Case Report

DOI: 10.7860/IJARS/2018/35749:2376

Surgery Section

Thyroid Schwannoma Masquerading as a Neoplastic Lesion in an Adolescent Female- A Rare Case Report

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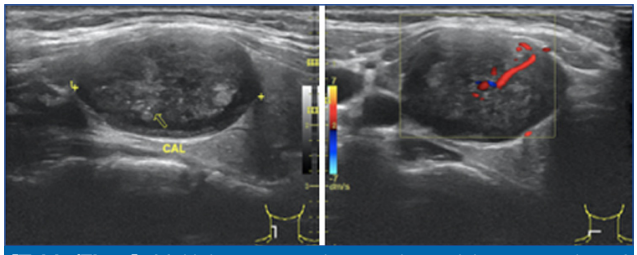
ABSTRACT

Primary schwannoma occuring in the thyroid gland is extremely rare. It appeared to be less than 1% of mesenchymal neoplasm of thyroid gland. Till date, there have been only 21 cases of primary schwannoma of thyroid gland reported in literature and only 1 case falls in the adolescent group. Majority of the cases were reported in the elderly age group. This report presents a rare case of schwannoma involving the right thyroid in a 16-year old adolescent female. She presented with a firm right neck mass, which moves with deglutition. Thyroid ultrasound revealed a single solitary right thyroid nodule. An ultrasound guided trucut biopsy of the nodule had aroused suspicion for thyroid neoplastic lesion. Right hemithyroidectomy was undertaken without complications. The final histopathological examination supported the diagnosis of schwannoma, which represent by the presence of Antoni A and Antoni B areas. Despite its rarity, a thorough review of earlier reported cases was done. Existing knowledge of this entity was summarised in this report, emphasising the interdisciplinary challenge in diagnosing it pre-operatively with sparing of unnecessary massive surgeries.

Keywords: Benign, Endocrine surgery, Thyroid gland, Schwannoma

CASE REPORT

A 16-year old female presented with an asymptomatic nodular swelling in the right side of neck region which was not increasing in size for the past 1 month. There was no obstructive history, such as dysphagia, odynophagia and hoarseness of voice. Physical examination revealed a 3 cm x 2 cm, firm, non-tender swelling that moves with deglutition. Clinically, the cervical lymph nodes were not palpable. The serum levels of thyroid function test were within normal limits. Ultrasound revealed a heterogenous solid nodule in the mid pole of right thyroid lobe measuring 1.8 (AP) x 2.7 (W) x 3.0 (H) cm with punctate hypoechogenicity suggestive of calcifications and vascularity, seen during ultrasound Doppler [Table/Fig-1,2]. Ultrasound guided trucut biopsy was performed which showed aggregates of atypical cells exhibiting enlarged pleomorphic nuclei, suggestive of neoplastic lesion. Right hemithyroidectomy was undertaken without complication. Intraoperatively, a hard and well circumscribed right thyroid mass was identified. Postoperatively, patient recovered uneventfully and was discharged within 2 days. Grossly, the excised greyish mass was well circumscribed measured 25 mm x 20 mm x 10 mm at the outer area of superior part of the right thyroid. The mass was firm with regular margin. Microscopic examination revealed a well encapsulated tumour composed of cellular Antoni A areas with vague Verocay bodies and hypocellular myxoid Antoni B areas, concluded the diagnosis of schwannoma [Table/Fig 3-6].

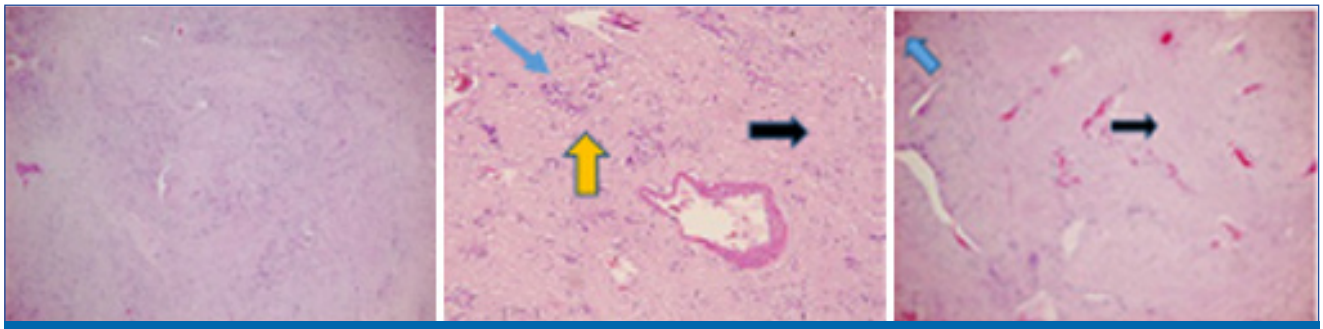


[Table/Fig-1]: Multiple punctate hypo echogenicity suggestive of calcification on ultrasound. **[Table/Fig-2]:** Foci of vascularity on ultrasound Doppler.

