Case Report
A well-differentiated liposarcoma of the larynx: case report and literature review

Dan Lu*, Hao Xiao*, Hui Yang, Fei Chen, Jun Liu

Department of Otorhinolaryngology, Head & Neck Surgery, West China Hospital, Sichuan University, Sichuan, China. *Equal contributors.

Received July 26, 2016; Accepted October 9, 2016; Epub February 1, 2017; Published February 15, 2017

Abstract: A 75-year-old man presented with a 5-month history of progressive hoarseness and dyspnea. An encapsulated and pedunculated mass was located in his right aryepiglottic fold. The mass was resected completely using suspension laryngoscopy with laser. Postoperative histopathology diagnosed a well-differentiated liposarcoma. Although the prognosis for these tumors is good, a long-term follow-up is necessary because there are a few reports in the literature indicating recurrence. Our case experienced no complications or recurrence after 1 year. To our knowledge, only one case of well-differentiated liposarcoma arising from the larynx has been reported in English from China. Here, we report a case with differences in gross morphology and surgical method.

Keywords: Well-differentiated liposarcoma, laser resection, surgery

Introduction

Liposarcomas are the most common soft tissue sarcomas in adults. They are always seen in the lower extremities and retroperitoneal region, and the well-differentiated liposarcoma of the larynx is extremely rare, with less than 40 cases of laryngeal liposarcomas reported to date. Here, we present a case of a well-differentiated liposarcoma that developed in the right aryepiglottic fold of a 75-year-old man with progressive hoarseness, dysphagia, and dyspnea for 5 months. To our knowledge, only one case of well-differentiated liposarcoma arising from the larynx has been reported in China [1]. That case was unencapsulated and total laryngectomy was performed; however, this case was encapsulated and pedunculated, which is unusual.

Case report

A 75-year-old man was admitted to our hospital with the complaint of a 5-month history of progressive hoarseness and dyspnea. Specifically, he complained about choking and experiencing dyspnea more seriously when lying down; he slept in an upright position for 2 months to avoid dyspnea. He also felt dysphagia when swallowing food. There was no associated pain or weight loss. His medical history revealed no abnormalities; he was a smoker and an occasional drinker for more than 50 years. His general health was not affected and no cervical lymph node swelling was noted. Laboratory tests revealed normal blood cell counts. A flexible fiber-optic laryngoscope examination revealed a 3 cm yellow, ovoid, pedunculated mass with a smooth mucosal surface from the right aryepiglottic fold. The mass occluded the glottic airway intermittently in a ball-valve manner when breathing because the vocal cords were blocked (Figure 1A). A computed tomography (CT) scan showed a 3.0 cm × 3.0 cm × 2.0 cm tumor, which reduced the airway patency, and a predominantly fat-density mass located in the right aryepiglottic fold with heterogeneous contrast enhancement (Figure 1B). We performed a preoperative biopsy and the primary diagnosis was nerve fibroma with myxoid change. Because the large laryngeal mass ruled out intubation, a preventive tracheotomy was performed and then we removed the mass with a transoral CO₂ laser using suspension laryngoscopy with complete macroscopic resection. Grossly, the pathologist described the tumor as being smooth, gray, ovoid, and measuring 3.0 cm × 3.0 cm × 2.0 cm (Figure
A well-differentiated liposarcoma of the larynx

Immunohistology showed that the tumor cells were positive for MDM2, S-100, P16 and Calretinin. The Ki67 proliferation index was less than 1%. Postoperative histopathology identified a well-differentiated liposarcoma (Figures 2, 3). There were no complications during or after surgery. His obstructive symptoms improved postoperatively and he was discharged from hospital on the fifth postoperative day. His laryngeal cavity was found to be smooth and sufficiently large, and the tracheal cannula was removed after 4 weeks. The 1-year follow-up showed no recurrence or metastasizes.

Discussion

Liposarcomas are malignant mesenchymal neoplasms that arise from adipose tissue. The World Health Organization classified liposarcomas into four subtypes: well-differentiated, dedifferentiated, myxoid/round cell, and pleomorphic liposarcomas. The well-differentiated type is the most common (40%-45%) [2]. Liposarcomas commonly occur in the deep regions of the limbs and the retroperitoneum. Only 3%-8% of liposarcomas occur in the head and neck region, and only about 100 cases of head and neck liposarcoma have been described in the literature. Of this small proportion, less than 40 cases of well-differentiated liposarcoma of the larynx have been reported in the English-language literature [3], and 75% of these cases were supraglottic [4]. Herein, we present the first case from China of a well-differentiated liposarcoma with a pedicle located in the right aryepiglottic fold, which was treated with suspension laryngoscopy and transoral CO2 laser resection.

