



## Schwannoma of the Lesser Occipital Nerve: A Rare Case Presentation

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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Case Study

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### **ABSTRACT**

**Aims:** To present an atypical case of a neck swelling in the left posterior triangle.

**Case Presentation:** A 21 year old girl presented with a painless swelling in left upper neck since 2 months, difficulty in swallowing, fever and loss of appetite since 15 days. On inspection, the swelling could not be seen with the naked eye. On palpation, it was spherical, soft in consistency, non-tender, 2x3 cm in size, deep seated and freely mobile in all directions. The initial differential diagnoses included reactive lymphadenitis or tuberculosis. Ultrasonography revealed left infra-auricular area swelling extending to posterior triangle. Ultrasound guided FNAC suggested lymphocytic granulation tissue and thus, excisional biopsy was done. The mass was pale white in color, globular, without attachments and could be dissected all over. The Histopathological report revealed a Benign Schwannoma.

**Discussion:** Schwannomas are benign tumors that exhibit Schwann cell differentiation and arise

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from peripheral nerves. They usually present in the 3rd to the 5th decade. Schwannomas in the neck are a rare occurrence and constitute only 0.5% of all head and neck tumors. In this case, the swelling was quickly progressive in nature which meant that Schwannoma was not among the first few differential diagnoses. The fever and acute presentation gave an impression of an infective or inflammatory lesion with a likelihood of tuberculosis. On dissection, the mass appeared to be encasing a small nerve and plenty of branches were identified which further made the diagnosis totally dependent on HPE.

**Conclusion:** Schwannomas arising from the lesser occipital nerve have rarely been seen. The atypical nature of this case with respect to the age at presentation, progression of swelling and non-linear symptoms and signs ratio makes it unique.

*Keywords: Schwannoma; lesser occipital nerve; posterior triangle; neck swelling; reactive lymphadenitis.*

## 1. AIMS and OBJECTIVES

A swelling or a lump denotes an enlargement or protuberance in any part of the body due to congenital, inflammatory, traumatic or neoplastic causes. Swellings in the head and neck region can be inflammatory, cystic, benign or malignant. The aim of this Case Report is to present a unique case of a neck mass in the posterior triangle on the left side (Schwannoma of the Lesser Occipital Nerve) which was very atypical in its presentation with respect to the age of presentation, progression of the disease and abnormal symptom to sign ratio.

## 2. INTRODUCTION

Common inflammatory swellings include reactive lymphadenitis, granulomas and autoimmune thyroiditis. Common cystic swellings include thyroid gland cyst, thyroglossal cyst, branchial cleft cyst and haemangioma. Common benign swellings include goiter, Pleomorphic Adenoma and Warthin's Tumor. Common malignant swellings include Lymphoma, metastatic node and thyroid malignancy [1].

According to Sloan Kettering Memorial Classification of regions of the neck [2], there are 7 areas described:

- 1a - Submental
- 1b - Submandibular
- 2a - Superior Deep Cervical
- 2b - Superficial Cervical
- 3 - Middle Jugular
- 4 - Lower Jugular
- 5a - Sub-occipital
- 5b - Supra-clavicular
- 6 - Midline
- 7 - Upper Mediastinal

The posterior triangle is bounded anteriorly by the posterior border of the sternocleidomastoid muscle, posteriorly by the anterior border of the trapezius muscle, inferiorly by the middle 1/3rd of clavicle. Contents of posterior triangle include Spinal Accessory Nerve, branches of Cervical Plexus, Brachial Plexus and Phrenic nerve along with the subclavian artery, external jugular vein branches, occipital and supraclavicular lymph nodes.

According to previous literature, most common swellings in the posterior triangle include lymphadenitis, lipoma, secondary from primary malignancy in nasopharynx/paranasal sinuses, lymphangioma and cystic hygroma [3].

## 3. PRESENTATION OF CASE

A 21 year old girl presented with a painless swelling in left upper neck since 2 months associated with difficulty in swallowing, fever and loss of appetite since 15 days. On further history taking, it was found that she had a loss of weight of about 5 kilograms over a period of 5 months. There was no history of Tuberculosis, thyroid abnormalities, cough with or without expectoration, breathlessness, hemoptysis and hoarseness of voice.

