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Surgical Removal of a Huge Epiglottic Lipoma: Case Report

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Abstract

Background: Lipoma is a very rare benign tumour of upper aero-digestive tract with less than 115 cases described in the English-literature. They account for approximately 1% of benign tumours of the larynx and oro/hypopharynx. The symptoms are variable including progressive horseness, dysphagia and even severe dyspnea which can sometimes be life-threatening. The clinical presentation of lipoma is important particularly during the induction of general anesthesia, for they can cause unpredictable airway obstruction. Surgery is the treatment of choice which includes endoscopic techniques, microscopic laryngeal surgery and external surgical approach (cervicotomy). However, a standard surgical management for large lipomas of the epiglottis has not been present yet. In this article, we present a case report of a huge lipoma of the epiglottis successfully treated with tracheotomy and external surgical approach—cervicotomy with hyoidthyroidpexy without sacrificing any laryngeal structure. **Case Presentation:** We present a case of a 54-year-old female with a huge lipoma on the lingual surface of the epiglottis that extends upwards to the level of the left aryepiglottic fold narrowing the pyriform sinus, making impossible for our anesthesiologist the glottic visualization and the orotracheal intubation. Following a tracheotomy, the endoscopic and microscopic surgery approach was inadequate to manipulate the epiglottic lipoma. Instead, we performed macroscopic external surgery (cervicotomy with hyoidthyroidpexy) in which the epiglottic lipoma was pulled into the endolaryngeal window with forceps and then dissected from the surrounding tissues "in toto". **Conclusion:** Despite epiglottic lipomas are rare and benign, they are important because of being potential cause of laryngeal obstruction. Surgery is the treatment of choice and different procedures are able to manage it. The external surgery approach—cervicotomy with hyoidthyroidpexy after tracheotomy enabled the huge lipoma to be extirpated without leaving any remnants or causing excessive laryngeal damage.

Keywords

Epiglottis, Lipoma, External Surgical Management, Hyoidthyroidpexy

1. Introduction

Lipomas, which represent 4% - 5% of all benign tumours of the body, mostly occur where subcutaneous fat tissue is more abundant, but occurrence in the ENT districts (head and neck) is rare [1] [2]. They account for approximately 1% of benign tumours of the larynx and oro/hypopharynx [3]. Less than 115 cases have been described in the English-language literature, and most of them are isolated cases and not associated to systemic lipomatosis [4] [5] [6]. Lipomas in the larynx might be the cause of severe dyspnea which can sometimes be life-threatening especially if it occurs during general anesthesia induction [7]. Surgery is the treatment of choice and includes endoscopic techniques, microscopic laryngeal surgery and external surgical approach (cervicotomy) [8] [9] [10]. Instead of microscopic surgery, macroscopic surgery has been a management of choice to approach huge epiglottic tumors via external cervical incisions since the size of tumor restricts visualization of the operating field under the endoscope or microscope [5] [11]. However, a standard surgical management for large lipomas of the epiglottis has not been present yet [8]. We present a case report of a huge epiglottic lipoma successfully removed through tracheotomy and cervicotomy followed by hyoidthyroidpexy without sacrificing any laryngeal structure.

