The babies adapt well to the partial gastrectomy and follow-up has revealed no feeding difficulties or failure to thrive. The tumour does not contain malignant elements; recurrence following removal has not been recorded.

Therefore gastric teratoma is a tumour rewarding to diagnose for with good facilities complete removal can be expected with recovery and probable cure. This cannot be claimed for most conditions considered in the differential diagnosis; meconium peritonitis, retro-peritoneal teratoma, neuroblastoma or Wilms tumour. It is important for obstetricians to know that not every baby whose delivery is made difficult because of a huge distended abdomen has an irremediable condition.

The male specificity is curious. The absence of any positive family history makes a genetic factor unlikely, and the fact that it is congenital makes an endocrine factor improbable.

TABLE 1
The features of teratomas of the stomach in infancy

Author	Country	Sex	Presenting symptom	Other symptoms	Palpable mass	Straight abdominal X-ray	Age at operation	Size of tumour	Outcome
Selman	U.S.A.	M	Abdominal mass at 3 months	Nil	Yes	Soft tissue tumour	4 months	15 × 10 × 8 cm	Healthy at 6 months
Large	U.S.A.	M	Pallor at 5 months	Haematemesis and melaena	No	Normal	7 months	5 × 5 cm	Healthy at 15 months
Handelsman	U.S.A.	M	Prominent abdomen at 4 months	Constipation, anorexia, fever	Yes	Mass with calcification	4½ months	12 × 8 × 6 cm	Healthy at 5 months
Reggianini	Italy	M	Prominent abdomen at 1 month	Vomiting	Yes	Mass with calcification	2 months	690 g	Healthy at 3 months
Lodzinski	Poland	M	Prominent abdomen at 2 days	Nil	Yes	Mass with calcification	5 days	350 g	Healthy at 1 month
Sariñana	Mexico	M	Prominent abdomen at 20 days	Respiratory distress, melaena, pallor, vomiting	Yes	Soft tissue tumour	45 days	17 × 17 × 17 cm	Healthy at 8 months
Cooray	Ceylon	M	Vomiting at 10 days	Weight loss	Yes	Not taken	No operation	Not stated	Died age 9 weeks of inanition
Ravitch	U.S.A.	M	Abdominal mass at 3 months	Nil	Yes	Mass with calcification	11 months	15 × 13 × 10 cm	Healthy at 2½ years
Keeley	U.S.A.	M	Prominent abdomen at birth	Respiratory distress	Yes	Mass with calcification	34 hr	10 × 9 × 7 cm	Healthy at 4 years
Panabokke	Ceylon	M	Abdominal mass at birth	Anaemia	Yes	Soft tissue tumour	2 months	10 × 5 cm	Operation abandoned, baby died the next day
Paul	Ceylon	M	Abdominal mass at 7 months	Nil	Yes	Soft tissue tumour	8 months	8 × 6 × 6 cm	Healthy post-operatively
Meadow	England	M	Distended abdomen at birth	Respiratory distress	Yes	Mass with calcification	5 hr	13.5 × 12 × 5.5 cm	Healthy at 2 years

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