

Superior Thyroid Cornu Osteoma Presented as a Neck Mass

Sara Dragovic¹ , Svetlana Valjarevic^{1,2} , Milan B. Jovanovic^{1,2} 

¹Department of Otorhinolaryngology with Maxillofacial Surgery, Clinical Hospital Center "Zemun", Belgrade, Serbia

²Department of Otorhinolaryngology with Maxillofacial Surgery, University of Belgrade, Faculty of Medicine, Belgrade, Serbia

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ABSTRACT

Osteomas are benign and generally slow-growing, consisting of densely sclerotic and well-defined bones that are typically located in the skull and facial bones. We present a 19-year-old female patient with a painless lump on one side of the neck. Computed tomography was performed with a report of tumor growth in the thyroid cartilage. The patient underwent an external neck approach for excision of the tumor and the histopathological diagnosis confirmed the diagnosis of osteoma. Thyroid cartilage osteomas should be taken into consideration when dealing with a patient presenting with a neck mass.

Keywords: Osteoma, thyroid cartilage, neck mass, superior thyroid cornu, cartilage tumor

Introduction

Osteomas are benign and generally slow-growing, consisting of densely sclerotic and well-defined bones that are typically located in the skull and facial bones.¹ Osteomas have not been encountered in the larynx frequently and represent fewer than 1% of laryngeal tumors. Low-grade chondromas and chondrosarcomas are the most prevalent.² Only 1 case of thyroid cartilage osteoma has been previously reported as difficulty in endotracheal intubation.³ It is generally asymptomatic but is most commonly associated with pain, deformity, dyspnea, dysphonia, or dysphagia depending on which part of the larynx is involved. The preferred diagnostic method is computed tomography (CT), which is important in defining the osteoma's extent and is crucial for planning surgery therapy. We describe a case of histologically proven osteoma incidentally found in the neck, developed from the superior thyroid cornu in an asymptomatic female patient. To our knowledge, the presence of osteoma at this specific localization, in a female patient in adolescence, has not been reported yet.

Case Presentation

An otherwise healthy 19-year-old female was referred to our department for a slow-growing, firm, and non-tender mass

on the left side of the neck. The patient was just concerned about her cosmetic appearance. Clinical examination revealed a hard, subcutaneous, and painless mass superolateral to the larynx on the left neck side (Figure 1). The mass was mobile on swallowing and was about 1 cm in diameter, with no signs of skin inflammation. A contrast-enhanced neck CT demonstrated a well-defined mass measuring 5 × 6 mm located between the upper margin of the thyroid cartilage and hyoid bone on the left side. The density of the mass was similar to the thyroid cartilage, to which it was connected with a thin hyperdense tract (Figure 2). The rest of the clinical examination was within normal limits. Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal. The patient underwent surgery under general anesthesia. The mass was exposed through the thyroplasty-like incision, with an elevation of the subplatysmal flaps and medial retraction of the infrahyoid muscles (Figure 3). Complete removal was achieved by dividing the mass insertion on the superior edge of the thyroid cartilage with a powered instrument (Figure 4). Histopathological examination revealed a hypocellular, avascular cartilaginous tissue with a hyaline matrix, with chondrocytes grouped in lacunar spaces, without cellular or nuclear atypia. The histopathological diagnosis confirmed the diagnosis of

