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Case Report

Right lobe papillary thyroid carcinoma and associated left vagus nerve schwannoma: A rare case report

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ABSTRACT

A schwannoma is a rare, slow growing, encapsulated nerve sheath tumour. Schwannomas originating from the vagus nerve are considered to be relatively uncommon, representing a minimal fraction of the total incidence of schwannomas and predominantly localized in the neck region. They are relatively difficult to diagnose, often mistaken for a swelling arising from the thyroid gland. In this case report, we described a patient who had a left side neck mass that was identified as thyroid papillary carcinoma with left vagal schwannoma. This case is about a 85 year old patient with a mass on their left side of the neck. The preliminary diagnostic measures encompass an ultrasound examination of the neck, followed by ultrasonography guided fine needle aspiration cytology of the lesion. A contrast enhanced computed tomography scan can also help in diagnosis, evaluate the extent of the tumour, and aid in planning surgical management. The patient was diagnosed with papillary carcinoma of the thyroid, accompanied by a left vagal schwannoma. When the findings from fine needle aspiration cytology suggest the presence of cells with neural origin, it becomes crucial to include schwannomas within the list of differential diagnoses for thyroid lesions. Imaging techniques such as ultrasound and contrast-enhanced computed tomography (CECT) can provide additional support in distinguishing lesions originating from the neurol origin, which may appear as thyroid lesions. The schwannoma can be treated by excision while exercising caution so as to not damage the vagus nerve and the papillary carcinoma of thyroid is managed with total thyroidectomy.

1. Introduction

Papillary thyroid carcinoma (PTC) is a type of epithelial malignancy characterized by the presence of follicular cell differentiation and a unique set of nuclear features. It stands as the most predominant type of thyroid neoplasm and is linked with the most promising prognosis among thyroid cancers.[1] Schwannomas are rare benign tumours originating from neural cells that are responsible for the synthesis of myelin.[2] They are the most prevalent type of all nerve sheath tumour, accounting for approximately 89% of all cases. They are frequently observed in the head and neck region, affecting up to 45% of patients. Typically, individuals between the ages of 50 to 60 are most commonly affected, with no discernible patterns related to sex or race.[3] Upon examination using ultrasound, these lesions are characterized by their hypoechoic nature, absence of a hilum, and a resemblance to metastatic lymph nodes in individuals with thyroid cancer.[4] Infrequently, cases of neck schwannomas have been reported to present as thyroid-glandular parenchyma (primary-thyroid schwannomas).[2,5,6] Pre-surgical diagnosis presents significant challenges due to the frequent misidentification of these lesions as thyroid

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nodules.[7,8] Here, we presented a case report of a patient with a left side neck mass diagnosed as papillary carcinoma of thyroid with left vagal schwannoma.

2. Case Presentation

A 85-year-old female of South Asian descent presented to our clinic with a unilateral swelling on the left side of her neck, which had developed over the past two years. The patient has a history of hypertension for a duration of eight years and the swelling was not accompanied by any pain or discharge. There was no history of difficulty swallowing solids or liquids. There was no history of changes in her voice or difficulty breathing. She underwent left modified radical neck dissection 13 years ago. Her individual, psychosocial, and familial backgrounds were found unremarkable. On examination, her vitals were stable. Upon examination of her neck, it was observed that the patient's neck presented with a 10 cm x 8 cm swelling located on the left side, which exhibited mobility in all directions. Further systemic evaluations were conducted, and they were found to be unremarkable.

An ultrasound of her neck showed a submandibular swelling. Fine needle aspiration cytology from the submandibular swelling showed features suggestive of a spindle cell lesion; possibly a schwannoma. There were features suspicious of papillary carcinoma of the thyroid (Bethesda grade V). The laryngoscopy examination indicated that the left vocal cord was immobilized, whereas the right vocal cord exhibited mobility. A computed tomography scan of the neck with contrast showed a left sided neck mass with a mildly enhancing solid component with a posterior necrotic component, displacing adjacent structures, and a right lobe thyroid nodule (Figure 1).

The patient underwent total thyroidectomy with excision of the left sided neurogenic tumour under general anaesthesia. During the procedure, an exophytic growth measuring approximately 10 cm x 6 cm was identified, arising from upper part of vagus nerve, piercing the carotid artery medially and stretching the internal jugular vein. A cystic swelling measuring approximately 4 cm x 3 cm was seen in right lobe of the thyroid gland. Initially, total thyroidectomy was done. The vagus nerve was identified and preserved. The tumour was located, an inferior incision was made, the internal jugular vein was severed, and the tumour was removed from the vagus nerve. The patient experienced no complications post-operatively.

