



## Case report

## Dyspnea and dysphagia associated to hypopharyngeal fibrolipoma: A case report



Marco A. Mendez Saenz, MD, Vicente J. Villagomez Ortiz, MD,  
 Mario Jesús Jr. Villegas González, MD PhD, Baltazar Gonzalez Andrade, MD,  
 Miguel Angel Liñan Arce, MD, German A. Soto-Galindo, MD,  
 José Luis Treviño González, MD PhD \*

Department of Otolaryngology–Head and Neck Surgery, University of Nuevo Leon, Medicine School and University Hospital, Mexico

## HIGHLIGHTS

- There are less than a hundred cases reported in the medical literature.
- It is vital for surgeons and physicians to include this pathology in their differential diagnosis.
- Imaging studies are essential for obtaining clearer diagnostic possibilities.
- Complete surgical resection is needed to prevent recurrence.

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## ABSTRACT

Fibrolipomas are benign lesions conformed by fat and connective tissue, classified as histologic variants of lipomas. They are rarely located in the head and neck and represent less than 0.6% of the benign tumors of the larynx and hypopharynx. Their clinical presentation depends on its location and size. We present the case of a 51-year-old male patient who reported progressive dyspnea, dysphagia and obstructive sleep symptoms with a duration of 3 months, without apparent cause. A pharyngolaryngeal fiberoptic endoscopy showed a smooth, rounded mass in the posterior wall of the hypopharynx, partially obstructing the laryngeal vestibule, creating a valve effect. Complete trans-cervical resection of the lesion was performed after the airway was secured by means of a tracheotomy. The final histopathology report was fibrolipoma. He is currently asymptomatic and without evidence of relapse one year after the procedure.

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## 1. Introduction

Lipomas are the most common benign tumors of mesenchymal origin. Only 15% are located in the head and neck and the vast majority are specifically located in the posterior cervical subcutaneous tissue. They represent approximately 0.6% of benign tumors of the larynx and hypopharynx, and there are less than 100 cases reported [1–3]. They are classified into simple lipoma, fibrolipoma, mixolipoma, chondroid lipoma, angiolipoma,

angiomyolipoma, myelolipoma, spindle cell lipoma, sialolipoma, pleomorphic lipoma and atypical lipoma [4]. The fibrolipoma is a benign lesion classified by the World Health Organization as a histologic variant of lipomas. Its etiology is uncertain, although associated with endocrine imbalances, and its malignant degeneration is extremely infrequent [5–7].

Fibrolipomas have a male-female ratio of 1:1.6, the mean age of onset is 34 years with a range of 3–56 years and its usual location is the buccal mucosa. In the larynx, they are present as slow-growing solitary submucosal nodules, circular or ovoid, and when large in size they may interfere with phonation, breathing and mastication [8,9].

When the masses are located in the hypopharynx and larynx, transnasal fiberoptic endoscopy is a useful tool in the exploration.

\* Corresponding author. Department of Otolaryngology–Head and Neck Surgery, University of Nuevo Leon, Medicine School and University Hospital, Av. Madero y Gonzalitos Colonia Mitras Centro, Monterrey, NL, CP 64460, Mexico.

E-mail address: [jose.trevino@uanl.mx](mailto:jose.trevino@uanl.mx) (J.L. Treviño González).

The most common differential diagnosis are laryngoceles and retention cysts. The Computed Tomography (CT) and the Magnetic Resonance Imaging (MRI) allow physicians to observe the location and extension of the lesion. Surgery is the treatment of choice, either endoscopic or external depending on the size of the mass [10,11].

This paper presents the case of a pharyngeal fibrolipoma, the description of its clinical presentation, the diagnostic and therapeutic approach and a review of the literature.

