Thyroid Hemiagenesis: Report of a Case and Review of the Literature

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Abstract

Objectives: Our objective was to report an incidental finding of thyroid hemiagenesis in a patient who presented with a left neck mass, present a review of literature, and to discuss management of this diagnosis. Study Design: Case report and review of literature. Methods: An internet-based literature search was performed via PubMed with key words, “hemithyroid agenesis, thyroid hemiagenesis, absent thyroid gland”. Clinical, pathological, radiologic data and follow up information is reported.

Results: A 55 year old woman with a left neck mass presented to our service. A diagnostic CT scan of the head and neck revealed an unrelated finding of an absent left thyroid lobe. A review of the CT imaging did not reveal ectopic thyroid tissue. A complete physical examination including a flexible laryngoscopy was unremarkable. The neck mass was pathologically a granulomatous lesion on surgical pathology. Thyroid function tests were within normal limits. In follow-up, patient remains asymptomatic.

Introduction

Embryological development of the thyroid gland begins from an invagination of the endoderm in the primitive pharynx. This invagination grows ventrally while remaining attached to the pharyngeal floor. The thyroid rudiment will migrate to its correct anatomical position anterior to the pharynx and only then will it begin to grow laterally to create the bilobed thyroid gland (1). Congenital thyroid anomalies may be caused either by abnormal descent of the gland or by incomplete genesis of a lobe. However, the etiology of the hemiagenesis still remains unclear. There may be a genetic component to the etiology as this rare condition has been documented in monogygotic twins (1).

Thyroid hemiagenesis is a rare anomaly defined by the congenital absence of one of the thyroid lobes with an estimated prevalence rate of 0.02% (4). The first case of hemithyroid agenesis was reported in 1866 (1). To date approximately 300 cases have been reported worldwide in current literature (1). We report a patient who presented to our service with a left neck mass and an incidental finding of a left thyroid lobe agenesis. We also present a relevant review of literature and discuss management of this condition as an incidental finding.

Case Report

A 55 year old woman presented to our service with a left neck mass. In view of the age of the patient and a significant history of tobacco use an evaluation was performed to rule out a possible malignancy of the head and neck. A complete head neck examination including a flexible laryngoscopy was unremarkable. A diagnostic CT scan of the head and neck characterized the neck mass to a necrotic lesion level two lateral to the sternocleidomastoid muscle. In addition, the only other positive finding was an absent left thyroid lobe (Figure 1). A further review of the CT imaging did not reveal ectopic thyroid tissue. Pathology of the neck mass was granulomatous lesion. Thyroid function tests were within normal limits. In follow-up, patient remains asymptomatic.

Discussion

Hemithyroid agenesis a rare congenital anomaly of thyroid has found to be three time more common in females as compared to males (2). In 80 percent the left thyroid lobe is absent and in about 50% of patients with left hemithyroid agenesis will also have an absent thyroid isthmus (3). Many times, the patient is found to have hemiagenesis of a thyroid lobe incidentally. Coexisting thyroid disorders in the remaining lobe are a common occurrence with hemiagenesis. Disorders that have been reported in the remnant thyroid lobe include hyperthyroidism, hypothyroidism, multinodular goiter, chronic thyroiditis, adenocarcinoma, and papillary thyroid carcinoma (1,6). Hyperthyroidism is the most prevalent disorder associated with thyroid hemiagenesis. In fact, many cases of hemiagenesis discovered upon workup of the hyperthyroidism. However as noted earlier and in our patient, hemithyroid agenesis can be associated with a hypothyroid or euthyroid state as well (1,2,6). In our case, a computerized tomography scan of the head and neck region diagnosed the thyroid hemiagenesis. However, many different diagnostic methods have been helpful to diagnose thyroid hemiagenesis. Ultrasonography can demonstrate an absent lobe and is also helpful in follow up of euthyroid patients (8). Scintigraphy has also been used but is not necessarily required to make the diagnosis of an absent thyroid lobe. However, scintigraphy has been helpful in indentifying and locating ectopic thyroid tissue (6). In the two cases reported, the locations of the ectopic thyroid tissue were the prelaryngeal region of the anterior compartment of the neck and the lingual thyroid. In general, ectopic lingual thyroid tissue is the most common location for ectopic thyroid tissue (6).

Conclusions

Incidental thyroid agenesis with a negative work up can then be observed. The remnant thyroid lobe can be associated a variety of pathology such as hyperthyroidism, hypothyroidism, multinodular goiter, chronic thyroiditis, adenocarcinoma, and papillary thyroid carcinoma and consequently it is important to educate patients them regarding these associated conditions and offer appropriate work up if indicated.

References