Papillary carcinoma arising within a thyroglossal duct cyst - A case report

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Section: Head & neck imaging
Area of Interest: Head and neck Thyroid / Parathyroids
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Cysts Neoplasia Case Type: Clinical Cases
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Patient: 29 years, female

Clinical History:

A 35-year-old female was referred for evaluation of a swelling in the anterior aspect of the neck. The patient had noticed increase in size of the swelling over the past 3 to 4 months. On examination the swelling was mobile during swallowing and protrusion of the tongue.

Imaging Findings:

A well-defined cystic lesion with a significantly enhancing prominent soft tissue density nodule within was noted anterior to the trachea in the neck. The lesion was situated inferior to the notch of the thyroid cartilage abutting the isthmus of the thyroid gland. The lesion was inseparable from the medial aspect of the strap muscles of the neck on both sides. No definite calcification was noted within this lesion. The thyroid gland appeared normal in size and showed a few small nodules in both lobes.

Discussion:

Thyroglossal duct cysts account for about 70 % of congenital neck masses [1, 2, 3]. These cysts arise from remnants of the thyroglossal duct along the path of descent of the developing thyroid gland [1, 3, 4]. The occurrence of carcinoma in thyroglossal duct cysts is rare and is seen in about 1% of cases [1, 2]. A higher incidence in females has been described [2, 4]. The most common malignancy to arise in a thyroglossal duct cyst is papillary carcinoma but rarely follicular, squamous cell and anaplastic carcinoma may also occur [1, 2, 3, 4].

Benign thyroglossal duct cysts usually appear as a thin walled fluid attenuation mass in the anterior aspect of the neck close to the midline. Intimate relationship of the mass with the strap muscles of the neck has been described as a characteristic feature on imaging [2, 4]. Thyroglossal duct carcinomas (TDC) usually occur in locations similar to benign thyroglossal duct cysts [2]. Presence of dense/enhancing mural nodules, calcification or both within a partly cystic lesion in the usual location of a thyroglossal duct cyst has been described as highly suggestive of TDC [2, 3, 4]. Our case had a prominent enhancing soft tissue density nodule within a cystic lesion closely related to the strap muscles in the anterior aspect of neck. Histopathological evaluation post Sistrunk’s operation revealed the enhancing nodule within the cyst to be papillary carcinoma of thyroid origin.

Differential diagnostic considerations for TDC include infection in a thyroglossal duct cyst, ectopic thyroid tissue and a dermoid cyst. Infected thyroglossal duct cysts may show areas of wall thickening or increased attenuation, but an enhancing nodule is uncommon. Ectopic thyroid tissue usually presents as a completely solid enhancing mass. A dermoid cyst shows characteristic fat attenuation and is not closely related to the strap muscles.

The treatment for TDC is still under debate. Although total thyroidectomy has been advocated by some in all cases
of TDC, most authors feel a simple Sistrunk’s procedure to be sufficient in the absence of clinical or sonological features of a thyroid lesion or cervical lymphadenopathy [1]. FNAC of two of the thyroid nodules was done in our case which revealed them to be colloid nodules. Thyroidectomy was not performed in our case. The prognosis for TDC is excellent with a survival rate of about 95.6% at 10 years and metastases in less than 2 % of cases [1, 4].

**Differential Diagnosis List:** Papillary carcinoma within a thyroglossal duct cyst, Thyroglossal duct cyst, Ectopic thyroid tissue, Dermoid cyst

**Final Diagnosis:** Papillary carcinoma within a thyroglossal duct cyst.

**References:**

**Figure 1**

**a**

**Description:** A hypodense lesion with suggestion of an internal soft tissue density nodule is noted anterior to the trachea. A small nodule is also visualized in the superior aspect of right lobe of thyroid gland. **Origin:** Ramnad MRI and CT Scans, Ramnad, India.

**b**

**Description:** The lesion appears cystic along its periphery with suggestion of a soft tissue density nodule within. It is located inferior to the notch of the thyroid cartilage and superior to the isthmus of thyroid gland. **Origin:** Ramnad MRI and CT Scans, Ramnad, India.
Description: The thyroid gland appears normal in size and shows a few small hypodense nodules, predominantly in the right lobe. Origin: Ramnad MRI and CT Scans, Ramnad, India.
Figure 2

a

Description: The soft tissue density nodule within the cystic lesion in the anterior aspect of the neck shows significant contrast enhancement. Origin: Ramnad MRI and CT Scans, Ramnad, India.

b

Description: The cystic lesion with an internal enhancing nodule appears intimately related to the medial aspect of the strap muscles on both sides. Origin: Ramnad MRI and CT Scans, Ramnad, India.
Description: The inferior aspect of the cystic lesion is seen abutting the thyroid isthmus. Small nodular lesions are noted in both lobes of thyroid gland. Origin: Ramnad MRI and CT Scans, Ramnad, India.