## 2. Case presentation

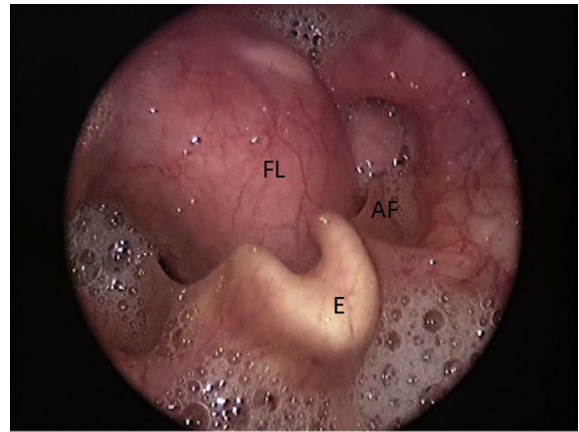
A 51-year-old male born in northeastern Mexico, with a history of occasional smoking, was referred to the Department of Otolaryngology due to dyspnea, dysphagia and obstructive symptoms during sleep, which increased in intensity progressively with a duration of 3 months. During the visit, he reports that the dyspnea is aggravated by a decubitus position and that he has noticed a weight loss of 10 kg in 3 months. In the physical examination the patient was dyspneic and with inspiratory stridor. The oxygen saturation of the patient was 96% and his vital signs were normal. Standard laboratory tests showed a hemoglobin of 14.9 g/dL, white blood cells of 7640/ $\mu$ L, 117 mg/dL of serum glucose, 1.3 mg/dL creatinine and normal liver tests. We decided to perform flexible endoscopy with Karl Storz RP1 fiber and Endodigi Digitization System, finding a smooth, pediculated, rounded mass covered with mucosa from the posterior wall of the hypopharynx. The mass move freely over the laryngeal vestibule, creating a valve effect and causing subtotal obstruction of the supraglottis [Fig. 1].

Radiographic studies were performed before any surgical procedure. The patient underwent an urgent tracheostomy was to secure the airway under local anesthesia. A neck CT scan with iodinated contrast showed, in the visceral space at the posterior border of the right thyroid lobe, a fusiform image with well-defined borders and a heterogeneous density of fat predominance, with partial enhancement to the contrast medium. The tumor was displacing the esophagus discretely to the left, extending superiorly with protrusion through the constricting muscles of the middle and hypopharynx towards the supraglottis, causing a significant decrease in the airway lumen. This lesion measured  $7.8 \times 2 \times 1$  cm in a craniocaudal, transverse and anteroposterior direction respectively. No effacement of adjacent fat planes, vessel invasion or bone erosion was observed. Also, no abnormal lymph node growths were observed [Fig. 2].

We decided to perform a complete tumor resection with a transcervical approach (lateral pharyngotomy) due to the size of the mass. The surgery was carried out by the otolaryngology professors in charge and the team of residents. A subplatysmal flap was performed, and the tumor was observed after the sternocleidomastoid muscle was displaced. The tumor appeared yellowish, encapsulated, lobulated and smooth. It was dissected from the attached middle pharyngeal constrictor muscle after securing the surgical field by laterally displacing the carotid sheath [Fig. 3]. The right lamina of the thyroid cartilage was everted to allow the correct dissection of the tissue. During the dissection the pharyngeal mucosa was accidentally wounded due to its attachment to the tumor and then it was repaired. We placed a Blake drainage and a nasogastric tube before performing the closure by tissue planes.

An irregular shaped 45-g tumor measuring  $8 \times 4 \times 2.5$  cm covered with a fibrous capsule was sent for a histopathologic analysis. The pathological anatomy department performed immunohistochemical markers stains, which were positive for vimentin, negative for synaptofiscina and S-100 positive on isolated cells, reporting fibrolipoma as the definitive diagnosis.

The Blake drainage was withdrawn 2 days after the surgery due



**Fig. 1.** Clinical appearance of the pharyngeal fibrolipoma. It is presented as a mass that protrudes from the posterior wall of the hypopharynx, partially obstructing the supraglottis. FL: Fibrolipoma; E: Epiglottis; AF: Aryepiglottic Fold.

to the lack of secretions. The patient was discharged 11 days after admission without decannulation and fed by nasogastric tube. He returned after 7 days by an inadvertent extraction of the nasogastric tube. A swallowing test mechanism with water-soluble material was performed and showed no evidence of leakage. At the same time, we decided to withdraw the tracheostomy tube to restore the respiratory and normal swallowing function. The patient underwent monthly endoscopic nasolaryngoscopic examinations. One year after surgical intervention, the patient is referred asymptomatic and without evidence of relapse.