Corresponding Author: Sara Dragovic, e-mail: dr.agovicsara10@gmail.com

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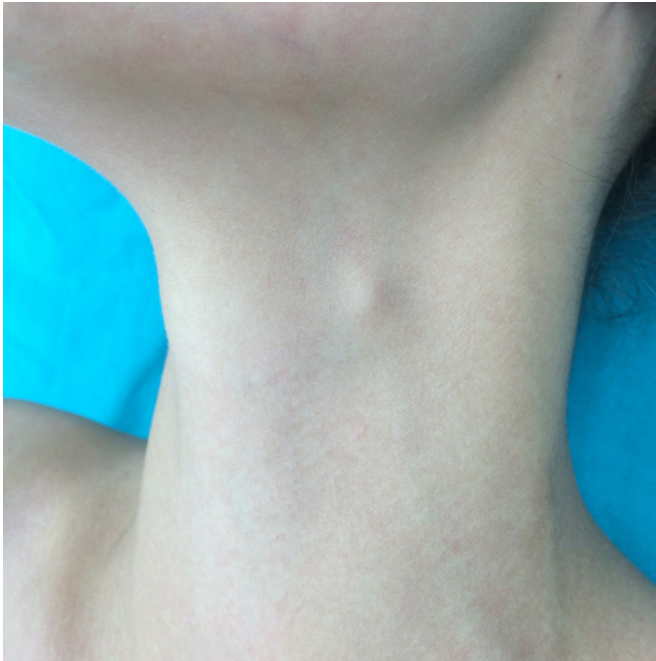


Figure 1. Subcutaneous mass on the left side of the neck.

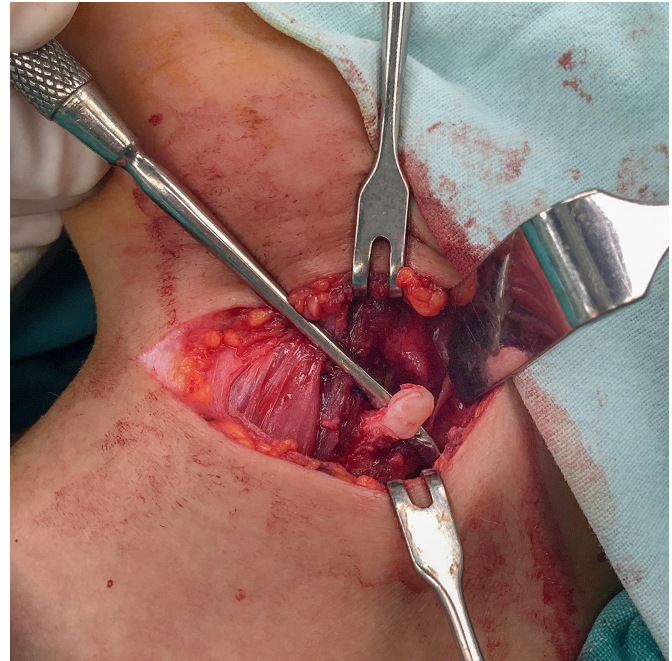


Figure 3. Intraoperative appearance osteoma of the larynx.



Figure 2. A contrast-enhanced neck computed tomography demonstrated a well-defined tumor.

“osteoma.” The post-surgical period was incident-free and the patient was discharged the day following surgery. In follow-up examinations 6 months later, no recurrence was observed. The patient did not report any complaints in the follow-up period.

Discussion

In the head and neck region, osteomas are the most common in the mandible, and then the nose and paranasal sinuses.⁴ One extremely unusual cause of a neck mass is osteoma developed from the hyoid bone, and an extensive literature review revealed only 3 previously documented cases.⁵ Only 1 report



Figure 4. Macroscopic aspect of the tumor, postoperatively.

Main Points

- Thyroid cartilage osteomas should be taken into consideration with a patient presenting with a neck mass.
- Even with a small tumor in the neck, computed tomography should be done.
- Surgical treatment is generally considered for symptomatic patients.
- The external approach preserved the laryngeal function and aesthetically pleasing appearance.

