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CASE REPORT

Transoral microlaryngoscopic approach for schwannoma of the larynx

Larenks schwannomlu bir olguda transoral mikrolarengoskopik yaklaşım

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Neurogenous tumors of the larynx are extremely rare. We present a 66-year-old male patient who underwent surgical excision of schwannoma of the larynx, which originated from the left aryepiglottic fold. Excision of the mass was performed through an endolaryngeal approach (suspension microlaryngoscopy). In the early postoperative period, the patient was breathing comfortably and his swallowing and phonation were normal. During a follow-up of three years, no evidence for recurrence was detected and he had no complaints of dysphagia, globus sensation, dyspnea on exertion, or cough.

Key Words: Glottis; laryngeal neoplasms/surgery; neurilemmoma/pathology/surgery; vocal cords.

Larenksin nörojenik kaynaklı tümörlerine çok nadir rastlanır. Bu yazıda, sol ariepiglottik folddan kaynaklanan larenjeal schwannom nedeniyle cerrahi tedavi uygulanan 66 yaşında bir erkek hasta sunuldu. Kitle, endolarengeal yaklaşımla (suspensiyon mikrolarengoskopi) çıkartıldı. Ameliyat sonrası erken dönemde, hastanın solunumu rahattı; yutma ve fonasyon foksiyonları normaldi. Üç yıllık izlem sırasında herhangi bir nüks bulgusuna rastlanmadı; hastanın yutma güçlüğü, globus hissi, egzersiz sırasında nefes darlığı ve öksürük yakınmaları kayboldu.

Anahtar Sözcükler: Glottis; larengeal neoplaziler/cerrahi; nörilemmoma/patoloji/cerrahi; vokal cord.

Schwannoma is a benign tumor, which originates from the Schwann cells of the peripheral nervous system. Although it is very common in the head and neck, laryngeal schwannomas are very rare. Approximately 25% to 45% of all schwannomas present in the head and neck region.[1,2] The incidence is low even amongst other neurogenic tumors of the larynx. Since being reported in the larynx for the first time by New and Erich, about 130 cases have been presented in the literature.[2,3] Schwannomas account for less than 0.1% of all laryngeal neoplasms. Schwannomas of the larynx are presumed to originate from the internal branch of the superior laryngeal nerve. Most patients who have a laryngeal schwannoma exhibit symptoms of hoarseness, dysphagia, sore throat, a globus sensation, and dyspnoea on exertion. In this article, we presented a laryngeal schwannoma located in the aryepiglottic

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fold, which was extracted endoscopically (suspension microlaryngoscopy). In the light of the current literature, the symptomatology, imaging findings and treatment techniques are discussed.

CASE REPORT

A 66-year-old male patient presented to our clinic with the complaints of progressive dysphagia, dyspnoea on exertion, globus sensation, cough which increased with fluid intake. On indirect laryngoscopic examination, a mass with a smooth surface originating from left aryepiglottic fold, extending into the left pyriform fossa, and vocal fold and resulting in narrowing the airway passage was noticed. The patient had no signs of Von Reclinkhausen's disease. There were no palpable lymph nodes in the neck.

A computed tomography (CT) scan showed a hypodense, nonhomogenous mass, 4x4 cm in diameter, originating from left supraglottic area, extending into pyriform fossa and obliterating the hypopharynx, having clearly defined borders and no infiltrative pattern (Fig. 1). There was no intravenous contrast material uptake. Magnetic resonance images (MRI) revealed a tumour located in the aryepiglottic fold, left vocal fold and pyriform fossa with a clearly defined capsule and without invasion of the surrounding tissues (Fig. 2). Physical examination and diagnostic imaging findings suggested a benign, mesenchymal tumor. The borders and mobility of the mass, as well as its relationship with the endolaryngeal structures was identified by using suspension microlaryngoscopy. An incision was made on the mass in the antero-superior plane. The mucosa overlying the mass was dissected by microscissors and cotton-swab. After complete exposition of the mass, it was excised by dissection of the capsule from the surrounding soft tissues. Some of the mucosa overlying the mass was excised and it was left for secondary wound healing after being sure that it was not obstructing the airway.

