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Case Report

A giant parapharyngeal space lipoma ☆

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ARTICLE INFO

Article history:
Received 31 October 2022
Revised 11 November 2022
Accepted 16 November 2022

Keywords:
Lipoma
Giant
Parapharyngeal space

ABSTRACT

Parapharyngeal space (PPS) lipomas are incredibly uncommon. Prestyloid or poststyloid compartments are the only locations for PPS lipomas. Liposarcoma is a crucial differential to rule out. In order to treat PPS lipomas, the required radiological tests, including magnetic resonance imaging, a biopsy of the lesion if that is available, and lipoma removal surgery are all necessary. We intended to describe a unique giant PPS lipoma that affects both prestyloid and poststyloid compartments

Introduction

Only about 0.5% of head and neck tumors are parapharyngeal space (PPS) tumors [1]. The majority are salivary in origin and benign in nature. Despite being the most frequent benign mesenchymal tumors of the head and neck, lipomas are infrequently found in the PPS [2–5]. Other lesions that might be found in this region include metastatic lesions, branchial cysts, neurogenic tumors, and chemodectomas. While bigger lesions are reached with a combination transcervical-transmandibular or infratemporal fossa technique, most PPS lesions are handled transcervically. In this article, we aimed to introduce a rare case of giant PPS lipoma.

Case presentation

A 25-year-old male patient first presented to our hospital due to dysphagia and right face swelling for 4 months. A soft neck mass was clearly seen over the right lateral wall of the oropharynx during ear, nose, and throat examinations, including flexible laryngoscopy. This mass was displacing the tonsil medially and reaching the nasopharynx superiorly. Initial fine-needle aspiration cytology revealed sparse adipose tissue.

Ultrasonography showed a 12 × 5 cm deeply located hypoechoic lesion with well-demarcated margin on the right submandibular region. The lesion contained internal hyperechoic striations resembling those of subcutaneous fat. No vascular-

☆ Competing Interests: None.
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https://doi.org/10.1016/j.radcr.2022.11.039

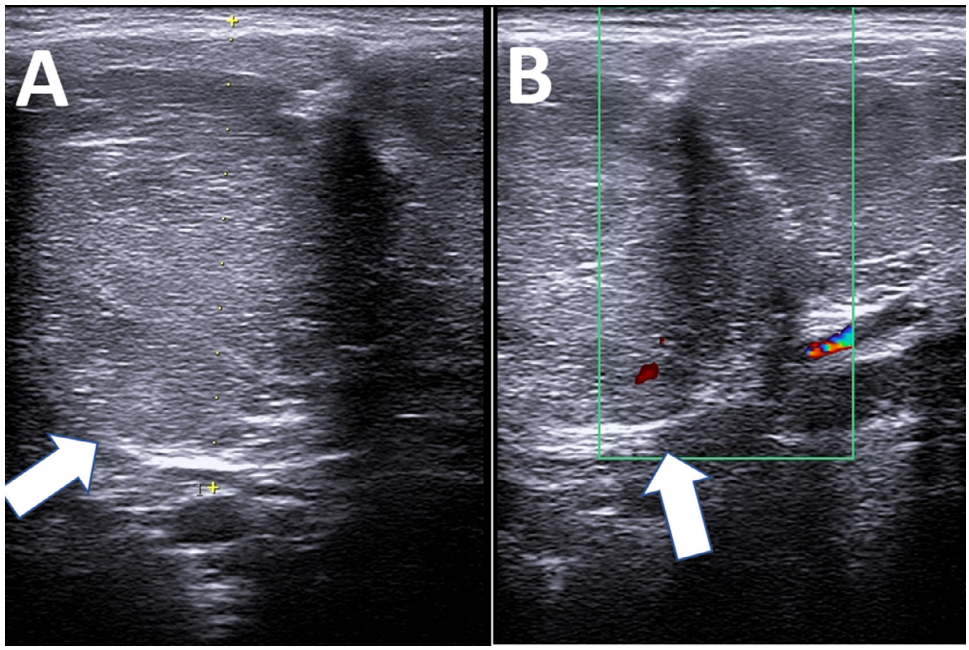

Fig. 1 – (A) B-mode ultrasonography and (B) color-Doppler mode ultrasonography revealed a hypoechoic mass (arrow) with well-demarcated margin on the right submandibular region.