Table 1. Reported Cases of Primary Laryngeal Osteoma

No	Reference	Age	Sex	Site	Clinical Features	Computed Tomography	Surgical Approach	Follow-Up
1.	Batti and Abramson, 2000 ¹	68	Male	Cricoid cartilage	Hoarseness, dysphagia,odynophagia	Demonstrated a dense, calcified lesion arising from the superior aspect of the cricoid cartilage and protruding through the vocal folds into the supraglottis	Direct laryngoscopy with CO ₂ laser	1 year
2.	Redman et al 2000 ³	60	Male	Superior thyroid cornu	Asymptomatic (accidental discovery—difficulty with intubation)	Demonstrated a 1.5 cm calcified mass that originated from the right superior thyroid cornu, extended into the pyriform fossa, and reached the epiglottis, right vallecula, and greater horn of the hyoid bone	Excision biopsy	NA
3.	Karasalihoglu et al 2008 ⁹	87	Male	Epiglottis	Dyspnea, dysphagia, hoarseness	Demonstrated an osteomatous mass involving the supraglottic region	Urgent tracheostomy and laryngomicroscopy	8 months
4.	Angelillo et al 2009 ¹⁰	79	Male	Left false vocal fold	Dysphagia, hoarseness	NA	Direct laryngoscopy with CO ₂ laser	1 year
5.	Presented case	19	Female	Superior thyroid cornu	Painless neck mass	Demonstrated a well-defined mass measuring 5 × 6 mm located between the upper margin of the thyroid cartilage and hyoid bone on the left side	Open surgery	6 months

NA, not available.

on an osteoma that occupied the pharyngeal space and developed from the hyoid bone, and manifested as throat pain.⁶

Laryngeal osteosarcomas usually carry a dismal prognosis and are more frequent than osteomas. Mosalleum et al⁷ performed a thorough review of 25 cases of primary laryngeal osteosarcoma, up until 2015, which was well-documented.

The literature review revealed only 4 cases of osteoma of the larynx (Table 1). They appeared more frequently in the cricoid, especially in the posterior plate, and rarely settle in the thyroid cartilage.

These tumors infrequently appear in the epiglottis because its cartilage is more fibrous than hyaline. The prevalence of osteoma is among males than in females with a 1.3:1 ratio.⁸ The osteoma of the epiglottis, cricoid cartilage, and false vocal fold both are characterized by breathing, speech, or swallowing difficulties depending on the location.^{9,10} We described a young asymptomatic patient with only an aesthetic problem on her neck.

There is still no clear etiology of osteoma. Numerous hypotheses about their origin were reported, but accepted theories suggest embryological, traumatic, or infectious causes. The embryological theory says that such tumors

tend to appear in the merging zones between tissues of variable embryological origin, as a consequence of abnormal growth of embryonic tissue.¹¹ Many believe that trauma is the underlying cause of osteoma, though most patients deny it. Although it is clinically challenging to determine whether the infection is primarily or secondarily associated with the onset of osteoma several researchers continue to support this etiological theory. Nevertheless, they suggest that growth begins on its own and is associated with trauma rather than inflammation. In our case, there hasn't been any trauma or infection history. On x-ray, the hyaline cartilage of the larynx does not become visible until it is ossified or calcified, which is a normal physiological phenomenon in adults.¹² There is a lack of understanding of the mechanisms involved in the mineralization and ossification of the human thyroid cartilage.¹³ Ossification occurs between 18 and 20 years old, also in both sexes. It typically begins at the posterior boundary, the lower margin, and the lower horn of the thyroid cartilage, mostly symmetrically. Next comes cricoid cartilage, arytenoids, and finally superior thyroid cornu. The degree of ossification is greater in men than in women and increases with age in both genders. On the other hand, the superior cornu of the thyroid cartilage in females does not fully ossify,¹⁴ which makes our case unique compared with the previous research and leads us to wonder why it

occurs so early. Consequently, the initially performed conventional radiography was not instructive in our case, so we decided on CT, which is a more accurate diagnostic method. Histologically, we found broad trabeculae of the mature bony matrix in an irregular model.

From a histological point of view, there are 3 types of osteoma: compact, annular, and mixed. Depending on the location of origin, osteomas are categorized into the following 3 types: central, peripheral, and extraskeletal osteoma.¹⁵

Surgical treatment is generally considered the main choice for symptomatic patients. The primary purpose of surgical treatment is to reduce symptoms and prevent further dysfunctions due to tumor growth. Which surgical procedure that is going to be chosen depends on the location of the tumor within the larynx, its extent, and the nature of the complications that exist or are expected to occur. For intralaryngeal osteomas, the most appropriate treatment is microlaryngoscopy in which the tumor is removed by cold steel or with a laser. Besides, open surgery is reserved for more extensive osteomas from the cartilage out of the laryngeal frames. Our surgical approach was open surgery due to evident inaccessibility by transoral resection with preservation of laryngeal function and patient comfort under general anesthesia.

