■ CASE STUDIES

Laryngeal Leiomyosarcoma

Eduardo Morera Serna,[a] Carmen Arancha Pérez Fernández,[b] Carlos de la Fuente Jambrina,[c] Jesús Razquin Muñoz,[d] and Miguel Ángel Pérez Gil[e]

[a]Servicio de Otorrinolaringología, Hospital Universitario Son Dureta, Palma de Mallorca, Islas Baleares, Spain
[b]Servicio de Otorrinolaringología, Complejo Hospitalario Universitario de Albacete, Albacete, Spain
[c]Servicio de Otorrinolaringología, Hospital de Poniente, El Ejido, Almería, Spain
[d]Servicio de Anatomía Patológica, Hospital Virgen de la Luz, Cuenca, Spain
[e]Servicio de Radiología, Hospital Virgen de la Luz, Cuenca, Spain

Laryngeal leiomyosarcoma is a highly infrequent malignancy, with less than 50 reports in the scientific literature world-wide. Diagnosis is based on immunohistochemistry and, occasionally, on electron microscopy techniques, making it difficult to be done pre-operatively. We report a new case of laryngeal leiomyosarcoma, with an up-to-date review of the differential diagnosis and the treatment strategy.

Key words: Laryngeal leiomyosarcoma. Dysphagia. Immunohistochemistry. Enolase.

Leiomiosarcoma laríngeo
El leiomiosarcoma laríngeo es un tumor extraordinariamente infrecuente, con menos de 50 casos descritos en la literatura mundial. Su diagnóstico implica la necesidad de técnicas de inmunohistoquímica y ocasionalmente de microscopia electrónica, que se practica casi siempre postoperatoriamente. Presentamos un nuevo caso de leiomiosarcoma laríngeo, haciendo una revisión actualizada de su diagnóstico diferencial y de la estrategia terapéutica.

Palabras clave: Leiomiosarcoma laríngeo. Disfagia. Inmunohistoquímica. Enolasa.

INTRODUCTION

Mesenchymal tumours of the larynx represent less than 1% of the neoplasias affecting this organ. Leiomyosarcoma is a malignant tumour derived from smooth muscle cell; it represents 56% of all soft-tissue sarcomas and their most frequent locations are the uterus, the gastrointestinal tract and the retroperitoneum. A primary laryngeal leiomyosarcoma is an extraordinarily infrequent tumour, with around 40 cases described in the literature world-wide.

The diagnosis of leiomyosarcoma is reached post-operatively through a histopathological study. Differential diagnosis is by means of spindle-shaped cell tumours, making it essential to use immunohistochemistry techniques and, occasionally, electron microscopy.

We report here a new case of leiomyosarcoma located in the larynx treated at our otorhinolaryngological department. The literature is reviewed with stress on the diagnostic problems and therapeutic controversies.

CASE REPORT

A 76-year-old female came to the otorhinolaryngological department at our institution due to progressive dysphagia for solids lasting for 1 month; she did not report any dysphonia or dyspnoea, but only the sensation of a foreign body lodged in the larynx.

Fibroscopic examination revealed a rounded mass with a smooth surface and about 3 cm in diameter at the level of the hypopharynx, pediculate on the left aryepiglottic fold (Figure 1). The supraglottis was free and the vocal cords retained mobility; no cervical adenopathies were seen.

Imaging tests were requested and both the computerized tomography (CT) with contrast (Figure 2) and the magnetic resonance (MR) of the neck (Figure 3) showed a well-defined hypopharyngeal mass, measuring 3 cm on its longest diameter and a strong vascular component. The patient was diagnosed as having a vascular hypopharyngeal tumour and tests were performed to study the presence of vanilmandelic acid and metanephrines in urine on suspicion of a glomic tumour; the tests were negative. The patient was referred to an interventionist radiology service for embolization and subsequent surgical resection.

