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Posterior mediastinal teratoma with abdominal extension

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Abstract

Posterior mediastinal benign teratomas are uncommon neoplasms in infancy; nine cases have been reported so far. A one month old baby was found to have a benign posterior mediastinal teratoma infiltrating the lower oesophagus from the level of the carina through the oesophageal hiatus into the upper abdomen. Partial oesophagectomy provided a successful outcome.

Mediastinal teratomas constitute 11.7% of teratomas in children.¹ We present a case of benign posterior mediastinal teratoma, rare in

infancy, which was extending into the abdomen.

Case report

A 1 month old Indian boy presented to Al Wasl Hospital with a history of cough and breathing difficulty of a week's duration. On examination the infant's indices of growth were found to be normal. He had moderate respiratory distress with decreased breath sounds and dullness to percussion. Abdominal examination disclosed hepatomegaly of 5-6 cm and a palpable left kidney. A firm mass (5 × 4 cm) with an ill defined upper margin was later palpated in the epigastrium.

Investigations showed the presence of *Escherichia coli* in blood and pleural aspirate, which was sensitive to ceftriaxone and gentamicin. Arterial blood gas analysis showed a persistently high carbon dioxide and low oxygen tension. The infant was initially managed with antibiotics, oxygen, and right pleural cavity drainage. A chest radiograph showed right lung consolidation with a pleural effusion and calcification in the posterior mediastinum and abdomen.

The mass was investigated with abdominal ultrasound, intravenous urography, computed tomography of the thorax and abdomen, and a barium swallow with follow through. These showed a large multilobular mass occupying most of the posterior mediastinum and left upper abdomen, extending up to the carina and compressing both lungs and heart. The barium swallow clearly showed that it affected the lower third of the oesophagus, causing mucosal irregularity and leak of barium into the submucosa. The proximal oesophagus was very dilated (fig 1). The mass extended through the oesophageal hiatus into the gastric cardiac fundus, displacing it medially.

A left posterolateral thoracotomy showed a large encapsulated mass in the posterior mediastinum protruding through the oesophageal hiatus. It was intimately adhering to the pericardium, plastering the heart anteriorly to the sternum, and displacing the left lung anterolaterally. It tapered down to end at the carina, to which it seemed to be attached by fibrous tissue. It infiltrated the lower 5-6 cm of the oesophagus. The mass extended through the hiatus into the abdominal cavity for about 4 cm.

Cardio-oesophagectomy was performed. The cardia with a 2 cm rim of stomach, the affected part of the oesophagus, and a 1 cm length of normal oesophagus were removed.

Figure 1 Preoperative barium swallow showing the filling defect at the lower end of the oesophagus and calcification in abdomen and thorax.

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Figure 2 The tumour with the affected oesophagus (resected).

Gastro-oesophagostomy was carried out in the hilar region.

The postoperative course was uneventful. A postoperative barium swallow showed a smooth flow of contrast medium at the site of the gastro-oesophageal anastomosis. The infant appeared normal at follow up one and a half years later.

Pathology

Macroscopic examination showed a well encapsulated, firm mass measuring $9 \times 8 \times 8$ cm (fig 2). Sectioning showed a variegated, partly multilocular cystic and partly solid cut surface. Attached to the mass was a 6 cm length of oesophagus through which a smooth surfaced part of the tumour was protruding, causing partial occlusion of the lumen. The oesophageal mucosa covering the tumour was stretched and atrophic but intact.

Microscopic examination showed a mature teratoma containing the three germ layers of endoderm, ectoderm, and mesoderm (skin and its appendages, brain, bone with foci of haemopoietic tissue, cartilage, gut, respiratory epithelium and bronchial glands, smooth muscle, and melanin pigment laden cells suggestive of primitive retina). No malignant elements were seen.

Discussion

Teratomas in the thoracic cavity usually occur in the anterior mediastinum, pericardium, and rarely the heart and lungs.² In an analysis of 142 cases of teratomas in childhood all the 14 mediastinal teratomas were in the anterior mediastinum.³ Most anterior mediastinal teratomas presented with respiratory distress.⁴

Posterior mediastinal teratomas are rare in infancy and childhood, 10 cases (including our case) having been reported so far. Reviewing the clinicopathological features of nine cases of posterior mediastinal teratomas Karl and Dunn⁵ found that eight were benign. Respiratory distress was the most common clinical finding, especially in the neonatal period and early infancy; paraplegia was reported with teratocarcinoma. In none of the reported cases had the teratoma produced oesophageal obstruction or infiltration. Our case is the only instance where posterior mediastinal teratoma infiltrating the oesophagus had extended into the abdominal cavity.

Abdominothoracic teratoma in a newborn girl was reported by Esposito *et al*⁶; the tumour was mainly abdominal and was removed by laparotomy without resection of vital structures. In our case the computed tomogram of the chest and the operative findings showed the nature and extent of the tumour, but it was the barium swallow that confirmed that the oesophagus was affected.

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