CASE REPORT

Mediastinal Teratoma

by

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Abstract

A case of mediastinal teratoma accompanied by patent ductus arteriosus in a 3-year-and-5-month-old girl is reported. She had been suffering from fever, productive cough and dyspnea since one year. The diagnosis is made after surgery with preoperative diagnosis of encapsulated empyema and patent ductus arteriosus.

This shows the difficulties to diagnose mediastinal teratoma in this age group. Post operatively, her condition is markedly improved.

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Introduction

Mediastinal teratoma is uncommon in infancy and childhood (Shackelford and McAlister, 1976). Out of 81 cases of teratoma in infants and children, Mahour et al. (1974) found only 3 cases of mediastinal teratoma.

This disorder does not usually give clinical manifestations in infants and children, it commonly manifests clinically in the third or fourth decade of life due to the enlargement of the tumor. The clinical manifestation might be due to compression or erosion to the adjacent structuras, perforation or infection. The usual symptoms are chest pain, cough and dyspnea (Adler et al., 1960).

In this communication the authors report a case of mediastinal teratoma accompanied by patent ductus arteriosus in an Indonesian girl.

Case report

An Indonesian girl, 3 years and 5 months old, was hopitalized for her fever and dyspnea. Since one year before admission she was suffering from fever with productive cough and dyspnea, but she never experienced cyanosis. Eight days prior to admission the symptoms had markedly increased.

She got only immunization against smallpox by the age of 40 days, no other vaccination was given. She was the last of 2 siblings, her brother has been in good condition.

On admission (October 29, 1976) she was alert with moderate dyspnea but without cyanosis. She was well nourished with a body weight of 12.1 kg and body length of 95 cm.

The heart rate was equal to pulse rate, 144 per minute, the resporation rate was 44 per minute, her body temparature was 39° C. The blood pressure was 115/70 mmHg. The jugular venous pressure was not elevated and no hepatojugular reflux was noted.

A left sided bulging chest was noted, and on respiration it was left. Dullness on percussion was noted over that area.

A decreased breath sound was heard on the left lung, but no rales could be detected.

Continuous machinery murmur, grade II-III/VI, was heard with punctum maximum on the 2nd intercostal space at the left sternal border line, radiating to the neck region.

The abdomen was not tender, liver and spleen were not palpable. Neither edema nor clubbing of the fingers was noted.

Chest x-ray demonstrated left pleural effusion which shifted the mediastinum to the right (fig. 1) while on lateral projection no other abnormality could be detected.

Pleural aspiration was performed, obtaining 60 ml of brown colored viscous fluid which gave strong positive Rivalta test.

Microscopic examination revealed numerous white blood cells, 94% PMN and 6% lymphocytes, unfortunately direct smear with Gram staining was not

done. No bacteria, including acid fast bacilli, or fungsi grew on culture media.

Peripheral blood examination showed hemoglobin content of 10.5 gm/dl, WBC 13.200/cmm. Other values were within normal limits.

Urine and stool examination showed no abnormalities. Tuberculin test using PPD-RT23 2 TU and OT 0.01 gave negative results.

The working diagnosis of left empyema and patent ductus arteriosus were established and procaine penicilline 600.000 units daily and chloramphenicol 4 times 300 mg per day were instituted.

Chest x-ray examination after pleural aspiration showed abundant effusion on the left side. A catheter with water sealed drainage was instilled, but it failed to drain the remaining fluid.

Chest x-ray still showed large collection of effusion as before, but on lateral view retrosternal radiopaque shadow and some radiolucency posterior to it was noted (fig. 2).

Based on these findings it was assumed that encapsulated empyema with adhesion was present, so surgical intervention to decorticise the pleura and to ligate the ductus arteriosus was planned.

On operation empyema located in the antero-medial aspect of the mediastinum was found. The anterior part of the pleura was thick and adhered to the thymus. Partial decortication was done as well as partial thymectomy. The removed tissue measured 5 × 3 × 2 cm.

Histopathologic examination revealed a cyst-like structure which contained no fluid but consisted of mixture of tissue with histologic appearance as respiratory tract, cartilage, salivary gland and gastrointestinal tract epithelial cells. The histopathologic finding was consistent with teratoma (fig. 5).

One week after operation the general condition of the patient was markedly improved. Chest x-ray revealed air fluid level in the left chest while the mediastinum was still shifted to the right (fig. 3).

The patient was discharged 10 days after operation. Two weeks later marked improvement was noted on follow up chest x-ray examination. The left lung had expanded, the heart in its normal position (fig. 4).

Discussion.

Teratoma is a tumor consisting more than one germinal layer, so that the tissue components are frequently foreign to the anatomic site of the tumor (Mahour et al., 1974).

The etiology of teratoma is not clearly known, many authors have proposed speculative hypothesis. Local dislocation of tissue during embryogenesis is one of the most plausible explanation in the development of teratoma (Adler et al. 1960).

Mahour et al. (1974) stated that theories of the origin of teratoma have included (1) parthenogenetic development of germ cells within the gonad or in extragonadal sites; (2) non parthenogenetic origin of "wandering" germ cells left

behind during migration of embryonic germ cells from yolk sac to gonad; (3) origin of other totipotent embryonic cells which escaped organizer influence during development.