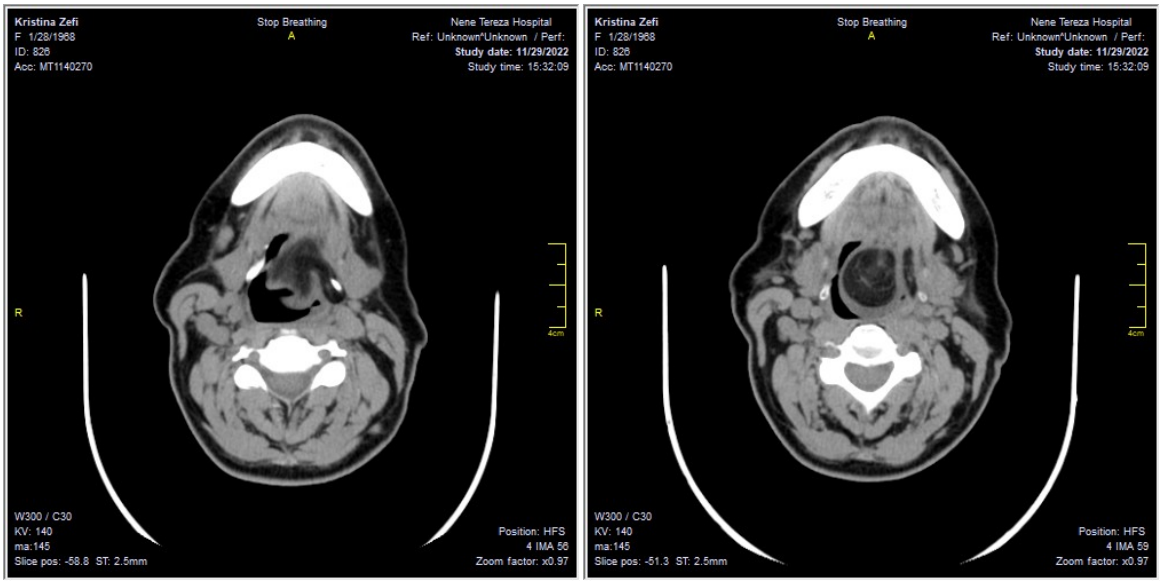
2. Case Report

The patient was a 54-year-old female who referred to Mother Theresa Hospital of Tirana, Albania. She had an increasing six months simptomatology of throat discomfort, dysphagia and dyspnea (lately on exertion). Physical examination disclosed no cervical lymphadenopathies. Patient case records showed no family and medical history, no history of drug consumption, cigarette smoking or alcohol abuse. Patient was unemployed and her BMI was about 31 and that suggested for a sedentary lifestyle.

Direct laryngoscopy revealed a huge, round mass covered with smooth, non-haemorrhagic mucosa. This lesion was between the base of the tongue and epiglottis. It occupied about 80-90% of the oropharyngeal opening, consequently the hypopharingeal space could not be visualized.

A computed tomography (CT) scan of the head-neck revealed a well circumscribed very low density mass in dimension of 34.7 × 30 mm with a wide base on the lingual surface of the epiglottis which extended upwards to the level of the left aryepiglottic fold narrowing the pyriform sinus highly suggestive of lipoma (**Figure 1(a)**, **Figure 1(b)**).

Considering its potential to obstruct the supraglottic airway, the tumor was



(a) (b)

Figure 1. (a) Axial contrast-enhanced CT scan showing the deformation of epiglottis and the close contact with the base of tounge. (b) Showing an encapsulated lesion, measured approximately 34.7 × 30 mm, occurring in the lingual surface of epiglottis.

immediately treated by surgical intervention.

Due to the large size and the site of this lesion, our anesthesiologyst could not visualize the glottic space, thus we performed a tracheotomy on the conscious patient prior to inducing general anesthesia. The tracheotomy was performed between second and third tracheal ring below the thyroid isthmus.

Because of the impossibility of performing the microscopic surgery, it was decided to proceed with macroscopic external surgery approach (the same approach as in horizontal supraglottic laryngectomy).

A horizontal 6 cm skin incision was made at the level of thyrohyoid membrane of the neck. The incision is extended through subcutaneous tissue and platysma muscles. Skin flaps was raised superiorly and inferiorly. Dissection was carried through the midline of the strap muscles to expose the plane of the thyroid cartilage and the surface of the hyoid bone. Following exposure, a transverse incision 3 mm below the laryngeal incisure through the lamina of thyroid cartilage was made to visualize endolarynx. The epiglottis was exposed and the tumor was pulled into the endolaryngeal window with forceps and then dissected from the surrounding tissues with cold instruments "in toto". The encapsulated removed mass was intact (**Figure 2**) and sent for pathological examination.

