



A CASE REPORT ON PAPILLARY CARCINOMA OF THYROID

Oncology

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ABSTRACT

Ectopic thyroid tissue represents a unique clinical condition. This condition can present with a wide range of thyroid disorders, including thyroid malignancy. The presence of thyroid carcinoma within ectopic thyroid tissue is exceptionally uncommon, with a scant number of documented cases reported in the literature. A 50-year-old man came to our hospital with a painless swelling on the right side of his upper part of neck, which he had had since childhood but had increased in size in the last 5 months. Upon initial local examination, it was observed that there was swelling present at levels Ib, II, III on the right lateral part of upper neck. A computed tomography (CT) scan of the neck showed a substantial, multiloculated cystic solid lesion located in the right lateral upper region of the neck. The patient underwent a comprehensive local excision procedure. Subsequently, both gross and microscopic examinations were performed, which revealed characteristics suggestive of papillary carcinoma of the thyroid. Then, the patient underwent a thyroidectomy surgical procedure. Histopathological examination were confirmed to establish the diagnosis of papillary carcinoma of the thyroid in our patient. Following a total thyroidectomy, the patient experienced a remarkable recovery. Histopathological findings stands as the definitive benchmark for the confirmation of diagnosis. The current prevailing recommendation treatment for this uncommon condition is surgical removal of the entire thyroid gland. A comprehensive history, meticulous physical examination and prompt diagnostic investigations are essential to prevent the misdiagnosis of this condition.

KEYWORDS

Papillary thyroid carcinoma, histopathological examination, thyroidectomy, ectopic thyroid tissue.

INTRODUCTION

Papillary carcinoma of thyroid (PCT) is the predominant form of thyroid cancer, representing approximately 85% of all thyroid cancers. Thyroid malignancies are commonly classified into four main types: papillary, follicular, medullary and anaplastic carcinomas^[1]. Papillary thyroid carcinoma is distinguished by its gradual growth rate and non-aggressive biological characteristics, yet it often leads to a high incidence of metastasis to nearby cervical lymph nodes. Typically, by the time of diagnosis, papillary thyroid carcinoma has advanced to affect cervical lymph nodes in a range of 20% to 50% of patients^[2].

Ectopic thyroid tissue denotes an exceedingly developmental anomaly, marked by the irregular development of the thyroid gland during its transformation from basal floor of the fore gut to its final position prior to the trachea. It is found in 1 in 100,000 to 300,000 people, and the number of patients with thyroid pathology has increased dramatically to 1 in 4,000 to 8,000^[3]. The most common manifestation of an ectopic thyroid gland is situated at the base of the tongue, referred to as the lingual thyroid gland, accounting for 47% of all instances of ectopic thyroid gland have been documented, where it is feasible to identify ectopic thyroid tissue within a branchial neck cleft cyst^[4]. The failure of the branchial apparatus to obliterate during the embryonic development phase results in the formation of branchial cysts. Typically, they manifest as asymptomatic neck enlargement during the second to fourth decades of life and presents as a palpable, painless, movable, neck mass, located along the anterior border of the sternocleidomastoid muscle (SCM)^[5]. Branchial cysts are characterized by their thin walls which are comprised of a squamous stratified epithelium overlain by lymphoid tissue. In certain cases, the cyst may be enveloped by ciliated columnar epithelial cells^[6]. The differential diagnosis for branchial cysts encompasses a variety of non-inflammatory lesions including malignant lymphadenopathy, lipomas, nerve sheath tumors, carotid body tumors, external laryngeal cysts, cystic hygromas and inflammatory lesions such as tuberculous nodes and abscesses^[7].

Here we present a case that involved a thyroid papillary carcinoma developed from ectopic thyroid tissue inside a branchial cyst and also our approach to diagnosis and treat this rare clinical condition.

Case Presentation

A 50-years-old male was presented with a swelling on the right lateral side of the upper neck, which had been present since childhood but had rapidly increased in size over the past five months. There was no associated pain or fever reported and also there was no prior history of cancer within the family lineage. On physical examination the patient was conscious, blood pressure 110/71 mm Hg, heart rate 88 beats per minute, normal respiratory rate, Temperature 98.6 °F and 99% SPO₂ on room air. Systemic examination revealed bilateral air entry was adequate, cardio vascular system and abdomen were normal. Liver function tests (LFT) results were normal in range. Basic line investigations were done, all were within normal limits. Upon local examination, a 10 x 8 cm swelling was noted at level Ib II III on the right lateral upper neck. The swelling was lobulated, had a firm consistency and showed restricted mobility. Computed tomography (CT) of neck revealed a large multiloculated cystic solid lesion measuring 9.3 x 9 x 9.2 cm in the right lateral upper part of neck. The lesion exhibited few tiny internal calcifications and moderate enhancement of the solid component. It was closely related to the anterior and medial surfaces of the right sternocleidomastoid muscle, displacing the carotid sheath vessels and compressing the right internal jugular vein. The lesion extended into the retromandibular region and posterior cervical space, abutted the posterior surface of the right sub mandibular gland anteriorly, and reached up to the level of the cricoid cartilage inferiorly. Enlarged level V lymph nodes were also noted nearby. Based on imaging findings and clinical presentation, the differential diagnoses included as malignant transformation in the right second branchial cleft cyst (given the history of long-standing neck swelling since childhood) and cystic schwannoma.