We did not perform a tracheotomy. The patient was admitted to the surgical intensive care unit and extubation was performed the next day. Macroscopically, the mass was yellow-gray, measured 4x4x3 cm had a smooth capsule. In histopathologic examination, spindle cells with elongated blunt-ended nuclei were seen. Alternating areas of Antoni A areas (compact spindle cell component) and Antoni B areas (hypocellulary areas) were observed. Nuclear atypia, mitosis and necrosis were absent (Fig. 3). Immunohistochemically, the tumor showed diffuse S-100 protein positivity in the cellular areas.

In the early postoperative period, the patient was breathing comfortably and his swallowing and phonation were normal. He was discharged on the fourth postoperative day. At three years follow-up, the patient had no evidence recurrence and his dysphagia, globus sensation, dyspnoea on exertion and cough had disappeared.

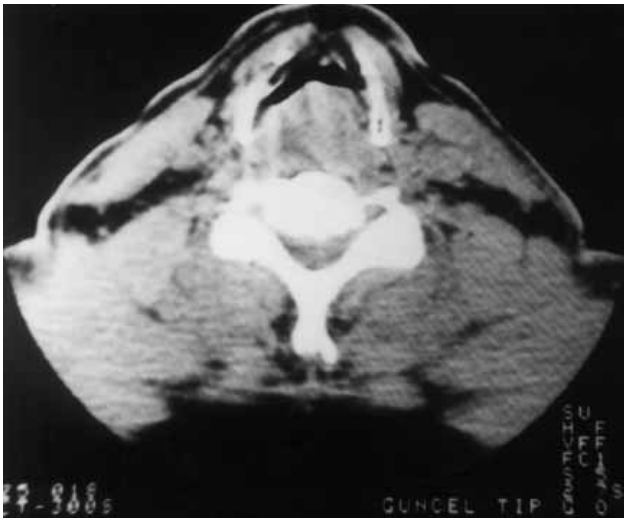

Fig. 1 - *CT scan in the axial view showing a well defined and homogeneous hypodense mass in the left supraglottic area.*

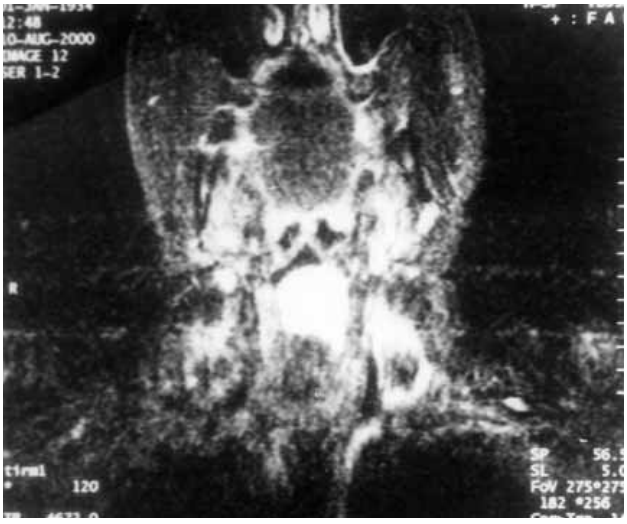

Fig. 2 - *Coronal T1- weighted magnetic resonance imaging with gadolinium enhancement showing a well circumscribed, solid, hyper tense mass.*

DISCUSSION

Schwannomas can occur along any somatic or sympathetic nerve in the body. Being a part of central nervous system schwannomas are not encountered olfactory and optic nerves, which lack schwann's cell sheaths. They are solitary, encapsulated tumors extending along the pathway of the peripheral, cranial or sympathetic nerves.[4] The most common location of this tumor in the larynx is the internal branch of the superior laryngeal nerve just after it penetrates the thyrohyoid membrane where it innervates the aryepiglottic fold, false vocal cords and arytenoids.[5] Similarly in our case, the tumor originated from the left aryepiglottic fold. In such tumors, preoperative correct diagnosis is very important to establish the treatment plan.

