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Pathology in Focus

Primary leiomyoma of the thyroid gland

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Abstract
Primary thyroid leiomyomas are rare, and only four cases have been reported to date. This is a report of an additional case of primary thyroid leiomyoma in a 40-year-old male who was admitted with a painless swelling in the right thyroid lobe and underwent subtotal thyroidectomy. The surgical specimen showed a well-circumscribed, greyish-white solid nodule. Histologically, the tumour was composed of spindle cells with blunt-ended nuclei that were arranged with short intersecting bundles.

Immunohistochemical staining revealed reactivity with smooth muscle actin, vimentin and desmin. Histopathologic and immunohistochemical assessments produced the diagnosis of thyroid leiomyoma.

Although primary thyroid leiomyoma is rare, it should be considered in the differential diagnosis of a cold thyroid nodule.

Key words: Thyroid Neoplasms; Leiomyoma

Introduction

Approximately, 12 per cent of leiomyomas occur in the head and neck, and are thought to originate from the walls of blood vessels.[1] Primary thyroid leiomyomas are rare, and only four cases have been reported in the English literature.[2–5]

Herein we reported an additional case of primary thyroid leiomyoma in a male. All of the previous cases were female. Therefore, our patient is the first case of thyroid leiomyoma occurring in a male.

Case report

A 40-year-old male was admitted with a painless swelling in the neck. It was slowly and progressively growing. Physical examination was normal except for a 3×3 cm mass palpated in the right lobe of the thyroid gland. The laboratory examinations (complete blood count, blood biochemistry, thyroid function tests including T3, T4 and TSH) were unremarkable. Fine needle aspiration biopsy was not diagnostic.

Ultrasound and scintigraphic evaluation revealed that the patient had a 3×3 cm cold nodule in the right thyroid lobe, which juxtaposed a cystic area. The patient was operated on and a subtotal thyroidectomy was performed in the right lobe. The patient remained without evidence of recurrence or metastatic disease five years after surgery.

Pathology

Grossly, there was a well-circumscribed, $2 \times 1.5 \times 1.2$ cm greyish-white, solid nodule and $3 \times 2 \times 1.5$ cm colloid-filled cyst. The specimen was fixed in 10 per cent buffered formalin and embedded in paraffin blocks. Sections were stained with haematoxylin and eosin (H & E). Microscopic examination of the solid nodule disclosed a well-circumscribed tumour that was composed of fusiform cells and confined to the thyroid gland (Figures 1 and 2). The fusiform tumour cells, which had centrally located cylindrical nuclei with blunt-ends were arranged with short intersecting bundles. Pleomorphism, mitosis and necrosis were absent. The tumour displayed fibrosis, hyalinization and focal myxoid changes. There were some atrophic follicles scattered in the surrounding stroma, which showed fibrosis and chronic inflammation. Masson-trichrome staining revealed cytoplasmic fuchsinophilia with linear striations. On immunohistochemistry (DAKO, Carpinteria, CA), the tumour cells were positive for vimentin, smooth muscle actin (SMA) (Figure 3) and desmin while they were negative for S-100, CD34 and Factor VIII. Thus, the diagnosis of thyroid gland leiomyoma was made.

Discussion

Primary smooth muscle tumours of the thyroid gland are rare neoplasms, the majority of them being leiomyosarcomas rather than leiomyomas. Both leiomyomas and leiomyosarcomas of the thyroid gland present with neck mass. However, their clinical behaviour is different as the leiomyosarcinoma grow faster than leiomyomas with an unfavourable outcome. A leiomyoma usually presents as a small and well-circumscribed thyroid nodule while its malignant counterpart presents as an invasive mass.[3] Our patient also had a slow-growing and well-circumscribed thyroid nodule.

