Curious case of a black pleural effusion: Mediastinal teratoma presenting as massive pleural effusion

Sir,

A teratoma of the mediastinum is an uncommon germ cell tumor and account for 8%–13% of all mediastinal tumors.[1] Mediastinal teratomas are often asymptomatic. When symptoms are present, they relate to mechanical effects including chest pain, cough, dyspnea, or symptoms related to recurrent pneumonitis.[2] Pleural effusion is a rare association of mediastinal teratoma. We report a case of a 35-year-old female patient admitted with the chief complaints of a cough and shortness of breath for the past 4 months and heaviness and left-sided chest pain for
mediastinal SOL was surgically excised. Gross examination shows a rounded mass with greyish, irregular and bosselated outer surface measuring 25 cm × 15 cm × 8 cm [Figure 2c and d]. Cut surface shows multiple thick-walled cysts, fat, and blackish material. Microscopically, the cyst wall was lined partly by squamous epithelium and columnar epithelium. Salivary gland tissue and intestinal goblet cells were also seen in the sections [Figure 3]. There was no morphological evidence of malignancy in the tumor and a histopathological diagnosis of mature cystic teratoma was made.

On examination, the patient was dyspneic with accessory muscle working, respiratory rate was 28/min. A diagnostic pleural fluid aspiration confirmed the black color of the effusion [Figure 1b]. Pleural fluid analysis revealed degenerated cells; Glucose was 2 mg/dl and protein 4 g/dl. Ultrasound thorax showed large multiloculated cystic lesion with low-level internal echoes in the left hemithorax, and the suspected diagnosis was a multiloculated pleural effusion. Contrast-enhanced computed tomography (CT) thorax was reported as a pleural based multiloculated cystic space occupying lesion (SOL) on the left anterior and middle mediastinum with thick enhancing wall and septae. A careful review of the CT films showed loculated collections with fat densities along with free fluid in the pleural cavity [Figure 2a and b].

Due to the presence of fat densities inside the cystic multiloculated mass, a diagnosis of mediastinal cystic teratoma was considered and the mistake of putting in a chest tube was avoided and the patient was referred to a cardiothoracic surgeon for exploratory thoracotomy. A giant mediastinal SOL was surgically excised. Gross examination shows a rounded mass with greyish, irregular and bosselated outer surface measuring 25 cm × 15 cm × 8 cm [Figure 2c and d]. Cut surface shows multiple thick-walled cysts, fat, and blackish material. Microscopically, the cyst wall was lined partly by squamous epithelium and columnar epithelium. Salivary gland tissue and intestinal goblet cells were also seen in the sections [Figure 3]. There was no morphological evidence of malignancy in the tumor and a histopathological diagnosis of mature cystic teratoma was made.

The postoperative period was uneventful for the patient.

Approximately 95% of benign teratomas arise in the anterior mediastinum close to the origin of major vessels of the heart; the remainder arise in the posterior mediastinum.[3,4] The pathognomonic finding of trichoptysis, or a cough productive of hair or sebaceous material, may result if a communication develops between the mass and the tracheobronchial tree due to the secretion of digestive enzymes secreted by the pancreatic tissue.[2,5]

Although pleural effusion is rare in mediastinal teratoma, it may arise as a result of rupture of the content of the cyst in the pleural cavity.[2]

Black color pleural fluid can develop in situations such as infection due to Aspergillus Niger or pigment-laden macrophages following massive bleeding due to metastatic carcinoma.[6]

In our patient, a black pleural effusion with squamous cells in the pleural fluid caused a suspicion of an unusual
etiology. A careful evaluation of CT revealed some fat densities in the multiloculated mass associated with the effusion enabling us to make a tentative diagnosis of a mature cystic teratoma before referring her for an urgent thoracotomy.

The diagnosis of mature teratoma can be made on a standard roentgenogram in the occasional case when mature bone or a tooth is demonstrated in the lesion.\(^7^,8\)

On CT scans soft tissue, fat and calcification can be identified sometimes, making a confident diagnosis possible even before thoracotomy.\(^9\)

Even though, rare, pleural effusion may be the presenting symptom of anterior mediastinal dermoid. We reiterate the CT findings of soft tissue, fat, and calcification which helped in the management of this patient.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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