Conclusion

Osteoma must be taken into consideration when a patient has a neck mass. The external approach preserved the laryngeal function of our patient and she was satisfied with the aesthetic appearance.

Informed Consent: Verbal informed consent was obtained from the patient who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

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Declaration of Interests: The authors have no conflicts of interest to declare.

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References

1. Batti JS, Abramson A. First report of a case of osteoma of the larynx. *Ear Nose Throat J.* 2000;79(8):564-566, 568. [\[CrossRef\]](#)
2. Caglar O, Karatag O, Avci A, Dereköy S. An unusual cervical mass in the hyoid bone: intermediate-grade chondrosarcoma. *Case Rep Otolaryngol.* 2019;2019:7170832. [\[CrossRef\]](#)
3. Redman AG, Hide IG, Zammit-Maempel I. Osteoma of the thyroid cartilage--an unusual cause of difficult intubation. *Br J Radiol.* 2000;73(872):899-900. [\[CrossRef\]](#)
4. Boffano P, Rocchia F, Campisi P, Gallesio C. Review of 43 osteomas of the craniomaxillofacial region. *J Oral Maxillofac Surg.* 2012;70(5):1093-1095. [\[CrossRef\]](#)
5. Wooles NR, Jarrar S, Bickerton R. Osteoma of the hyoid: an unusual cause of a neck lump. *BMJ Case Rep.* 2017;2017:bcr-2017. [\[CrossRef\]](#)
6. Hagiwara A, Nagai N, Ogawa Y, Suzuki M. Osteoma of the pharynx that developed from the hyoid bone. *Case Rep Otolaryngol.* 2014;2014:732096. [\[CrossRef\]](#)
7. Mosalleum E, Afrogheh A, Stofberg S, Bezuidenhout AF, Schneider J, Hille J. A review of primary osteosarcoma of the larynx and case report. *Head Neck Pathol.* 2015;9(1):158-164. [\[CrossRef\]](#)
8. Lewis JE, Olsen KD, Inwards CY. Cartilaginous tumors of the larynx: clinicopathologic review of 47 cases. *Ann Otol Rhinol Laryngol.* 1997;106(2):94-100. [\[CrossRef\]](#)
9. Karasalihoglu AR, Tas A, Yagiz R, Yalcin O, Koten M, Kocyigit M. Laryngeal osteoma: a rare cause of the laryngeal obstruction. *Med J Trakya Univ.* 2008;27(4). [\[CrossRef\]](#)
10. Angelillo M, Mazzone S, Costa G, Mazzone A, Barillari U. The first case of osteoma in the false vocal fold. *Auris Nasus Larynx.* 2009;36(2):235-238. [\[CrossRef\]](#)
11. Mali SB. Paranasal sinus osteoma: review of literature. *Oral Surg.* 2014;7(1):3-11. [\[CrossRef\]](#)
12. Salman RA, Kinney LA. Calcified thyroid cartilage. *Oral Surg Oral Med Oral Pathol.* 1990;70(6):806-807. [\[CrossRef\]](#)
13. Kirsch T, Claassen H. Matrix vesicles mediate mineralization of human thyroid cartilage. *Calcif Tissue Int.* 2000;66(4):292-297. [\[CrossRef\]](#)
14. Mupparapu M, Vuppapapati A. Detection of an early ossification of thyroid cartilage in an adolescent on a lateral cephalometric radiograph. *Angle Orthod.* 2002;72(6):576-578. [\[CrossRef\]](#)
15. Gundewar S, Kothari DS, Mokal NJ, Ghalme A. Osteomas of the craniofacial region: a case series and review of literature. *Indian J Plast Surg.* 2013;46(3):479-485. [\[CrossRef\]](#)