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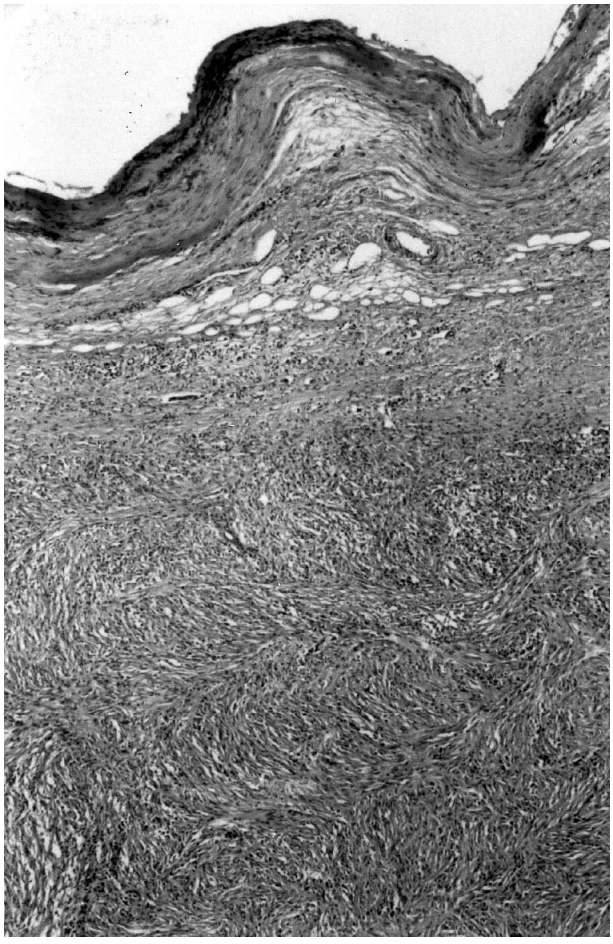

FIG. 1
Leiomyoma of the thyroid including the intersecting bundles (H & E; ×40).

FIG. 2
The tumoral mass of smooth muscle bundles located in the thyroid tissue which also contains follicles (H & E; ×100)

There was no specific finding suggestive for thyroid leiomyoma on clinical assessment. There was a palpable thyroid nodule, which was cold on radioactive iodine uptake scan. Therefore, its diagnosis was made incidentally by histopathologic means after thyroid surgery. On histopathology, the leiomyoma was composed of spindle cells with centrally located cylindrical, blunt-ended nuclei which were arranged with short intersecting bundles. They are well-circumscribed, cytologically bland and amitotic. Immunohistochemical staining showed reactivity with vimentin, smooth muscle actin, muscle specific actin and desmin.[3,6] The histopathologic characteristics and muscle markers positivity were diagnostic for leiomyoma. Our histopathologic assessments were also consistent with these statements. The histological and immunohistochemical features help to differentiate leiomyoma from other benign spindle-cell mesenchymal tumours of the thyroid. The absence of nerve sheath cell markers and CD34 marker rule out the diagnosis of a tumour of the Schwann cell or a solitary fibrous tumour.[6]

Leiomyoma of the thyroid may have a propensity to occur in females, because the four cases reported in the literature were female.[2,3,4,7] One of the previous cases had a history of uterine leiomyomas,[2] which may raise the question of multicentric occurrence.

Leiomyoma of the head and neck region can be treated by simple excision.[7] Since they are encapsulated, they can be dissected easily. In the thyroid leiomyoma, which usually present as a single nodule, it is preferable to perform a subtotal thyroidectomy. Thus, the treatment of choice is surgery. Further treatment is unnecessary. In our case, the patient is disease-free five years after surgery and the prognosis is favourable for leiomyoma. Long-term disease free survival was reported.[3–5]

Conclusion

Primary thyroid leiomyoma is a rare tumour that should be considered in the differential diagnosis of a cold thyroid nodule.

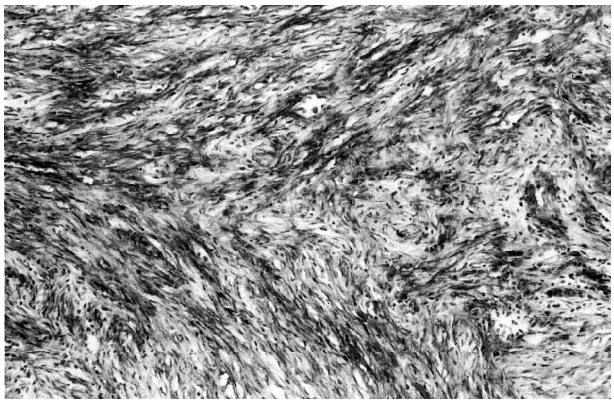

FIG. 3
Note the intense cytoplasmic staining in the tumour cells with smooth muscle actin (SMA ×100).

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- **Primary thyroid leiomyomas are rare. Only four cases have been reported in the surgical literature to date**
- **This paper describes a 40-year-old male admitted with a painless swelling in the neck**
- **Although rare, primary thyroid leiomyoma should be considered in the differential diagnosis of a cold thyroid nodule**

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