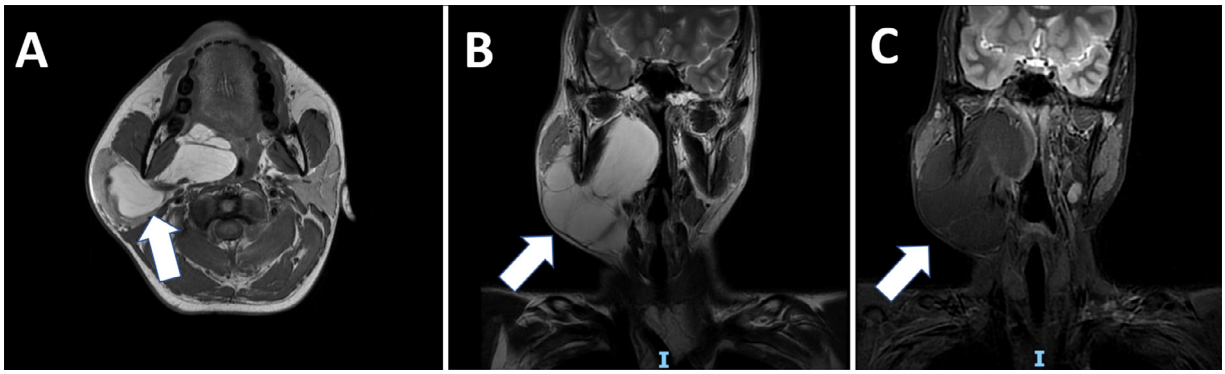

Fig. 2 – Magnetic resonance imaging revealed that the mass (arrow) was hyperintense on (A) axial T1-weighted imaging and (B) coronal T2-weighted imaging but hypointense on (C) fat-suppressed T2-weighted imaging.

ity was detected on color Doppler scan. Oval lymph nodes with preserved fatty hilum and sub-centimeter short axis were seen at bilateral upper cervical regions. Lipoma was the main sonographic finding (Fig. 1). Magnetic resonance imaging (MRI) revealed a 11 × 11 × 8 cm (anteroposterior × craniocaudal × transverse dimensions) well-circumscribed, lobulated mass in the right PPS. The lesion was hyperintense on both T1-weighted imaging and T2-weighted imaging but hypointense on fat-suppressed T2-weighted imaging (Fig. 2). The lesion affected both prestyloid and poststyloid compartments. The apparent diffusion coefficient value of this lesion was 0.6×10^{-3} mm^2/s (Fig. 3). The lesion was of fat signal intensity, with faint fluffy internal enhancing septation but no internal enhancing solid nodule seen, nor frank invasion into the surrounding structures (Fig. 4). The MRI findings were suggestive of a lipomatous lesion. A giant parapharyngeal lipoma was diagnosed based on the overall clinical picture. Eventually, patient adopted surgical excision to eradicate the tumor of PPS. The histopathology findings were lipoma (Fig. 5). The patient was discharged 1 week later without complications noticed.

