Papillary Thyroid Carcinoma Arising in a Branchial Cyst
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INTRODUCTION

Branchial cleft cysts are the most common lateral cystic neck masses. Ectopic thyroid tissue within a branchial cleft cyst is a rare phenomenon and papillary thyroid carcinoma (PTC) arising from this tissue is extremely rare. 1-3 To our knowledge, only four cases have reported PTC arising in a branchial cyst without a primary in the thyroid. 4 At least a dozen cases of PTC in lateral neck cysts exist that either found an occult primary in the thyroid 4-16 or did not pathologically analyze the thyroid. 16-24 It is theorized that total thyroidectomy in a lateral neck cyst is thought to be the result of metastatic spread. This is the obvious conclusion when a thyroid primary is found. However, we are left with a diagnostic dilemma in the absence of a primary – this is a case of metastatic disease with a primary or rather PTC arising in ectopic thyroid tissue? If it is ectopic tissue in a lateral neck, how did it get there?

CASE

To our knowledge, only four cases have reported PTC arising in a branchial cyst without a primary in the thyroid. 1,4 At least a dozen cases of PTC in lateral neck cysts exist that either found an occult primary in the thyroid 4-16 or did not pathologically analyze the thyroid. 16-24 It is theorized that total thyroidectomy in a lateral neck cyst is thought to be the result of metastatic spread. This is the obvious conclusion when a thyroid primary is found. However, we are left with a diagnostic dilemma in the absence of a primary – this is a case of metastatic disease with a primary or rather PTC arising in ectopic thyroid tissue? If it is ectopic tissue in a lateral neck, how did it get there?

We report a case of PTC incidentally found in a branchial cleft cyst. A total thyroidecmy and selective neck dissection (central and ipsilateral) was performed in a patient with a history of painless right-sided neck swelling. Clinical examination showed a 6cm mass in his right neck without a cutaneous fistula. Contrast-enhanced CT scan and ultrasound of the neck confirmed a cystic lesion in the lateral neck without lymphadenopathy and an 8mm left thyroid nodule (figures 1 and 2). Surgical excision was performed and no tract was discovered on physical exam of the specimen during removal. Pathological examination found a 1cm focus of PTC within the 6cm cystic neck mass (figure 3). A second review of the specimen showed lymphocytic proliferation with PTC - no normal thyroid tissue was present within the branchial cleft cyst.

Thyroid function tests revealed a normal thyroid. After discussion with the patient a total thyroidecmy and selective neck dissection (central and ipsilateral) was performed presuming metastatic spread from a thyroid primary. Serial thin sections of the complete thyroid gland were analyzed and no carcinoma was detected. The subcentimetre nodule in the left lobes was found to be a hyperplasic nodule. Twenty-one lymph nodes were included in the neck dissection and all were free of disease. To date, the patient’s thyroglobulin levels have remained clinically negative.

DISCUSSION

Branchial cleft cysts are the most common lateral neck cystic lesion that typically present in the fourth decade of life 1-3. However, despite considerable study of branchial cysts, it’s etiologic remains to be fully elucidated. Older theories describe branchial cysts as congenital malformations resulting from failure of the branchial pouch aponeurosis. Recent theories however suggest that some of these lateral neck masses are the result of cystic degeneration triggered by epithelial inclusions that migrate into lymph nodes. 4,12 Proponents of this acquired “inclusion theory” branchial cyst formation propose that epithelium from upper aerodigestive tract or glandular mucosa migrates to lymph nodes. 5,16 The presence of lymph tissue 6-12 makes the distinction between cystic lymph nodes and branchial cysts difficult. Some even propose using the term lateral or cervical lymphoepithelial cysts instead 13-15. Examination of these lateral cysts demonstrates the presence of lymph tissue 9-12 and the histologic distinction between cystic lymph nodes and branchial cysts difficult. Some even propose using the term lateral or cervical lymphoepithelial cysts instead. 13-15,16 When the clinician is presented with a thyroid carcinoma in a lateral neck cyst a thorough examination of the neck is necessary. Imaging and fine needle aspiration cytology (FNAC) do not take the place of tissue diagnosis and excisional biopsy should be performed. 17-19 Adjuvant radioactive iodine might be considered if residual thyroid tissue or disease is suspected. 1-3

SELECTED REFERENCES