Poorly differentiated adenocarcinoma arising from a cervical bronchial cyst presenting as a thyroid mass

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EDUCATIONAL OBJECTIVES

At the conclusion of this presentation, participants should be able to discuss cervical bronchial cysts, demonstrate awareness of malignancies arising from cervical bronchial cysts and demonstrate knowledge of the clinical presentation of this rare malignancy as well as its histopathologic characteristics.

INTRODUCTION

Bronchogenic cysts are a rare, benign congenital malformation derived from the embryonic foregut and occur most commonly in the mediastinum in close proximity to the thoracic trachea. They are thought to be derived from abnormal sequestrations or budding of the tracheal primordia which are pinched off at the time of fusion of the mesenchymal bars of the sternum, which leaves respiratory tissue outside the thorax. Ectopic locations in the neck, though rare, have been described mostly in the pediatric population. In adults, cervical bronchial cysts have been reported in the paratracheal, cutaneous, lingual, and supraclavicular areas. Malignant change within a bronchial cyst arising in the neck has never been reported. We present the first case of a poorly differentiated adenocarcinoma arising from a cervical bronchial cyst and describe this disease in a patient presenting with a thyroid mass, cervical lymphadenopathy, and a preoperative needle biopsy suggestive of well differentiated thyroid carcinoma.

METHODS AND MATERIALS

The clinical presentation, intraoperative findings, radiographic images, and pathology slides are presented of a patient presenting to a tertiary medical center with adenocarcinoma arising from a bronchial cyst.

RESULTS

A 32-year-old female presented with a 3-month history of throat pain, an enlarging left neck mass and left vocal cord paresis. CT imaging showed a 4.2 x 3.5 cm mass arising from the left thyroid lobe with left cervical lymphadenopathy. Ultrasound guided fine needle aspiration was read as suggestive of papillary thyroid carcinoma (Fig. 1a). Intraoperatively, the patient had a large left thyroid mass with gross tracheoesophageal invasion and cervical lymphadenopathy adherent to the carotid artery. Postoperative PET/CT scan showed a large mass arising from the area of the left thyroid gland (Fig. 2, 3), extensive lymphadenopathy and diffuse substernal and pulmonary metastases (Fig. 4). Microscopically, a poorly differentiated adenocarcinoma was seen extensively invading into the thyroid gland, skeletal muscle, and fibroadipose tissue (Fig. 5). Furthermore, a cystic structure was present, lined by ciliated columnar epithelium with a single underlying smooth muscle layer (Fig. 6). Focally, the cyst lining was seen to transition into invasive adenocarcinoma and contained mucin (Fig. 7). Extensive immunohistochemistry was performed; the tumor cells were strongly positive for CK7, CEA, and P53 and moderately positive for CA19.9, vimentin, and P63. The histopathology was most compatible with a poorly differentiated adenocarcinoma arising from a cervical bronchogenic cyst.

Retrospective review of the preoperative fine needle aspiration showed some clusters of atypical epithelioid cells suggestive of a more poorly differentiated carcinoma despite subtle papillary and acinar architecture (Fig. 1b). The patient is undergoing concurrent chemoradiation with taxol and carboplatin.

CONCLUSIONS

Malignancies arising from cervical bronchial cysts are exceedingly rare. To our knowledge, this is the first report of a poorly differentiated adenocarcinoma arising from a cervical bronchial cyst. We present the unique case of a patient with a thyroid mass and a needle aspirate showing well-differentiated adenocarcinoma which was subsequently diagnosed as an adenocarcinoma from cervical bronchial cyst origin. This case highlights the importance of having a clinical suspicion for a more poorly differentiated process in patients presenting with vocal cord paresis, pain and extensive radiographic findings.

REFERENCES