2.1. Therapeutic intervention

Patient was treated with Tab. Clinidipine (oral, 10 mg, once a day), Tab. Cefoxitin (oral, 2 gm once a day), Tab. Doxycycline (oral, 100mg, twice in a day), Tab. Trimethoprim (oral, 80 mg, daily two times), Tab. Sulfamethoxazole (oral, 400 mg, twice a day), Tab. Acetaminophen (oral, 250 mg, once daily), Tab. Ibuprofen (oral, 125 mg, once daily), Tab. Pantaprazol (oral, 40 mg, twice in a day).

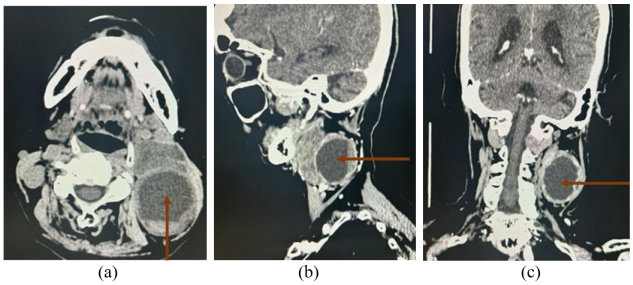

Figure 1: Computed tomography (CT) scan of the neck (**a**) Axial view, (**b**) and (**c**) sagittal section shows a mildly enhancing solid component with a posterior necrotic component, displacing adjacent structures, and a right lobe thyroid nodule

3. Discussion

A schwannoma is typically characterized as a benign, slow growing, and encapsulated tumor that originating from the nerve sheath that usually occurs in the extremities, head and the neck region. In the neck area, these tumors often originate from the medial aspect, specifically the glossopharyngeal, vagus, accessory, hypoglossal nerves or from the sympathetic chain. Subsequently, they may extend laterally from the brachial or cervical plexus.[9] Vagal schwannomas are rare and can present with a wide variety of symptoms including hoarseness, difficulty swallowing, and palpable mass in the neck. In the carotid space, it is predominantly observed that schwannomas of the vagus nerve are typically located beneath the hyoid bone.[10] Understanding that these presentations are crucial for accurate diagnosis and appropriate management.

In our instance, the presence of a vagal schwannoma was identified through an ultrasound examination of the neck, with the sole manifestation being a localized swelling on the left side of the neck. The patient did not have symptoms suggestive of thyroid disease such as dysphagia, dyspnea, palpitations, lethargy, heat or cold intolerance, weight loss or weight gain, rashes, hair changes, altered bowel habits, fatigue, etc. In order to avoid inappropriate surgical procedures in cases of hypo-echogenic nodules in associated with the thyroid gland, other non-thyroidal structures that could potentially exhibit hypo-echogenic patterns upon ultrasonographic examination. The primary pre-operative investigations in such scenarios are ultrasonography and sonographically guided fine-needle aspiration biopsy.[11] Our case was evaluated similarly with fine-needle aspiration cytology (FNAC) of the submandibular swelling showing features of a spindle cell lesion. Additionally, the thyroid gland was assessed, revealing features that were suggestive of papillary carcinoma.

Ultrasound imaging and computed tomography stands as the benchmark for the primary assessment of thyroid conditions and diagnostic methods for the detection of schwannomas. magnetic resonance imaging (MRI) employed to delineate the extent of disease progression in more advanced cases and mainly evaluating bony alterations in proximity to the tumor, characterized by imaging features that encompass low to intermediate attenuation and small tumours.[12,13] Present case showed a left sided neck mass on contrast enhanced computed tomography (CECT) with a mildly enhancing solid component with a posterior necrotic component, displacing adjacent structures with no bony involvement, and a nodule in the right lobe of the thyroid gland.

In the treatment of extra cranial head and neck schwannomas, it is imperative to meticulously evaluate the surgical indications. While surgical intervention is the favored method of treatment, the lesion's slow growth and non-invasive characteristics also necessitate a cautious observational strategy. The principal surgical modalities include radical excision, which is often augmented with nerve grafting; intracapsular enucleation; and debulking procedures.[14,15] Our patient underwent a surgical procedure that included the surgical excision of the tumour from the vagus nerve, while simultaneously preserving the nerve alongside a total thyroidectomy. No complications related to the vagal nerve were observed following the surgery. Our patient had excellent recovery; her voice remained normal and she experienced no dysphagia.

4. Conclusion

In the assessment of an enlarging nodular thyroid or swellings located in front of the neck, it is imperative to take into account the possibility of pathology originating from structures within the neck, such as nerve structures should be considered in the differential diagnosis. Study of uncommon presentations of papillary carcinoma thyroid with vagal schwannoma sheds light on diverse clinical phenotypes and challenges in diagnosis and management. By acknowledging and comprehending these atypical manifestations, healthcare professionals can enhance patient outcomes and provide personalized care.

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6. Conflict of Interest

None.

7. Ethical Approval

Not required.

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