Of available reports, mediastinal teratoma in infants and children accounts only 3.7 to 4.8% of all teratomas while the more common site are sacrococcygeal, ovary, testis and retroperitoneal (Partlow and Taybi, 1971; Mahour et al., 1974). This low incidence is probably due to the difficulty to diagnose mediastinal teratoma in this age group (Baklanova et al., 1970).

Mediastinal teratoma is usually suspected after considerable structural compression or complication give symptoms. The most frequent symptoms are cough, dyspnea and chest pain. Other physical findings are usually secondary to perforation or infection (Adler et al., 1960).

Mediastinal teratoma should be thought of if on chest x-ray a solid mass was noted especially if it is located in the anterior mediastinum. Paquet et al. (1970) stated that mediastinal teratoma is the second common cause of anterior mediastinal mass in childhood. Other features such as pulmonary collapse, emphysema, tracheobronchial narrowing or pleural effusion might also be noted (Shackelford and McAlister, 1976).

Definite diagnosis is establihed with histopathological findings of tissue containing of more than one germinal layers.

Our case had been suffering from cough and dyspnea for one year.

Physical examination and radiological findings lead to diagnosis of pleurisy with effusion and patent ductus arteriosus.

Initial treatment with antibiotics and catheter drainage failed to give any improvement, so surgical manipulation was necessary. The diagnosis of teratoma was established after completion of histopathologic examination. This unexpected diagnosis was similar to many reports concerning this disease.

Shackelford and McAlister (1976) believed that computerized axial tomography can identify separate lesions that contain fat and establish a specific preoperative diagnosis.

Unfortunately,
dure can not be performed since it is not available.

Acknowledgement

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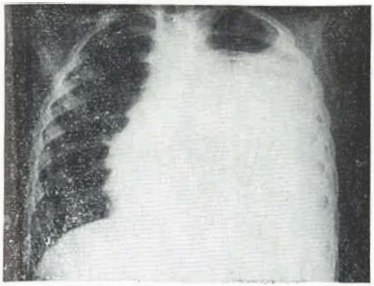


FIG. 1 : *Left pleural effusion with mediastinum shifted the right*

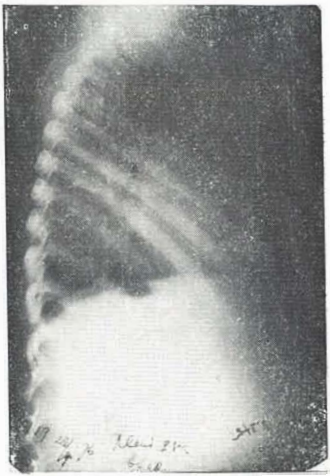


FIG. 2 : *Radiopaque shadow in retrosternal area*

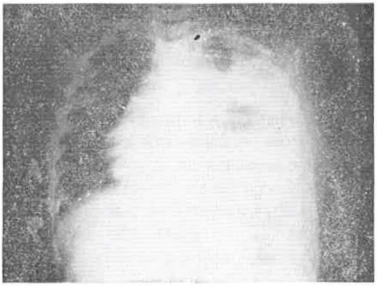


FIG. 3 : *Air/fluid level in the left chest, mediastinum shifted to the right*

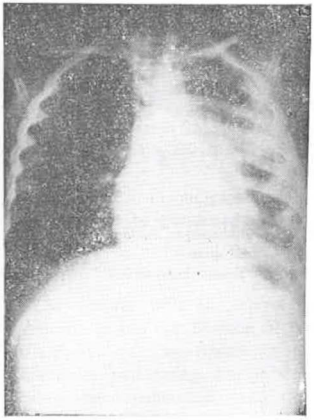
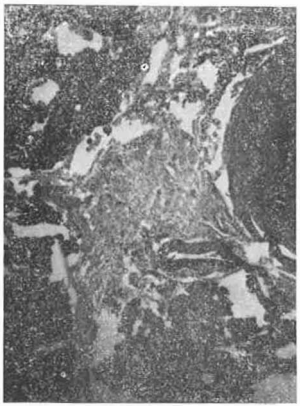
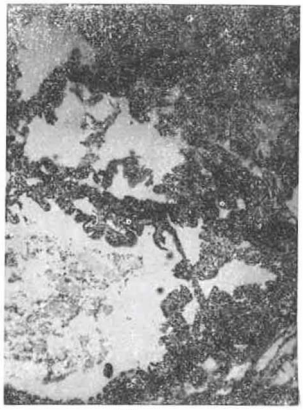


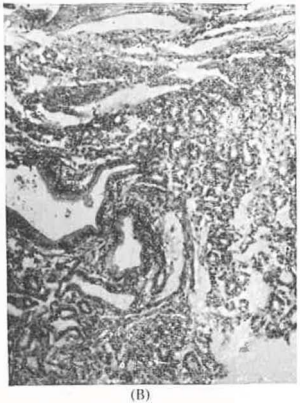
FIG. 4 : *Expansion of the left lung, heart in its normal position*



(A)



(C)



(B)

FIG. A B C : *Histologic section of salivary gland cartilage (A) nerve fiber respiratory tract (B) and gastrointestinal tract (C)*

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