Liposarcomas occur mostly in adults aged 40-60 years, exhibit a male preponderance, and usually appear as well-circumscribed, palpable, slow-growing, and painless masses. Its etiology includes trauma, genetic attributes, radiotherapy, and irradiation [3]. Smoking has been suggested as an environmental factor in the development of this neoplasm. The clinical signs of liposarcoma of the larynx may be asymptomatic or have nonspecific symptoms, including dysphagia, dyspnea, dysphonia, choking, snoring, or airway obstruction [5], and the duration of symptoms always varies from 3 to 6 months. In the present case, the patient had dysphagia, dyspnea, and dysphonia for 5 months because the tumor caused compression of the vocal cords and glottis.

On a CT scan, well-differentiated liposarcomas always show a heterogeneous mass, which is mostly low density with a partial isodensity. However, magnetic resonance imaging (MRI) is more effective than CT for the detection and
A well-differentiated liposarcoma of the larynx

diagnosis of well-differentiated liposarcomas. On MRI, well-differentiated liposarcomas often show only slight or no enhancement, with septations or nodules that are hypointense in T₁- and T₂-weighted images. In our case, we performed only CT and did not plan MRI because the lesion was well defined on CT and laryngoscopy, and the preoperative biopsy showed that it was not a malignant mass.

Accurate preoperative diagnosis may be difficult because well-differentiated liposarcomas can be histologically confused with lipomas and myxoid chondrosarcoma [6]. In the histologic examination, well-differentiated liposarcomas usually contain atypical lipocytes with varying sizes, scattered atypical spindle and satellite cells, and occasional lipoblasts with bizarre nuclei. In addition to genetic and immunostaining techniques, analytical techniques can help diagnose the positive expression of MDM2, which is a highly specific marker for well-differentiated liposarcoma [7]. In our case, the immunohistochemistry for MDM2 is positive.

Surgery is well established as the first-line treatment for liposarcomas. A wide radical resection of the tumor is recommended; however, this surgery is difficult because of the anatomy of the larynx, especially when the tumor is large [8]. Many approaches have been proposed to reduce the impact of the surgery on the patient’s quality of life, such as transoral [4], transcervical, transparotid, and endoscopic surgical approaches. The endoscopic approach with suspension microlaryngoscopy and CO₂ laser resection plays an important role in management of the hypopharynx and larynx [9], which has low or no morbidity, and

---

**Figure 2.** Histological appearance of the tumor. **A.** Hematoxylin-eosin, ×40. **B.** Hematoxylin-eosin, ×100. **C.** Hematoxylin-eosin, ×400.
A well-differentiated liposarcoma of the larynx

patients can recover their oral nutrition in a very short time. However, the disadvantage of the technique is insufficient to guarantee the surgical margins pathologically. Routine regional lymph node dissection is not recommended because node metastases of head and neck liposarcomas are quite rare. The role of radiotherapy remains unclear in larynx liposarcomas, which could play a role in the inoperable progressive forms and incomplete resection. To date, no study has demonstrated conclusive evidence supporting chemotherapy in the treatment of liposarcoma. In our case, a pedunculated and well-differentiated liposarcoma was removed using suspension microlaryngoscopy and CO₂ laser resection. The final pathologic examination determined that the surgical margin was clear and no further therapy was performed.

Wenig et al [8] reported that adequate surgical excision of the tumor tends to be curative; however, incomplete excision leads to an increased risk of local recurrence at a rate of 30%-50% in well-differentiated liposarcomas. Fahmy et al [10] reported that the average time between excision and recurrence was 69 months; however, the longest time for recurrence of well-

A well-differentiated liposarcoma of the larynx

differentiated liposarcoma was 26 years after the initial presentation [6]. Therefore, well-differentiated liposarcoma requires a long-term follow-up due to the recurrence risk. Nascimento et al [11] reported that there is no metastatic potential in cases of well-differentiated liposarcoma, which almost never metastasizes to regional lymph nodes [7, 12], and the 5-year survival rate was 75%-100% [12]. No recurrence has been observed in our patient over 1 year since the surgery.

**Conclusion**

Well-differentiated liposarcoma in the larynx is extremely rare. It should be considered within the differential diagnosis of a recurrent soft tissue lesion of the larynx. CT and MRI have positive implications for diagnosis and surgical approach. The treatment of choice is surgery with large safety margins because there may be rare node metastases of head and neck liposarcomas, and routine regional lymph node dissection is not recommended. Radio-and chemotherapy are not recommended for well-differentiated liposarcoma. In the presented case, the CO₂ laser removal of a sizeable liposarcoma was recommended, but long-term clinical monitoring is necessary.

**Acknowledgements**

This work was supported by research grants from Sichuan province science and technology development plan item (2012FZ0014).

**Disclosure of conflict of interest**

None.

**Address correspondence to:** Hui Yang, The Department of Otorhinolaryngology, Head & Neck Surgery, West China Hospital, Sichuan University, No. 37 Guo Xue Xiang, Wu Hou District, Chengdu 610041, Sichuan, China. Tel: 0086-189-8060-1418; Fax: 0086-028-85422433; E-mail: yh8806@163.com

**References**


