Case report - Thoracic non-oncologic
Large mediastinal thoracic duct cyst
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Abstract
Thoracic duct cysts of the mediastinum are extremely rare. The etiology is related to a congenital or degenerative weakness in the wall of the thoracic duct. Symptoms may arise from compression of adjacent structures. Surgical resection is recommended and allows a definitive histological diagnosis. Postoperative chylothorax is the most frequent complication. We describe a 30-year-old female who presented to us with a history of dry cough and hiccups within the last four months.

Keywords: Cyst; Thoracic duct; Mediastinum; Chylothorax

1. Introduction
Cystic lesions account for ~25% of mediastinal masses. Cysts of the thoracic duct are very rare. When present, symptoms arise from compression of adjacent structures. They are characterized by communication with the thoracic duct and a high lipid concentration in the cyst fluid.

2. Case report
A 30-year-old Caucasian non-smoking female, observed in our pulmonology outpatient clinic with a history of dry cough and hiccups within the last four months. Aside from diminished breath sounds on the upper third of the right hemithorax, the physical exam was normal. The chest X-ray showed superior right mediastinal enlargement. A contrast enhanced CT-scan revealed a well delimited, homogenous, non-enhancing, 9×7 cm cystic lesion in the right paratracheal region compressing the trachea, esophagus, ascending aorta and superior vena cava. No lymphadenopathies were found. MRI was performed revealing an oval low signal intensity lesion on T-1 weighted image and with high signal intensity on T-2 (Fig. 1). Flexible bronchoscopy revealed slender extrinsic compression of right distal wall of the trachea and right main bronchus. Microbiology of bronchial aspirate was negative. The patient was referred to thoracic surgery. An exploratory thoracotomy was performed and a cystic tumour, containing a serous yellowish fluid, without an identifiable pedicle was dissected. Biochemical analysis of the fluid revealed high lipidic concentration (cholesterol 2.4 mmol/l and tryglicerides 26.9 mmol/l). The histologic examination shows fibrous cystic walls with lymphocytic infiltrate which forms occasional lymphoid follicles. The cystic luminal surface has a single layer of flat cells. The immunohistochemical study of these cells reveals universal and intense reaction with endothelial markers (CD34 and CD31). The final diagnosis was mediastinal thoracic duct cyst (Fig. 2). Chylothorax occurred as a postoperative complication on day eight and resolved seven days later with conservative measures (appropriate diet with medium chain triglycerides) without need of re-operation. The patient is asymptomatic on a one-year follow-up.

3. Discussion
Thoracic duct cyst is an uncommon disease described rarely in medical literature (~30 cases) since the first case treated surgically by Emerson in 1950 [1]. The cysts show no age or sex prevalence. Symptoms, when present, arise from compression of the adjacent structures. Anterior chest pain, hoarseness, dyspnea, dysphagia, cough, back pain

Fig. 1. On the left side a plan from contrast enhanced CT-scan revealing a well delimited, homogenous, non-enhancing, 9×7 cm cystic lesion in the right paratracheal region. On the right side a coronal view from MRI revealing a high intensity lesion in T-2 weighted image.
were described, often aggravated by intake of food. One case of acute respiratory failure was referred too [2], but none with history of hiccups. Etiology of the thoracic duct cyst is uncertain and related to developmental defect or degenerative acquired weakness in the wall of the thoracic duct [3] and they may arise at any level. It should be considered in the differential diagnosis of both symptomatic and asymptomatic mediastinal cystic lesions including pericardial or pleural mesothelial cysts, teratomatous cysts, bronchial or esophageal cysts, thymic, neurenteric or lymphangiomatous cysts [4]. Few of the published cases of mediastinal thoracic duct cysts were diagnosed prior to surgery. In these cases lymphangiography was helpful in supporting the diagnosis. If the diagnosis can be made preoperatively, observation may be appropriate since there is no malignant potential. Surgical resection is usually recommended to alleviate symptoms, prevent complications resulting from traumatic rupture or inflammation and for a definitive histological diagnosis [3]. Identification of the communication of the cyst with thoracic duct and ligation of its inferior pedicle is necessary to prevent postoperative chylothorax [5].

References


eComment: Supradiaphragmatic ligation of the thoracic duct for prevention of postoperative chylothorax

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Thoracic duct cyst is a rare entity and this case report is very interesting, due to the history of persistent hiccups [1].

The aim of our brief comment is to highlight the operative strategy whenever a pedicle of a thoracic duct is not identified. It is well known that when an inferior pedicle was ligated, no chylothorax was reported. This means, that whenever you have a non-identifiable pedicle as in the case reported here, probably an intraoperative supradiaphragmatic identification and ligation of the thoracic duct or a ‘mass supradiaphragmatic ligation’ is necessary, in order to prevent postoperative chylothorax.

Reference