Case Report

Intrapulmonary Teratoma: An Unusual Cause of Space Occupying Lesion

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Abstract

Teratomas are tumours originating from totipotent cells at various sites. Intrapulmonary teratoma is a rare occurrence and presents with non-specific signs and symptoms. We report a case of a 14-year-old boy who came to us with progressive breathlessness and chest pain with cough and intermittent haemoptysis.

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Key words: Teratoma, Pulmonary tumours, Chest.

Introduction

Teratomas are tumours that originate from totipotential cells. The most common site of their origin are the ovaries, where these present with abdominal or pelvic pain, caused by torsion of the ovary or irritation of its ligamentsor testis.[1] Other sites are anterior mediastinum, retroperitoneal region, presacral and coccygeal regions, pineal and other intracranial sites, neck and abdominal viscera.[1-3] Amongst the teratoid tumours, mediastinal teratoma are the commonest tumours.[1-3] Intrathoracic teratomas almost always occur in mediastinum, but occasionally these may be found in lung as intrapulmonary teratomas. Intrapulmonary teratoma and teratomas from other sites have nearly similar histological findings. The main presenting symptoms in a patient with intrapulmonary teratoma are fever, cough, haemoptysis, chest pain and rarely hair expectoration (trichoptysis).[4] We report a case of intrapulmonary teratoma in a 14-year-old male child.

Case Report

A 14-year-old boy was admitted with chief complaints of cough with expectorantion, gradually progressive breathlessness, chest pain, intermittent fever for six month and haemoptysis for three months. The expectoration was persistent, mucopurulent, had no diurnal or postural variation, and included hair (trichoptysis). The patient was on anti-tuberculosis treatment for five months.

On physical examination (Figure 1 A, B), the patient was febrile and in respiratory distress. Scoliosis was present with convexity to the left and trachea was shifted to the left. A bulge was present on the right side of the chest as compared to the left with restricted movements. Mild tenderness, dullness, decreased breath sounds and increased vocal resonance could be appreciated in the right mammary and right infra-mammary regions. Other systemic findings were within normal limits.

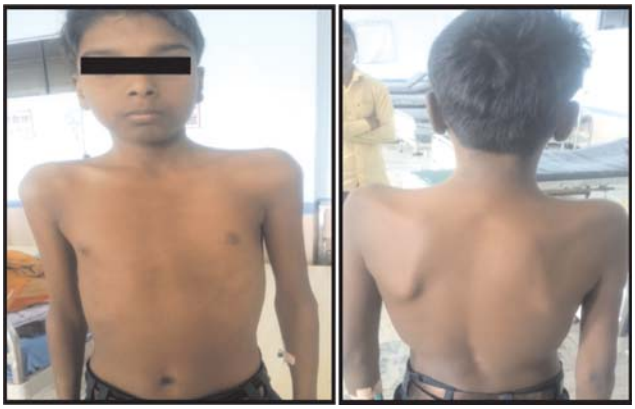

Figure 1 (A, B). Photographs of the patient showing scoliosis with convexity to the left. A mild bulge can also be observed on the right side of the chest.

Laboratory investigations revealed: haemoglobin 7.9 g/dL, white blood cell count 3,400/mm^3, 82% polymorphs, 15% lymphocytes, 1% eosinophils, 2% monocytes. The sputum smear was negative for acid-fast bacilli. The sputum culture was also negative for bacterial and mycobacterial growth.

Chest radiograph showed large shadow in the right middle and lower zones. Contrast enchanced computed tomography of thorax revealed a large intra-thoracic multi-septate cystic mass (16.7cm × 12.3cm × 11.9cm) in the right hemithorax with areas

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of fat attenuation and foci of calcification suggestive of intrapulmonary teratoma (Figure 2 A, B).

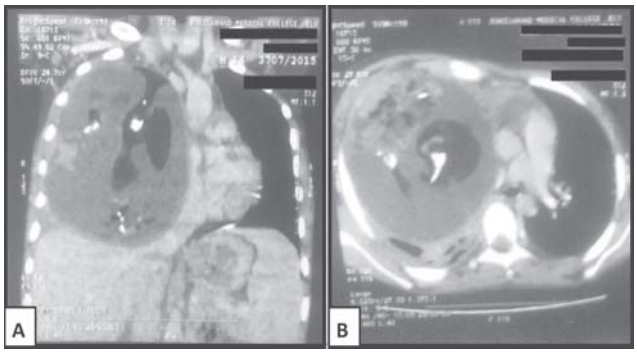

Figure 2 (A, B). Contrast enchanced computed tomography of thorax revealed a large intrathoracic right-sided multi-septate cystic mass (16.7cm × 12.3cm × 11.9cm) in the right hemithorax with areas of fat attenuation and foci of calcification.