The huge mass extended the free margins of the epiglottis and in order to remove the mass "in toto", one of the margins was damaged while being pulled on which was immediately reconstructed with absorble sutures Vicryl 4-0. Afterwards the hyoid bone was separated from the hyoglossus, stylo-hyoideus and styloglossus muscles to perform hyoidthyroidpexy with 4 sutures Vicryl 0-0 (**Figure 3**).

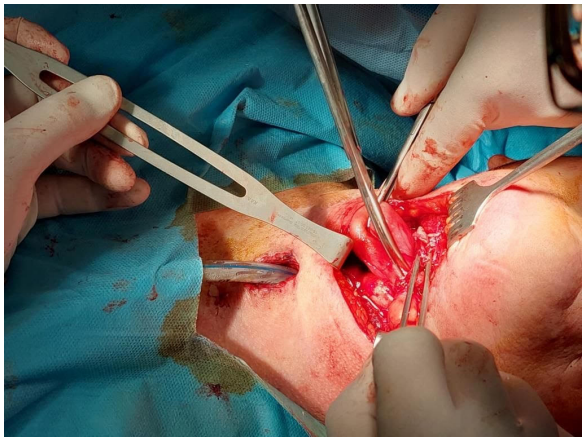


Figure 2. The intraoprative appearance of the tumor.

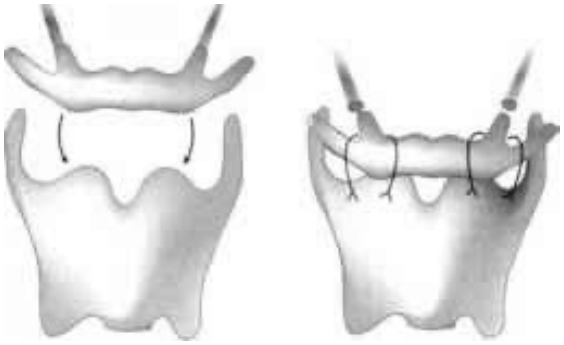


Figure 3. Illustration of hyoidthyroidpexy.

A final surgical step was the reapproximation of the strap muscles in the midline and the insertion of the tracheostomy tube, the naso-gastric feeding tube and the suction drainage. Skin was closed with intradermal sutures.

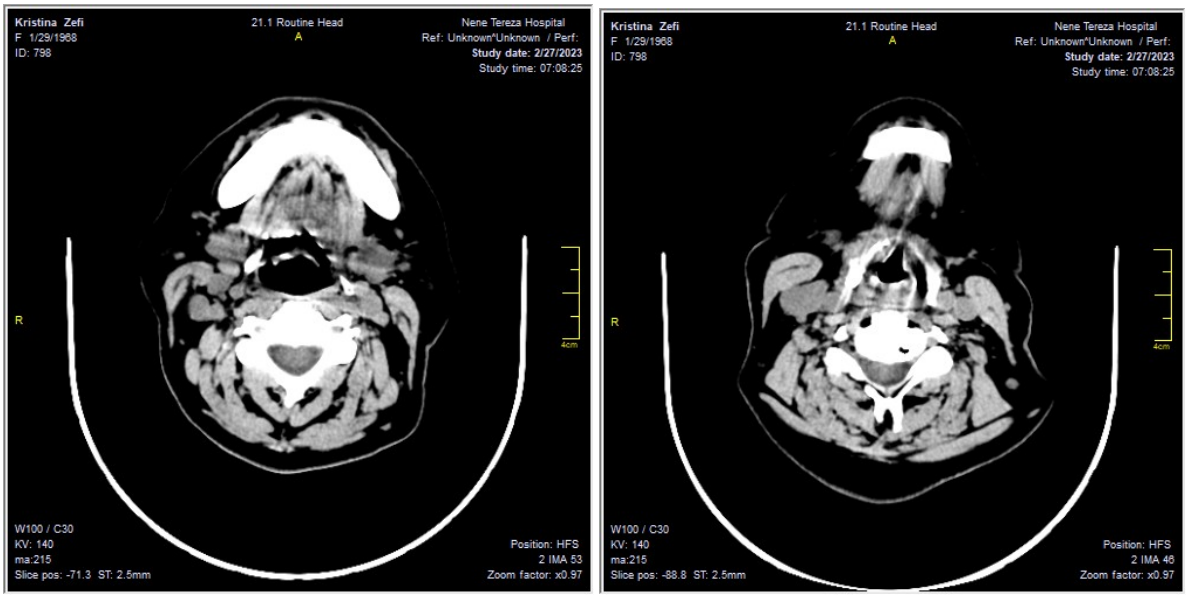
Anatopathological exam showed the diagnosis of fibrolipoma. The tumor was composed of mature lipocytes characterized by a significant fibrous-connective component.

