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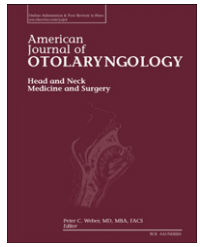

Leiomyoma of the sternothyroid muscle☆

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ABSTRACT

Background: Leiomyomas are benign cutaneous tumors of smooth muscle origin. Only a small percentage of leiomyomas arise in the head and neck region. We present the first case of leiomyoma arising in the sternothyroid muscle of the neck.
Case Report: We analyze the clinical presentation, pathology, and histology for a single case study. The histologic findings of the tumor located in the sternothyroid muscle support the diagnosis of leiomyoma.
Discussion: This is the first case of leiomyoma arising in the sternothyroid muscle, and only the second reported case of leiomyoma in the strap muscles of the neck.
Conclusion: Leiomyoma should be included in the differential diagnosis of soft tissue tumors in the head and neck region. A histological analysis is essential in determining both tumor type and subtype, which will inform the proper course of treatment.

1. Introduction

Leiomyomas are benign, soft-tissue tumors of smooth muscle origin that most commonly arise from the uterine myometrium, gastrointestinal tract, and skin [1]. Leiomyomas account for less than 4% of all benign soft-tissue tumors [2]. These tumors are usually solitary, slow growing, asymptomatic, and appear rounded and well demarcated [1,3].

Only around twelve percent of leiomyomas occur in the head and neck region, and they account for a low percentage of all head and neck tumors [1,4]. The common treatment for leiomyoma of the head and neck is complete surgical

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resection, and recurrence is rare [5]. To the best of our knowledge, we present the first case of leiomyoma arising in the sternothyroid muscle.

2. Case report

A 67-year-old woman with a history of thyroid nodules presented with a firm mass palpable on exam in the right anterior neck. An ultrasound of the neck showed bilateral non-suspicious nodules in the thyroid and a 10 × 7 × 8 mm rounded, hypoechoic right intramuscular lesion with coarse central calcification and no significant vascularity. An MRI of the head and neck showed an oval-shaped lesion measuring 14 × 10 × 10 mm of the sternothyroid muscle to the right of the midline at the level of the thyroid cartilage (Fig. 1). The mass was isointense to skeletal muscle on T1-weighted series and slightly hyperintense to skeletal muscle on T2-weighted series.

A fine needle aspiration was performed with ultrasound guidance and revealed atypical follicular cells with nuclear enlargement and intranuclear inclusions. Due to its presentation as a noncontiguous mass, there was concern that this could be metastatic thyroid cancer and the decision was made to proceed with an excisional biopsy and a possible total thyroidectomy.

An inferior cervical excisional biopsy was performed with removal of the intramuscular mass (Fig. 2A). The tissue specimen was described as a 0.8 × 0.5 × 0.4 cm tan-white calcified nodule (Fig. 2B). Histopathological examination revealed a leiomyoma with calcifications within the skeletal muscle (Fig. 3A). Spindle cells with eosinophilic cytoplasm and blunt ended and elongated nuclei characteristic of leiomyoma were observed upon increased magnification (Fig. 3B). These features, along with a positive caldesmon immunostain (Fig. 3C), supported the diagnosis of leiomyoma with no evidence of malignancy.

3. Discussion

Leiomyomas are benign intramuscular tumors composed of intersecting bundles of mature smooth muscle cells [3]. These lesions may arise in any location with smooth muscle, and are most commonly found in the female genital tract [2]. Leiomyomas of the head and neck are very rare due to the relative absence of smooth muscle in this region, and have been reported to occur in only 1-12% of leiomyoma cases [2–4,6]. Of leiomyomas occurring in the head and neck region, the most common locations include the oral and nasal cavities and the larynx [2]. A review of 257 cases of head and neck leiomyomas found that 92 were located within the cervical esophagus, 58 within the skin of the head and neck, 52 within the oral cavity, 22 within the larynx, 12 within the orbit, 6 within the nasal cavity, and the remaining were within the trachea, salivary glands, paranasal sinuses, thyroid gland, maxilla, and mandible [3]. A comprehensive case review found that upper extremity and head and neck leiomyomas were more frequently found in men, whereas lower extremity leiomyomas occurred twice as frequently in women than men [6]. The peak incidence for this tumor is in the sixth decade of life [5].

Leiomyomas have been divided into the categories of solid (nonvascular) leiomyoma, vascular leiomyoma (angiomyoma), and epithelioid leiomyoma by the World Health Organization (WHO) [7]. The most frequent type is angiomyoma at 74% of cases, followed by solid leiomyoma at 25% and epithelioid leiomyoma at 1% of cases [7]. Leiomyomas of the head and neck region are most commonly of the solid or vascular variants [8]. Morimoto, in 1973, classified leiomyomas into three subtypes based upon histology: capillary or solid, cavernous, and venous [6]. The solid type tumors are characterized by closely compacted and intersecting smooth muscle bundles surrounding vascular channels [6]. Cavernous type tumors consist of dilated vascular channels with small amounts of smooth muscle [6]. Venous type tumors are composed of vascular channels with thick muscular walls and non-compact smooth muscle bundles [6]. A study of 562 cases of angiomyoma found that tumors in the head and neck region were predominantly the venous type and painless, whereas tumors found in the extremities were mainly the solid type and painful [6].

Leiomyomas have also been grouped into the categories of cutaneous leiomyomas, vascular leiomyomas, and deep soft-tissue leiomyomas [2]. Cutaneous leiomyomas are small

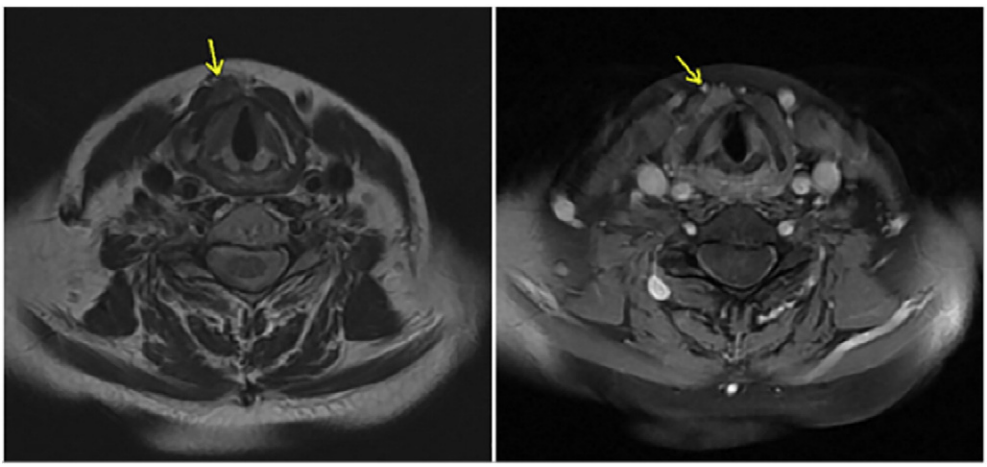

Fig. 1 – MRI of the neck displaying increased uptake in the sternothyroid muscle.