Fibreoptic bronchoscopy revealed an endo-bronchial growth in the right main bronchus with hair-like strands. Based on radiological and bronchoscopic findings, a right pneumonectomy was done with complete resection of the tumour.

Histopathological examination of the resected mass revealed tumour cells with stratified squamous epithelial lining along with skin appendages and other mature neural and adipose tissues consistent with a diagnosis of mature teratoma (Figure 3 A, B).

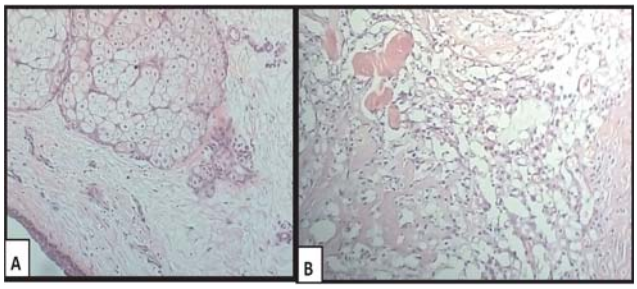

Figure 3 (A, B). Photomicrograph showing tumour cells with stratified squamous epithelial lining along with skin appendages and other mature neural and adipose tissues consistent with a diagnosis of mature teratoma.

Discussion

Mature teratomas are neoplasms composed of tissues not normally native to that site and typically represent two or more embryonic layers. Generally, teratomas arise from totipotent cells. The sites of origin are extra-gonadal sites, like intra-cranial, cervico-pharyngeal, intra-thoracic, intra-abdominal and sacrococcygeal regions. Among all these sites, the intra-pulmonary is the rarest.

Two-third of the teratomas are seen in females and these are mainly occur in first and second decades of life between the ages from 10 to 68 years.[5] A total of 67 cases were reported from 1939 to 2007, including 35 from Japan and 7 from Korea.[6] Another study observed that intrathoracic teratomas may originate from the displaced thymic tissue, aberrant thymic tissue, respiratory outgrowths or unusual differentiation of somatic cell lines.[6-7] Chest pain, fever, cough, haemoptysis, weight loss and features of pneumonia or bronchiectasis are the most common presenting clinical symptons.[5] Bronchiectasis and post-obstructive pneumonia occur in 16% of the cases and may delay the diagnosis of the pulmonary tumour.[7]

Trichoptysis is very specific for an intrapulmonary teratoma; but trichoptysis is seen in only 13% of cases. However, the presence of trichoptysis provides a strong evidence for intrapulmonary teratomas, as observed in our patient. Benign intrapulmonary teratomas have cystic or solid components; which can be correlated radiologically. Computed tomography generally shows pathognomic features, like an encapsulated mass with a smooth wall which contains soft tissue, fluid (88%), fat (76%), calcification (53%) or a combination of these.[8] All these features were also observed in our patient.

Computed tomography is considered to be the gold standard for the diagnosis of ruptured teratoma.[9] Magnetic resonance imaging is helpful during planning of surgery as it delineates the anatomic relationships with mediastinal structures. The differential diagnosis of an intrapulmonary teratoma in children includes bronchogenic cysts, lung hamartomas, cystic adenomatoid malformation and cystic lymphangiomas. The treatment of choice for intrathoracic teratoma is total excision, as surgery is necessitated due to the disabling symptoms and risk of rupture. Lobectomy or pneumonectomy may be required when a terato-bronchial communication is present or in the rare instance of an intrapulmonary teratoma.[10]

In conclusion, intrapulmonary teratoma is a very rare tumour presenting with non-specific symptoms with the only distinguishing feature being trichoptysis. Diagnosis is based on computed tomography which demonstrates calcification, cavitation and peripheral translucency. As it has a strong malignant potential and propensity to rupture, surgical removal becomes mandatory.

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