At first our patient underwent wide local excision and the gross examination of the excised specimen revealed a solid cystic mass with a multiloculated structure. Microscopic examination showed attenuated epithelial lining with underlying skeletal muscle and lymphoid tissue. The solid areas displayed features consistent with papillary carcinoma of the thyroid, including complex branching papillae with fibrovascular cores, focal follicular architecture, nuclear enlargement, overcrowding, optically clear nuclei and infiltration into surrounding lymphoid tissue (Figure 1). After one month our patient underwent total thyroidectomy to exclude the presence of a hidden primary cancer of the thyroid. Histopathological features confirmed

the diagnosis of papillary carcinoma of thyroid arising from ectopic thyroid tissue within the branchial cyst. Notably, the thyroid gland did not show any primary focus of malignancy. Our patient's condition remained stable following the thyroidectomy procedure and was discharged.

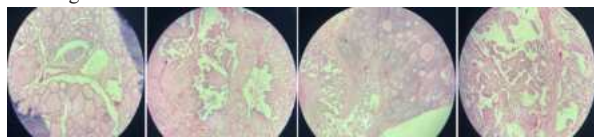


Figure1: Thyroid papillary carcinoma, characterized by intricate branching papillae and infiltration into the surrounding lymphoid tissue

DISCUSSION

The primary manifestation of papillary carcinoma of the thyroid is often characterized by the existence of a non-symptomatic nodule within the thyroid gland. Approximately 20% of cases exhibit symptoms such as hoarseness or dysphagia, which typically suggest the involvement of tracheal compression or recurrent laryngeal nerve compression. These symptoms are often accompanied by normal results from thyroid function tests^[8]. In our case a localized swelling on the right lateral aspect of the upper neck region, without any accompanying pain or dysphagia is observed. An ectopic thyroid disorder arises from the unusual migration of thyroid tissue away from its normal location, through the foramen caecum, via the thyroglossoid duct, during critical stages of development^[9]. A variety of case reports have been recorded on the frequency of carcinoma occurring within ectopic thyroid tissue^[10]. However, it is important to highlight that thyroid carcinoma developing from ectopically positioned thyroid tissue within the branchial cyst is regarded as an exceedingly rare event^[11]. To date, a relatively small number of cases have been documented, predominantly characterized by primary thyroid carcinomas that emerged from neck branchial cysts. In a parallel manner, the case report under consideration details a papillary carcinoma of the thyroid, which originated from ectopic thyroid tissue discovered within the branchial cyst.

Branchial cysts are often recognized as a primary etiology of a neck mass in the elderly population^[12]. These cysts are generally located anterior to the sternocleidomastoid muscle, although they have also been noted in less common positions, such as the parotid gland, the pharyngeal wall and the posterior triangle^[13]. In this instance, the cysts are found in close proximity to the anterior and medial surfaces of the right sternocleidomastoid muscle.

To accurately classify an ectopic thyroid carcinoma as primary, several determinants must be considered. These factors encompass the absence of a malignancy history, the nonexistence of the thyroid gland in its native position, and a unique blood supply originating from vessels located in the cervical region^[14]. These specific features observed in our patient are among the indicators that fueled the suspicion of thyroid carcinoma.

Scintigraphy imaging, CT or MRI are precious diagnostic methods for identifying ectopic thyroid tissue. However, it is important to acknowledge the possibility of false-positive outcomes is not insignificant^[15]. In this instance, the CT scan is unable to furnish diagnostic information. Initially, the patient was subjected to a wide local excision. Following this, both gross and microscopic examinations were conducted, indicative of papillary carcinoma of the thyroid. The current histopathological results are comparable to the research done by Lanzafame S, which can help identify a primary thyroid carcinoma (PTC) inside a branchial cyst^[16].

Based on this hypothesis, certain specialists recommend that, aside from the surgical removal of the cystic mass, a total thyroidectomy should be considered to ensure the complete eradication of any potential undiagnosed thyroid cancer^[17]. Our patient underwent a comprehensive thyroidectomy to exclude the possibility of an underlying primary cancer of the thyroid. The histopathological analysis confirmed the presence of a papillary carcinoma originating from ectopic thyroid tissue within a branchial cyst, thus marking a rare occurrence of a PTC developing within a branchial neck cyst. Currently, the standard approach to treatment involves the performance of a total thyroidectomy followed by the administration of radioiodine therapy. This approach is predicated on the observed

efficacy and the elevated rate of disease-free survival observed in this demographic^[18]. Our patient's condition remained stable following the thyroidectomy procedure, without the necessity of employing radioiodine therapy.

CONCLUSION

The likelihood of papillary carcinoma of the thyroid developing from ectopic thyroid tissue must be considered in the differential diagnoses of a pathological mass in the neck, which include a branchial cyst. Regrettably, to date, there exist no definitive clinical, biochemical, or imaging parameters that can accurately determine the nature of these lesions. As a result, histopathological examination continues to be the foremost approach for securing a conclusive diagnosis. It is imperative for physicians to exhibit a high degree of suspicion upon the discovery of neck swelling, as this often indicates the presence of this disease.

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