Intrathyroidal lymphoepithelial cyst: a diagnostic challenge

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Abstract

Objectives: Describe a rare lesion of the thyroid gland which can pose a diagnostic challenge on both fine needle aspiration (FNA) and frozen section, complicating surgical decision making.

Methods: Chart review and PubMed literature review.

Results: A 68-year-old female presented with a 2 month history rapidly progressive, increasingly painful left paratracheal mass. Neck CT showed a large left thyroid mass causing tracheal deviation. An U/S guided FNA of the mass was suspicious for carcinoma, including undifferentiated/anaplastic carcinoma. She underwent completion thyroidectomy and left central neck dissection. Operative findings revealed extensive periglandular inflammation with obliteration of normal tissue planes, but no frank invasion of the airway. Intraoperative frozen section from the left superior pole rendered a diagnosis of lymphoid tissue versus small cell type malignancy. Final pathology revealed an intrathyroidal lymphoepithelial lesion with reactive squamous differentiation and necrosis, arising within severe chronic lymphocytic (Hashimoto’s) thyroiditis.

Conclusions: Intrathyroidal branchial cleft-like lymphoepithelial cysts are a rare thyroid lesion with cellular and sonographic features that may mimic malignant thyroid neoplasms, and pose a significant diagnostic challenge.

Introduction

Intrathyroidal lymphoepithelial cysts are rare thyroid lesions that are histologically similar to branchial cleft cysts, lined by stratified squamous and often focal respiratory epithelium with underlying chronic lymphoid infiltrate. 1,2 An association with Hashimoto’s thyroiditis has been reported in the literature 1-11. FNA biopsy is used routinely in the initial evaluation of thyroid mass lesions. Squamous cells are uncommon in the thyroid, and when encountered on FNA the differential can include thymic remnants, thyroglossal duct remnants, ultimobranchial remnants and tumors containing squamous cells such as squamous cell, anaplastic/undifferentiated or mucoepidermoid carcinoma. In addition, review of sonographic findings in the literature have varied widely and include descriptions of both cystic and solid masses, some with internal micro-calcifications. 1-4 In these cases, both FNA and ultrasound findings can mimic malignancy, complicating surgical decision making.

Results

A 68-year-old female presented with a 2 month history rapidly progressive, increasingly painful left paratracheal mass. A neck CT was obtained which showed a large left thyroid mass causing tracheal deviation. An FNA of the mass was suspicious for carcinoma, including undifferentiated/anaplastic carcinoma. She underwent completion thyroidectomy and left central neck dissection. Operative findings revealed extensive periglandular inflammation with obliteration of normal tissue planes, but again no frank invasion of the airway. An intraoperative frozen specimen taken from the left superior pole rendered a diagnosis of lymphoid tissue versus small cell type malignancy. The patient had an uneventful recovery. Pathology review revealed an intrathyroidal lymphoepithelial lesion with reactive squamous differentiation and necrosis, arising within severe chronic lymphocytic (Hashimoto’s) thyroiditis (Figure 2C & 2D).}

Discussion

Intrathyroidal branchial cleft-like lymphoepithelial cysts are rare lesions of the thyroid, thought to arise from solid cell nests of the ultimobranchial bodies during embryogenesis. 5 This theory is supported by their association with similar branchial structures such as thymic and parathyroid tissue. There are only approximately 30 reported cases in the literature 1-11. The presentation varies widely, and the medical literature has described bilateral and multifocal involvement, association with esophageal infarcts 6, amyloid goiter 7 and synchronous papillary thyroid carcinomas 8. The most commonly described association is with chronic lymphocytic or Hashimoto’s thyroiditis, as was the case in this patient. While the average age of diagnosis is in the mid-40’s, bilateral cysts have been described in a newborn. 9 More female than male patients have been reported.

Although the cysts are histologically benign, this diagnosis is often unable to be rendered until definitive surgical excision has been performed. Due to the rarity of this lesion, as well as cellular features and high incidence of inflammatory changes, pre-operative diagnosis by FNA is often difficult, and findings may mimic malignant thyroid neoplasms. Although there does not seem to be a propensity for malignant changes in these cyst, in the majority of described cases lobectomy or total thyroidectomy was performed to remove these thyroid masses due to suspicion of neoplastic process.

This case report and literature review illustrate the variable presentation of this rare intrathyroidal lesion and the potential diagnostic dilemmas encountered during work-up. This benign cystic lesion should be considered during work-up of a thyroid mass or cyst and future cases will hopefully lead to a better understanding of the this uncommon thyroid lesion.

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References


Figure 1. Axial CT neck with contrast showing 4.3 cm x 4.3 cm x 6.2 cm left thyroid lobe mass with rightward tracheal displacement but without invasion of the airway.

Figure 2. (A) Cellblock image of FNA aspirate material: rare severely atypical spindled squamous cells with “tadpole” like features as well as other atypical epithelialoid cells with a high nucleus to cytoplasmic ratio (inset). Background of necrotic appearing debris. (H&E 60x). (B) FNA aspirate material: scattered large cohesive epithelial cells with a high nucleus to cytoplasmic ratio, with background of necrotic appearing debris. (Diff Quik 40x) (C) Cyst wall: composed of both dense collagenous and lymphoid tissue with germinal centers. Lumenal cellular and mucoproteinaceous debris present. (H&E 20x). (D) Cyst lining: inflamed multilayered keratinizing squamous epithelium. Rare cyst lining areas were composed of ciliated respiratory epithelium (not shown). (H&E 60x).