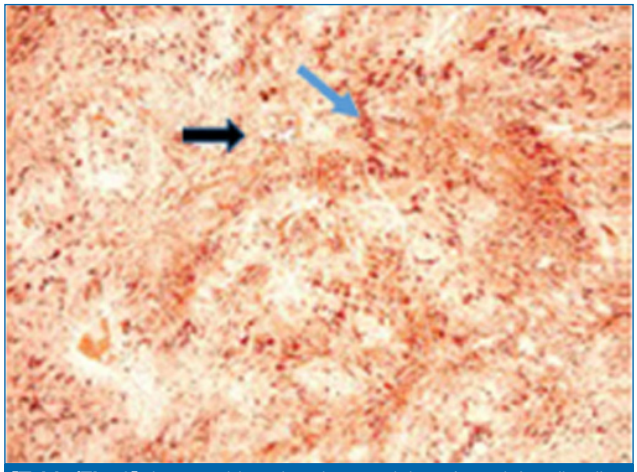
Consent: Written consent obtained from patient's mother.

DISCUSSION

Thyroid schwannoma is extremely rare and it is known to simulate a thyroid nodule in majority of the cases [1]. Schwannomas



[Table/Fig-3-5]: Haemotoxyllin and Eosin staining (H&E), Antoni A palisading nuclei (blue arrow), Antoni B hypocellular myxoid (black arrow), Verocay body (orange arrow)



[Table/Fig-6]: Immunohistochemistry staining, Antoni A palisading nuclei (blue arrow), Antoni B hypocellular myxoid (black arrow)

are the benign tumours arising from the neuronal sheath of cranial or peripheral nerve [2,3]. Schwannomas can be classified into 3 subtypes by histology: Antoni type A, Antoni type B or a mixture of 2 subtypes. Antoni type A consists of highly cellular areas which have ordered and dense cell arrangements with unique palisading nuclei. On the other hand, Antoni type B consists of less ordered and fewer cellular regions which may contain microcysts [4].

Thyroid is a rare site for schwannoma [5]. The first reported case was by Delaney WE et al., [6]. Peripheral nerve sheath tumours of the thyroid can be divided into benign or malignant. For benign variety, it comprised of neurofibromas and schwannomas. Vagus is the most common site of schwannoma within the neck region and subsequently followed by cervical sympathetic chain [3]. It was thought that the primary thyroid schwannomas arise from the intrathyroid sensory nerves or autonomic innervation to the thyroid gland [3]. Literature revealed only 21 cases of primary schwannoma of thyroid, in which majority was reported in the elderly age group [7]. As they share similarities in both clinical (painless, firm, mobile on swallowing) and sonographic (round or elongated, tendency to hypoechogenicity, thickened wall, abundant internal and peripheral vascularisation) characteristics, therefore they were often mistaken for a thyroid nodule [1]. Generally, the serum level of thyroid hormones is within normal range in such cases [7]. Radiologically, ultrasound can only delineate the extent of the mass and provide the clue whether the lesion is solid or cystic. The usage of CT-scan reported does not provide any other specific features. With that, diagnostic support by thyroid scintigraphy is not always necessary [7]. If clinically suspicious of extra-thyroidal lesion (such as cervical schwannomas and leiomyoma), Magnetic Resonance Imaging (MRI) is invaluable in identifying lesions which are not thyroidal in origin and help in preoperative accurate diagnosis [4].

In this case, the trucut biopsy had created a diagnostic dilemma as to its origin, making thyroid schwannoma a very difficult diagnosis preoperatively. Hence, only 3 reported cases successfully diagnosed schwannoma on preoperative fine needle aspiration cytology, all 3 being done under sonographic guidance [8]. Most of the remaining cases were reported either as colloid goitre with cystic degeneration or as paucicellular aspirates with scattered spindle cells and labelled inconclusive [1,9,10], or in this case, a neoplastic lesion. Besides, intraoperative frozen section was done in one case, which showed spindle cell tumour [10]. Thus, this may prove to be a useful intraoperative diagnostic modality [8].

CONCLUSION

Despite of its rarity, a thorough review of earlier reported cases was done. Preoperatively, the differential diagnosis of schwannoma like other non epithelial thyroid should be considered. Surgical excision is considered to be curative and treatment of choice. The close routine co-operation between the histopathologist, radiologist and surgeon is required to reach an accurate diagnosis preoperatively whilst sparing the unnecessary massive surgery on the patient.

ACKNOWLEDGEMENTS

We would like to thank Dr. Teo SW and Dr. Haryati for the contributions.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Publishing: **Apr 01, 2018**