Discussion

Of 0.5% head and neck tumors are PPS tumors [1]. The greater cornu of the hyoid serves as the PPS's apex, while the skull serves as its base anatomically. It is divided into an anterior prestyloid compartment and a posterior poststyloid compartment by the styloid process. The deep lobe of the parotid or auxiliary salivary tissue, as well as lymph nodes, may be present in the prestyloid compartment, which is a prospective area. The internal carotid artery, internal jugular vein, IX,

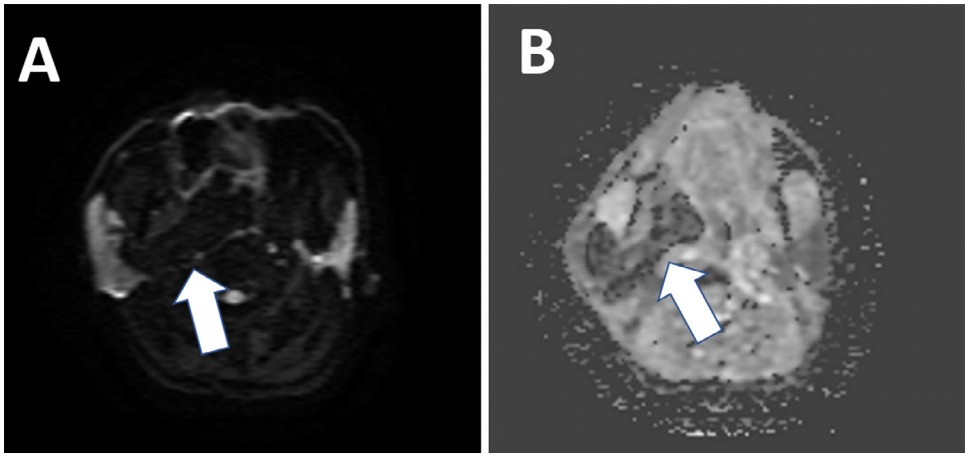

Fig. 3 – Diffusion-weighted imaging revealed that the diffusivity of the mass (arrow) was restricted.

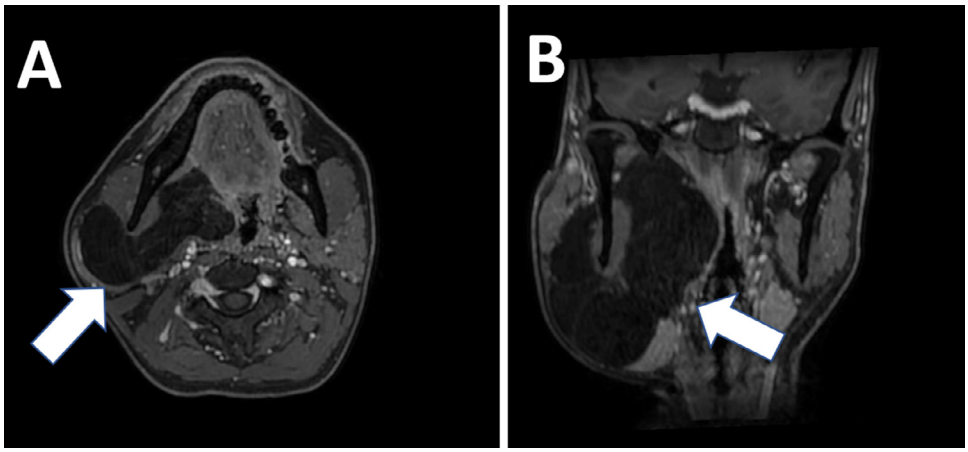

Fig. 4 – Axial (A) and coronal (B) fat-suppressed T1-weighted imaging with contrast enhancement revealed that the mass (arrow) did not absorb contrast agent.