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Correspondence: Dr. E. Morera Serna.
Servicio de Otorrinolaringología. Hospital Universitario Son Dureta.
Andrea Doria, 5. 07014 Palma de Mallorca. Islas Baleares. España.
E-mail: emorera@hotmail.com

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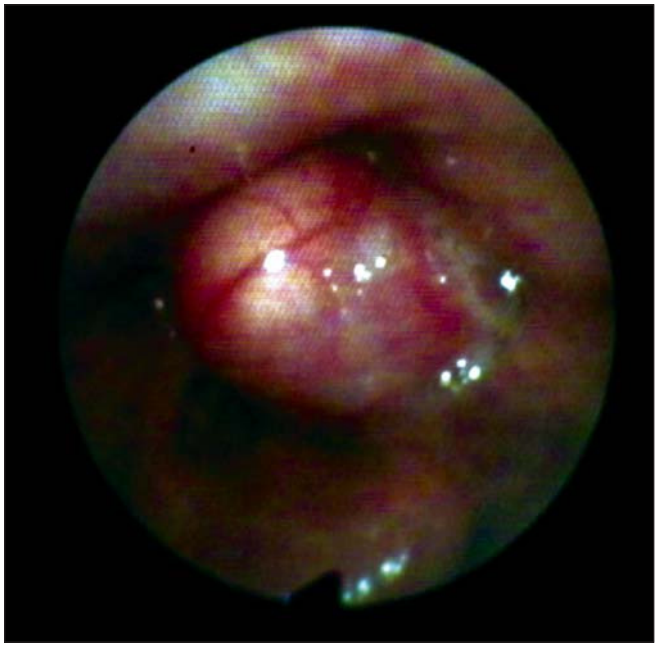


Figure 1. Endoscopic image of the hypopharynx showing a mass almost entirely occluding the airway.

The embolization took place without incident and after 48 hours the patient was operated on to remove the mass by means of a lateral pharyngotomy under general anaesthesia (Figure 4). A prior tracheotomy was performed with local anaesthesia due to the impossibility of intubation because of the presence of the mass. The patient's post-operative course has been satisfactory and she was discharged after 8 days; the tracheotomy cannula was not removed in view of the absence of a histological diagnosis at the time.

The pathology study of the specimen revealed a grossly ovoid unencapsulated whitish tumour measuring 3×1.2×1 cm. Microscopically it comprised several nodules of spindle-shaped cells forming fascicles with a "storiform" pattern and focal palisade alignment, of mesenchymal origin (positive for vimentin and epithelial markers EMA, AE1-AE3, and CAM 5.2 were negative), with up to 11 mitoses/10 CGA, an occasional atypical mitosis, and moderate focal pleomorphism. It was therefore classified as malignant and the following diagnoses were considered: sarcomatoid carcinoma, melanoma, inflammatory myofibroblastic tumour (inflammatory pseudotumour), nodular fascitis, neural cell type tumour, fibrohistiocytic tumour, and vascular cell type tumours. These entities were ruled out by the tumour's