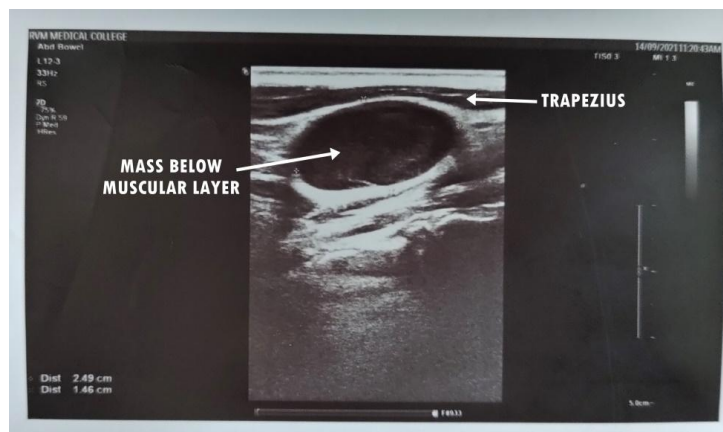
On inspection, the swelling could not be seen with the naked eye. On palpation, it was spherical, soft in consistency, non-tender, 2x3 cm in size, deep seated below the muscular layer and freely mobile in all directions in the upper part of the posterior triangle on the left side. There was no loss of sensation of any kind over the affected area. There was no weakness of left upper limb. The examination of ear, nose, nasopharynx, paranasal sinuses, oral cavity, oropharynx and hypopharynx turned out to be normal.

The initial differential diagnoses included lymphoma, reactive lymphadenitis and/or tuberculosis.

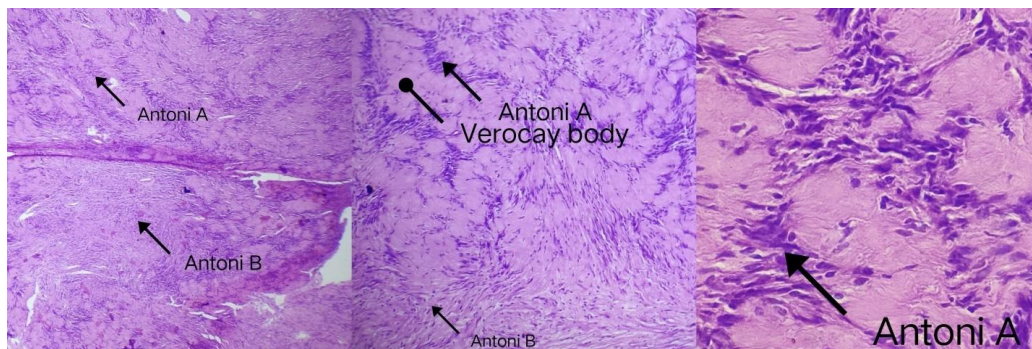
Ultrasonography revealed left infra-auricular area swelling extending to upper posterior triangle, probably reactive lymphadenitis or tuberculosis. Mantoux test turned out to be weakly positive, blood for malarial parasite was negative, WIDAL was negative, Chest X-Ray was normal and ESR was elevated. Due to financial restraints from the side of the patient, a CT/MRI could not be performed. Furthermore, there was no grant issued because it was not a case study and thus, we had to make do with what we had. Ideally, a Computed Tomography should have been done but for the above reasons we could not follow the standard protocol. Fine Needle Aspiration Cytology (FNAC) could not be performed because of its deep seated nature. USG guided FNAC was attempted and it revealed Lymphocytic granulation tissue which made us believe that it was indeed Tuberculosis.

She was then taken up for excisional biopsy under general anaesthesia. Patient was placed in

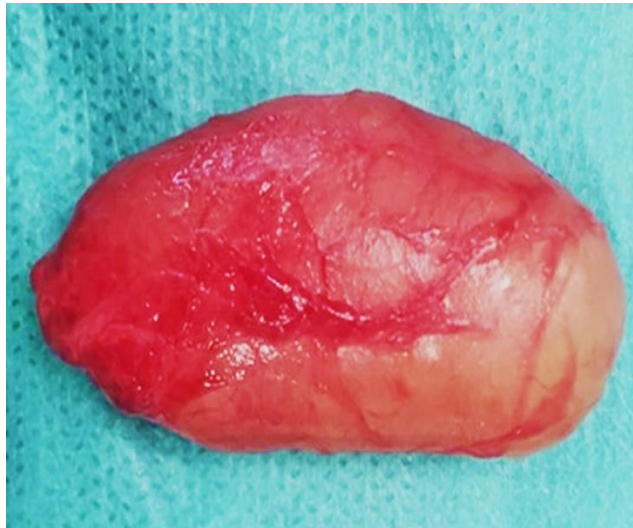
supine position with head turned to right with support placed under the head aiding in visualization of the posterior triangle of the left side. After skin infiltration with 2% lignocaine and 1:100000 Adrenaline, horizontal incision was given on the most prominent area and dissection was started. The Sternocleidomastoid Muscle was pulled medially and Trapezius muscle was retracted laterally to give further visualization of the floor of the posterior triangle (formed by the prevertebral fascia of the neck and the scalene muscles). On blunt dissection, no significant nerve/vessel/granuloma could be seen in the area around the mass. The mass was solitary, encapsulated, pale white in color with surrounding increased vascularity, globular, without attachments and could be dissected all over. The mass was then excised in-toto and sent for histopathological examination along with Cartridge-based Nucleic Acid Amplification Test (CB-NAAT). Area was washed with antiseptic liquid and closed in continuous uninterrupted absorbable material in the subcutaneous plane. The HPE report turned out to be a Benign Schwannoma. CB-NAAT was found to be negative thus ruling out Tuberculosis.