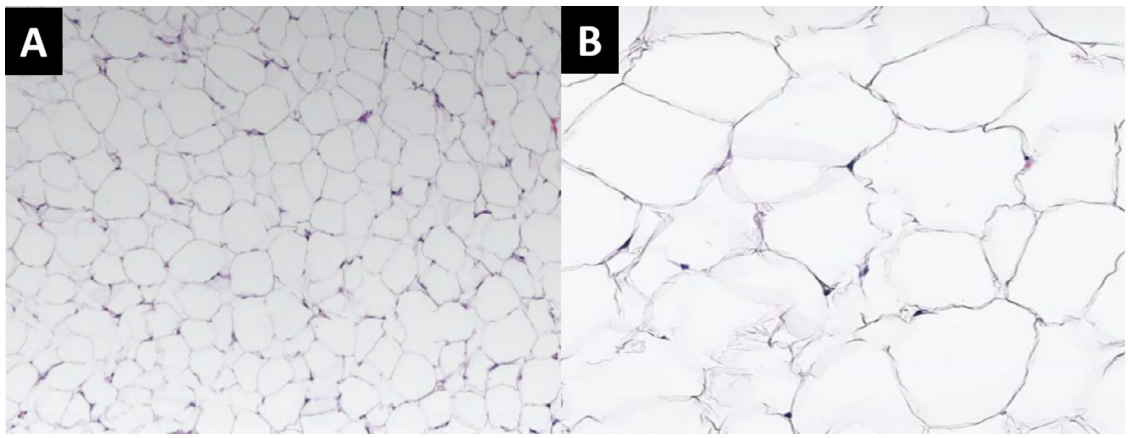

Fig. 5 – Microscopic image showing sheets made of mature adipocytes (H&E staining, magnification ×100 (A), × 400 (B)).

X, and XI cranial nerves, as well as the cervical sympathetic chain, are all located in the poststyloid compartment [2–5].

The most frequent benign mesenchymal tumors are lipomatous tumors, which account for nearly 13% of all head and neck tumors. However, they only make up 1%-2% of the PPS and are typically only found in the prestyloid or poststyloid compartment [3–5]. Thus, the lipoma, affecting both prestyloid and poststyloid compartments, is indeed uncommon. An encapsulated, benign, subcutaneous and submucosal tumor made of fully developed adipose tissue cells is referred to as a lipoma. Most PPS lipomas develop slowly and only exhibit symptoms, such as dysphagia, shortness of breath, and obstructive sleep apnea, when they are exerting mass effects. Otitis media with effusion and conductive hearing loss can occasionally develop as a result of the tumor blocking the Eustachian tube [6,7].

Technically, fine-needle aspiration cytology diagnosis is frequently challenging due to the PPS lipoma's deep-seated nature. Imaging modalities like computed tomography and MRI frequently have an important role. A lipoma appears as a homogeneous, hypodense tumor on a computed tomography scan with no enhancement. In contrast, due to its outstanding soft tissue delineation and multiplanar capacity, an MRI scan is the most suitable imaging modality. On T1- and T2-weighted sequences with internal septations, lipomas show up as hyperintense. Fat-suppressed T1- or T2-weighted sequences produces even more pronounced contrast with the soft tissues around it [2–7].

The preferred choice of treatment is surgical excision. The surgical strategy is determined by the tumor's size, location, and connection to key vessels. The most used technique is a transcervical one, which is ideal for smaller PPS tumors. Larger lesions are typically handled using an infratemporal fossa technique to access the lateral skull base or a combination transcervical-transmandibular route to expose the skull base and lower cranial nerves [4,6,7].

Conclusion

Due to the lack of distinctive symptoms, PPS lipomas are extremely uncommon lesions that are frequently overlooked in the early stages. In addition to being superior in terms of diagnosis, MRI scans are helpful for preoperative planning.

Authors' contribution

Ho Xuan Tuan and Nguyen Minh Duc contributed to write original draft. Cao Minh Tri, Nguyen Anh Huy, and Nguyen Minh Duc contributed to undergo diagnostic procedure, collect, and interpret the imaging. Cao Minh Tri, Nguyen Anh Huy, and Nguyen Minh Duc made substantial contributions to collect patient data and clinical data analysis. All authors have read, revised, and approved the final published version of the manuscript. All authors were responsible for submission of our study for publication.

Ethics statement

Ethical approval was not necessary for the preparation of this article.

Data availability statement

All data generated or analyzed during this study are included in this article and/or its online supplementary material files. Further enquiries can be directed to the corresponding author.

Patient consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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