## 3. Discussion

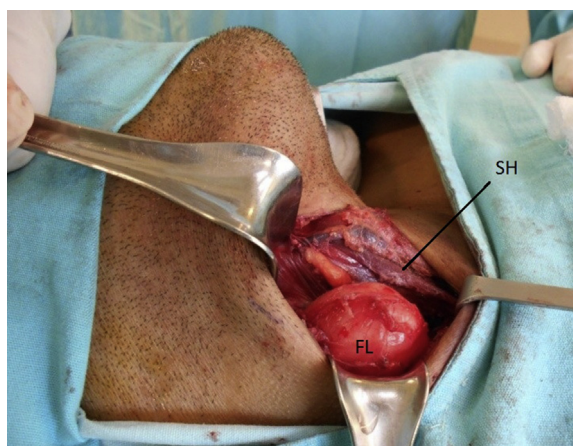
Head and neck fibrolipomas present as solitary submucosal nodules, either circular or ovoid, which form a localized tumor of slow growth, and can grow large enough to interfere with phonation, respiration and mastication. Histologically, it is composed by mature adipocytes with fat-filled cytoplasm and nuclei located in the periphery. Its vascularization is minimal with abundant connective tissue and collagen fibers [12,13]. Intrinsic fibrolipomas are more frequently observed in supraglottis: on false vocal chordae, arytenoepiglottic folding, epiglottis, and arytenoids [14]. Small fibrolipomas may go unnoticed, and may cause progressive dyspnea and dysphagia, sometimes intermittent, sensation of a foreign body in the throat, snoring and obstructive symptoms associated with sleep, and may compromise the airway in a progressive or sudden way [15,16].

In this case, the patient presented symptoms of diurnal and nocturnal airway obstruction with valve effect and difficulty in swallowing due to the large size of the mass.

The macroscopic diagnosis is based on optic fiber transnasal endoscopy. Sometimes it is confused with a laryngocele or a retention cyst. Imaging techniques such as the CT and MRI allow us to observe the location and determine the extension of the fibrolipoma and even the insertion site of the pedicle, through the multiplanar cuts. Typically, in a CT scan, the tumor is observed homogeneous with a lower density than water. In the magnetic resonance, it is observed as a normal fat pattern, hyperintense in the T1 sequence and in the T2 sequence with an intermediate intensity. If the diagnosis is not clear, a MRI with fat suppression sequence can be performed to identify the mass [16,17]. In this specific case, where the airway is compromised, a CT scan would be more efficient for being faster than the MRI. Microscopically, the diagnosis is made by histopathology, showing the tissue



**Fig. 2.** Contrast-enhanced CT scan showing the lipoma of the pharyngeal space and retro pharynx that almost completely obliterates the airway. A: Sagittal section B: Coronal section.



**Fig. 3.** Neck dissection showing a clear, smooth, encapsulated and regular-bordered tumor that protrudes as the sternocleidomastoid muscle is displaced laterally. FL: Fibrolipoma; SH: Sternohyoid muscle.

characteristics described above.

As the literature states, we made the macroscopic diagnosis by performing a fiberoptic transnasal endoscopy as well as an iodinated contrasted CT scan to identify the localization and extension of the mass. After the complete resection of the tumor, a histopathologic analysis of the specimen was executed to state the specific diagnosis: fibrolipoma.

Surgical resection is the standard treatment. However, the approach for the surgical intervention is controversial. Some authors recommend conservative endoscopic surgery when a small lesion is present, whereas for larger masses (>2 cm in diameter), the external approach is preferred by lateral pharyngotomy, laryngofissure or subhyoid pharyngotomy [17,18].

In the present case, an external approach was decided as the best surgical approach. A lateral pharyngotomy was performed due to the diameter and location of the mass, as the literature states. The assurance of the vascular and nervous structures of the neck and larynx was an essential role during the surgery. The surgeon should assure a complete removal of the tumor to prevent relapses,

although malignant degeneration is uncommon. This case report was reviewed and accepted by the local ethical committee with the approval code PI16-00346.

#### 4. Conclusion

We suggest conducting the exploration by following a methodological sequence of a diagnostic plan for a better approach of these types of masses. Endoscopy of upper digestive airway is essential for the direct observation of the tumor and the anatomical structures that it compromises. Imaging studies are indispensable to identify the location, size and extent of these neoplasms and thus plan their surgical approach.

This work has been reported in line with the SCARE Criteria [19].

#### Ethical approval

Ethical Approval was given by the local Ethical committee with the registration code: PI16-00346.

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#### Author contribution

Marco A. Mendez Saenz: Data collection and analysis, writing. Vicente J. Villagomez Ortiz: Data collection, patient care. Mario Jesús Jr. Villegas González: Data collection, patient care. Baltazar Gonzalez Andrade: Data collection, patient care. Miguel Angel Liñan Arce: Data collection, patient care. German A. Soto-Galindo: Data collection, writing, editing and submission.

José Luis Treviño González: Data collection and analysis, patient care, writing, editing and submission.

#### Conflict of interests

The authors declared no potential conflicts of interest with

respect to the research, authorship, and/or publication of this article.

#### Trial registry number

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José Luis Treviño González MD PhD.

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