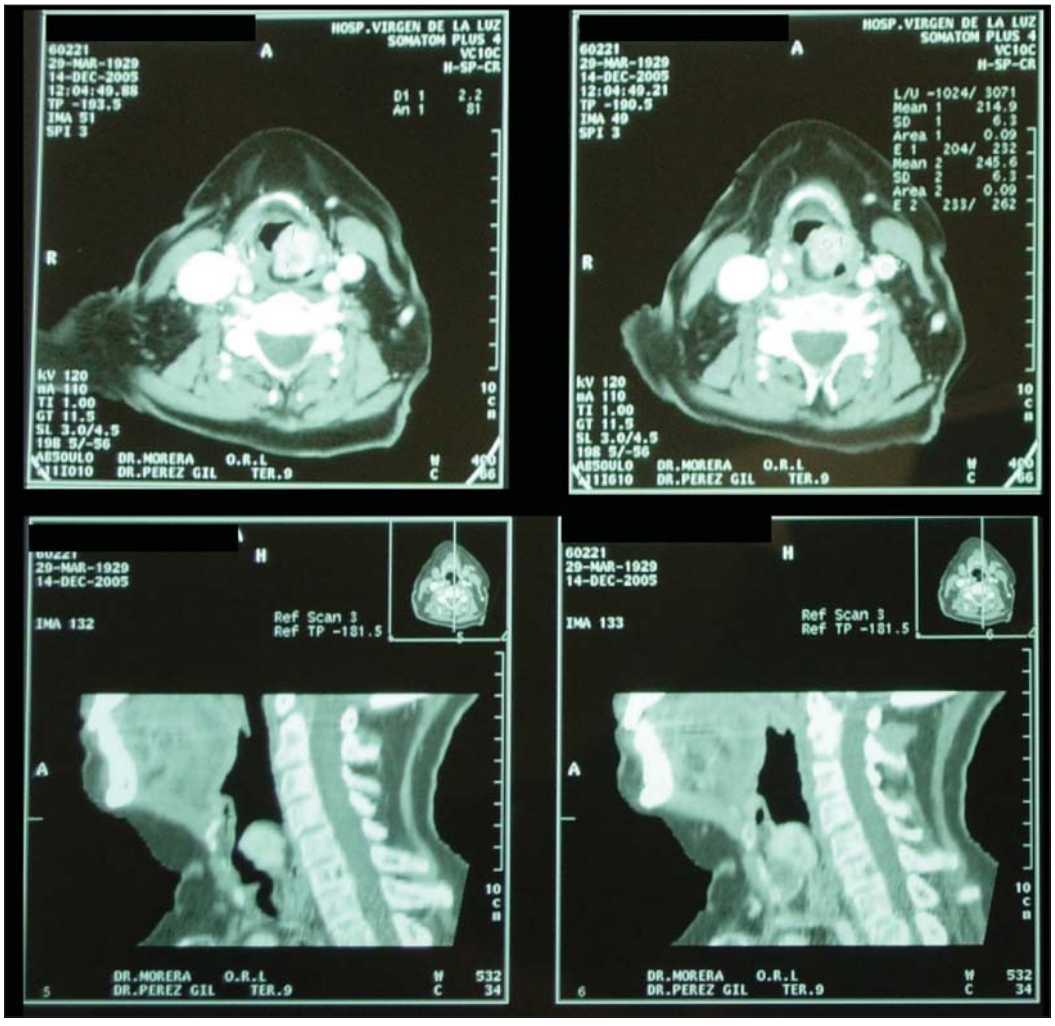


Figure 2. Computerized tomography of the patient showing the pediculate mass in the left aryepiglottic fold.

microscopic characteristics, as it was finally classified as of muscle cell type by the result of the immunohistochemical tests supporting a smooth muscle origin (positive for actin in smooth muscle, S-100, CD-34, CD-31, and CD-68 tumour negative, CD-117 tumour negative, NSE focal positivity), so the tumour was classified as a malignant mesenchymal tumour and smooth muscle cell type (Figure 5).

The presence of extraneous intravascular material was also noted with a "foreign body" reaction, attributable to the prior embolization of the tumour, and so was haemosiderin pigment.

The patient was referred to the oncology department where it was decided to complement the surgery with radiotherapy treatment. Three months after the surgical procedure, the patient is in good health and tumour-free.

DISCUSSION

Leiomyosarcomas of the head and neck basically appear in the oral cavity, the jaw, the paranasal sinuses and superficial soft tissues, such as the scalp.[1] No relation has been found between smoking or alcohol intake and the onset of this tumour.[2]

A prior history of irradiation or the presence of certain syndromes such as tuberous sclerosis, neurofibromatosis, Gardner's syndrome, Turcot's syndrome, Werner's syndrome, or multiple basocellular carcinomatosis, as well as immunosuppression, have been associated to this neoplasia,[3-7] although only prior radiation therapy has been associated with a head and neck location.[3,7] The presence of infection by the Epstein-Barr virus has frequently been found in immunodeficient patients,[8] albeit not in the head and neck.

The location of a leiomyosarcoma in the larynx is very infrequent, even among the leiomyosarcomas of the head and neck. The first such case was reported by Jackson et al[9] in 1939 and since then only around 40 other cases have been published; there are no series with more than 2 cases.

The diagnostic difficulty, requiring the performance of immunohistochemistry tests, casts doubt on a significant number of the diagnoses carried out prior to the development of these techniques. The glottis and supraglottis represent 87% of the locations for leiomyosarcoma in the larynx.[10]

Figure 3. Magnetic resonance showing a coronal image of mass.