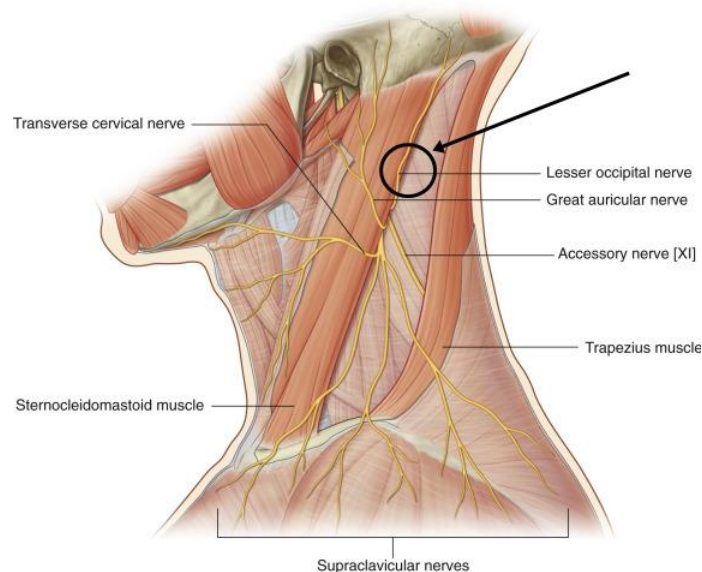
**Image 1. Ultrasonography showing the neck mass**



**Image 2. Histopathological findings IN 4x, 10x and 40x magnification**



**Image 3. Gross specimen**



**Image 4. Anatomical location of the mass**

#### 4. DISCUSSION

Schwannomas are benign tumors that exhibit Schwann cell differentiation and often arise directly from peripheral nerves. They are slow growing tumors. Verocay in 1908 was the first who established schwannoma as a pathological entity [4]. Acoustic neuroma is the most common among schwannomas arising at Cerebellopontine Angle. The most common location for an extracranial schwannoma is in the Parapharyngeal Space.

In the neck, cranial nerves 9-12, sympathetic chain, cervical Plexus and Brachial Plexus are

found to be involved sites for Schwannoma. It shows a female predilection with male to female ratio being 1:3 [5].

In one particular detailed study of series of schwannomas in the head and neck region, the author had presented masses from/in vagus, spinal accessory, glossopharyngeal, cervical sympathetic chain, oropharynx, thyroid gland, branchial cleft, palate, nasal septum and middle turbinate [6].

Large scale studies have shown Schwannomas to arise from Greater Occipital Nerve [7-8]. One particular study has presented about



**Image 5. Pre-operative and post-operative clinical photo**

Schwannomas in lower posterior triangle of neck and vagus [9]. Surgery has always been and will continue to be the only mode of management in Schwannomas [10].

In this case, we suspect that the mass had grown to a large extent which obscured the nerve sheath and caused damage to the nerve in general and thus the proximal and distal connections could not be clearly identified.

The lesser occipital nerve, also known as the small occipital nerve, is a cutaneous branch of the cervical plexus that innervates the skin of the neck and scalp posterior and superior to the auricle. After branching from the ventral ramus of C2, it hooks around the accessory nerve and emerges along the posterior aspect of sternocleidomastoid at the Erb's point. Later, it travels superiorly along the posterior border of the sternocleidomastoid muscle. At the occiput, it pierces the deep fascia and arborizes. The terminal branches of the lesser occipital nerve communicates with lateral branches of the greater auricular nerve. In literature, cases of Schwannomas arising from this nerve are scarce.

In our case, the section studies of the specimen show encapsulated and well circumscribed

tumour. The tumour was composed of hypercellular and hypocellular areas. The tumour was also composed of spindle cells with elongated band nuclei present in fibrillary schwannian stroma. The cells showed nuclear palisading alternating with anuclear fibrillary area forming verocay bodies. Hyalinisation was noted. Lymphocytic inflammation and macrophages were also seen. No atypia, mitotic activity or necrosis seen in sections studied. Thus, the impression of Schwannoma was made. In the post-operative period, the patient had a loss of sensation in the skin of the posterior neck with mild loss of sensation in the area superior to the auricle. This is the exact area supplied by the lesser occipital nerve.

## 5. CONCLUSION

Common swellings in the posterior triangle in this age group are reactive lymph nodes. Schwannomas of the posterior triangle are rare occurrences with very few cited in literature. In our case, the schwannoma was arising from the lesser occipital nerve in the superior part of the posterior triangle on the left side. Thus, we conclude that atypical presentations of Schwannomas i.e. asymptomatic, faster growth than normal, abnormal symptom to sign ratio and from uncommon nerves are possible in clinical

practice and should be dealt with meticulously. Excision remains the cornerstone of management for benign schwannomas.

### CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

### ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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