Early after surgery, in recovery room the patient voice was normal. The treatment plan included Ceftriaxone 2 gr IV in combination with Metronidazole 500 mg, Omeprazole 40 mg IV and Paracetamol 500 mg in case of pain. No complications occurred during the post-operative period. The drainage tube was removed after 2 days. Once swallowing rehabilitation was successfully achieved and the oral intake had been restored, the naso-gastric feeding tube was removed on the 7th post-operative day. On the 10th post-operative day, the tracheostomy tube was removed, the tracheostomy closed and the patient was discharged from the hospital.

Follow-up endoscopy and CT-scan at 3 months showed no recurrence (**Figure 4(a)**, **Figure 4(b)**).

3. Discussion

Lipomas as benign, slow-growing primary mesenchymal tumours, are the most



(a) (b)

Figure 4. CT scan of the neck at 3 months follow-up.

common benign tumors in humans and represent 4% - 5% of all benign tumours in the body [12].

They have been identified everywhere in the body. However, it has been estimated that only 15% - 20% of them occur in the head and neck region and only 1% - 4% in the oral cavity [13]. Lipomas have a male-to-female ratio of 5:1 and although have been identified in all age groups, these lesions usually appear between 40 and 60 years of age [2].

An epiglottic lipoma may originate from adipose tissues in the preepiglottic space, which is situated under the lingual surface of the epiglottis and similar to our reported case, epiglottic lipomas almost always occur on the lingual surface; rarely on the laryngeal surface of the epiglottis where adipocytes are absent [14] [15]. According to their location they can be life-threatening, either as benign lesions.

Morphologically, oral lipomas may be sessile or pedunculated, and thus can be presented with symptoms like: dysphagia, dysphonia, acute airways obstruction, hoarseness, snoring, excessive accumulation of salivary secretion, voice alteration, paroxysmal cough and sensation of a foreign body presence in the throat [16] [17]. Authors have reported a few cases of pedunculated lipoma at the region of epiglottis, posterior cricoid and aryepiglottic fold causing laryngeal obstruction leading to sudden death. The sessile lipomas seem to be asymptomatic but also can cause obstructive symptoms such as dysphagia and stridor when they increase in size [18]. Our patient had increasing dysphagia for six months, indicating that the lesion was slow-growing. Later, it was large enough to occupy 80% - 90% of the oropharyngeal space.

The true etiology of lipomas remains imprecise. Congenital lipomas have been observed in pediatric age [19]. Some lipomas are believed to have developed due

to blunt trauma [20]. Some authors in 2017 have concluded that estrogen and progesterone cannot be an impact factor of the pathogenesis of soft tissue lipoma. They recognise angiogenesis as an essential factor for the occurrence of lipoma [21]. Otherwise, some studies associate lipomas with several inherited disorders, including multiple lipomatosis, Gardner syndrome, and Madelung disease, but mostly it is believed that their occurrence icsporadic [21] [22].

It is well known that intrinsic lipomas which affect ENT districts are very rare and usually occur as isolated and encapsulated masses, similar to our case [23]. They can be located in regions where fat is represented as subepithelial tissue, such as in aryepiglottic folds, false vocal cord (rarely in true vocal folds) and epiglottis [24].