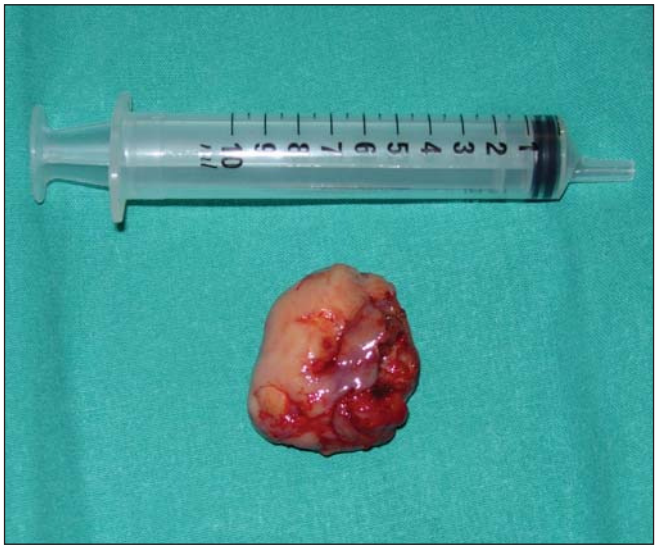
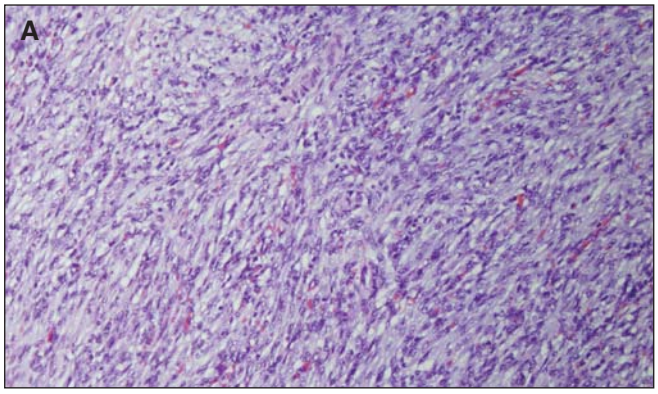


Figure 4. Surgical photo of the specimen after resection.



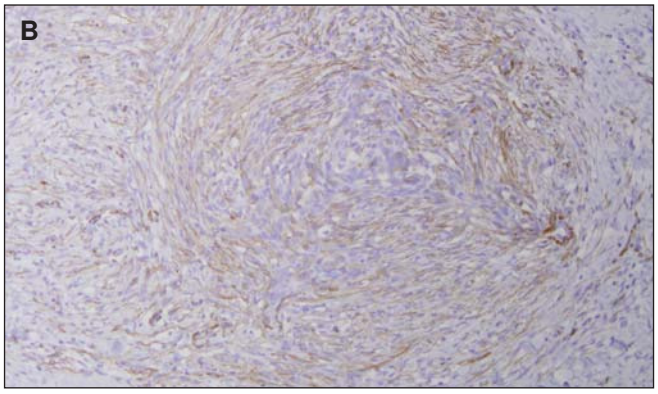


Figure 5. Spindle-cell histology (A) showing positive marking with actin (B).

The most frequent age for presentation of laryngeal leiomyosarcoma is in the fifth decade of life, although it may appear at any age, even in childhood[11]; the ratio of males to females is 4:1. Due to the low number of cases reflected in the literature, no valid pattern can be established for its presentation.

The diagnosis of this tumour is histological and implies the need for immunohistochemistry tests and even electron microscopy. The differential diagnosis includes spindle-shaped cell tumours of the larynx: sarcomatoid carcinoma, melanoma, inflammatory myofibroblastic tumour (inflammatory pseudotumour), nodular fascitis, neural cell type tumour, fibrohistiocytic tumour, and vascular cell type tumours. The diagnostic difference with leiomyoma is the mitotic rate >5/10 high-resolution fields and the moderate to severe degree of atypia.[12] In our case, it is worth noting that the tumour was positive for neuron-specific enolase (NSE), an infrequent marker in this neoplasia.[13]

Surgery is the treatment of choice for laryngeal leiomyosarcoma. Experience with leiomyosarcoma in the uterus, its most frequent location, has shown that the rate of local recurrence is high and remote metastases are present in 50% of patients; the most frequent sites are the lung, the brain and the spine and it may appear up to several years after the initial treatment; 5 year survival is 40%.[14] Due to the fact that the tumour is disseminated through the blood route, the involvement of the lymph nodes in the neck is scant and does not exceed 10%-15% of patients, thus limiting the role of elective cervical dissection.[15] Primary chemotherapy has been used in a small number of cases located in the womb, with responses of 20%-50% and survivals of less than 1 year.[16] Radiation therapy on its own, whether for the primary tumour or for metastases, has not been shown to be useful on the few occasions when it has been used.[17]

Due to the pediculate nature of the tumour and the age of our patient, we opted not to extend the initial surgery with a more extensive technique and she was referred for complementary radiation therapy to improve loco-regional control.

In conclusion, we can say that the diagnosis of a laryngeal mass as benign or malignant is exclusively histological and both the external appearance and the radiological tests may lead to confusion.

The scant number of cases published makes it impossible to establish a treatment protocol. Nonetheless, it seems that surgical resection with negative margins is the therapeutic option that optimizes the long-term prognosis. Complementary treatment with non-surgical modalities continues to have a secondary role and a disputed usefulness.

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