Clinically lipomas should be differentiated from other benign lesion such as retention cyst or laryngocele [7] [25]. Histologically, these masses are believed to develop from multipotential fibroblasts that differentate into fat cells, similar to normal cells, and form a lipoma. The fat cells found in a lipoma are usually uniform, varying slightly in size and shape [26]. Microscopic examinations have revealed secondary changes such as haemorrhage, fat necrosis, calcification, cyst formation, fatty necrosis and heart attack [27]. Several subtypes of lipoma have been observed. They include fibrolipomas, myxolipomas and angiolipomas [5]. Fibrolipoma was the subtype described in the data of our reported case. Benign lipomas can be distinguished from well-differentiated liposarcomas because of the absence of lipoblasts and hyperchromatic nucleus [28]. Only 30 cases of laryngeal liposarcomas have been reported in the literature [29].

Diagnosing hypopharyngeal lipomas has been easy through imaging exam [30]. The preoperative imaging is obtained by using the computerised tomography or magnetic resonance imaging. Adipose tissue is low valued in the CT, and it is the only type of soft tissue with lower density than water. Though, CT not only identifies tumor extension, but also it establishes its lipomatous nature. However, MRI is the preferred technique since it provides better definition of lipoma margins and better visualization of laryngeal musculature [6]. Our patient could not afford to undergo MRI, and it was not performed.

In the case we report, epiglottic lipoma was highly suspected on endoscopic examination. Moreover, it it was large enough to disturb the visualization of the glottis. Upon CT examination, our lesion was presented as an encapsulated, sessile retention-cyst-like, 34.7 × 30 mm mass, covered by pinkish-yellowish normal mucosa.

Little information is avaible about how well the epiglottic cartilage tolerates the pressure of being pulled on. In addition, we know that the epiglottis is constructed of an elastic cartilage which has both deformability and sufficient tensile strength. In the current case, we caused a fairly small loss of the continuity of one the free margins of epiglottis while pulling it into the endolaryngeal window and trying to remove it "in toto" (**Figure 4(a)**). This did not interfere in the function of the cartilage.

Treatment of pharyngeal and laryngeal lipomas is the complete surgical excision, as incomplete removal would result in higher chances of recurrence [31]. Left untreated, lipomas can be life-threatening; cases of sudden airway obstruction have been reported [21].

The most appropriate surgical management remains controversial. The options for excision are via endoscopic or external approach depending on the site, size, vascularity and submucosal growth. Some authors advocated endoscopic removal of lesion, with a cold-cutting electrosurgical or CO_2 laser. This approach is useful in small, pedunculated tumors [7] [16] [26] [32]. Where as larger of more than 2 cm, submucosal, non-pedunculated tumors, should be removed via an external approach using thyrotomy, transhyoid, subhyoid or lateral pharyngotmy [7] [8] [16] [33] [34].

Our mass was submucosal, not pedunculated, measured almost 4 cm, and therefore we decided to use cervicotomy with hyoidthyroidpexy to extirpate the lipoma "in toto" for a good exposure without causing any laryngeal damage. Our anesthesiologist was unable to intubate the patient so the tracheotomy was indispensable. Furthermore, the tracheotomy provided an increased area for surgical manipulations because it allowed the oral and the laryngeal cavity to be free of a tracheal tube.

Since lipomas can relapse, long-term follow-up for several years is mandatory [6] [32] [35].

Three months after surgery, the patient shows no evidence of recurrence.

In this case report we underline the contribution of external surgical approach with hyoidthyroidpexy in the excellent results in terms of functionality and radicality. Future research may be needed to highlight the risk factors of lipoma not known yet.

4. Conclusion

Lipoma is a very rare tumour of upper aero-digestive tract. Epiglottic lipomas despite being benign tumors they need a certain attention for being a potential cause of laryngeal obstruction. Surgery is the treatment of choice and different procedures are able to manage it. The appropriate surgery strategy is difficult to choose. It is based on several characteristics of lipoma (site, size, vascularity, submucosal growth) and imaging exams. In our patient, the tumor was quite large, so we performed the external surgery approach—cervicotomy with hyoidthyroidpexy after tracheotomy to extirpate the huge lipoma "in toto" without leaving any remnants or causing excessive laryngeal damage.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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