Laryngeal schwannomas usually present with hoarseness and dysphagia, globus sensation as in our case. Globus sensation, cough and respiratory difficulty seems to be related to the slowly growing mass.[5,6] Usually no neurologic symptoms are seen. There is reported a case of sudden death due to asphyxia from laryngeal schwannoma.[6] There was no neurologic symptoms in our case, the symptoms were relevant to the symptoms reported in the literature. On laryngoscopic examination, schwannomas are seen as submucosal masses with clearly defined borders. In differential diagnosis, neurofibromas, laryngoceles and laryngeal cysts should be considered. Confusion might arise between a schwannoma and neurofibroma but this does not alter the management plan. Gross pathology suggests an encapsulated, solitary and well-circumscribed tumor on histological evaluation, there are areas of high cellularity called Antoni A tissue, whereas those areas of low cellularity are termed by Antoni B tissue. The Antoni A areas may contain foci of palisading nuclei called Verocay bodies. Immunocytochemical stain for S-100 protein is used to identified tumors of schwann cell origin. On the contrary, a neurofibroma is not encapsulated and is characterized by the proliferation of sheath cells and nerve fibres. We made the differential diagnosis with the histopathological evaluation and the neurofibromas of Von Recklinghausen disease by the absence of multiple cutaneous or visceral nodules, cafe au lait spots and mental deficits.[1]

Fine needle aspiration biopsy and incisional biopsy with endolaryngeal approach has been recommended as an initial testing procedure, but have not been usually helpful in diagnosis and have not gained widespread acceptance[4,7] Therefore, in our case, we did not use these methods. CT scan and MRI are the best methods of diagnosis. CT scan shows the extension and density of the mass.[8] However MRI may show the tumor, its capsule, and the nerve it originates.

Schwannomas are radioresistant.[9] All schwannomas are treated by surgical excision. Surgical

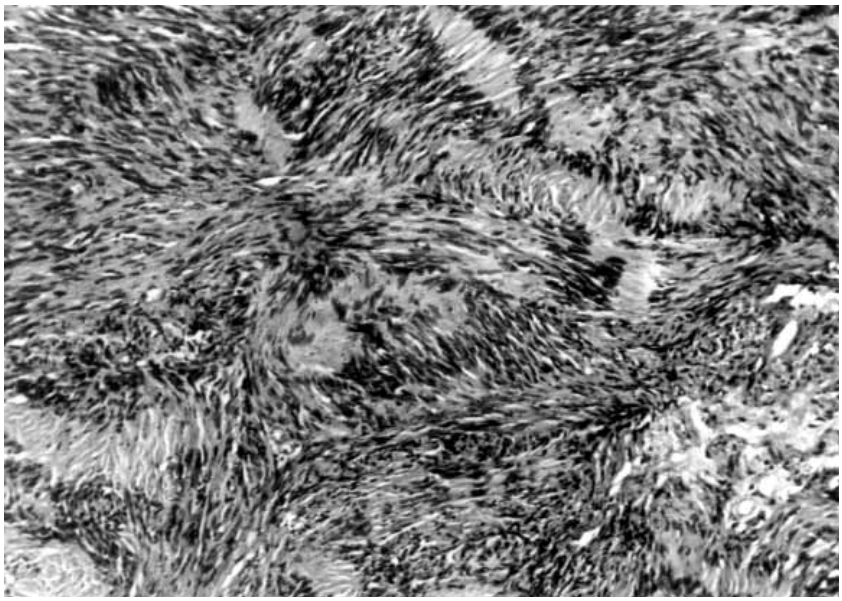

Fig. 3 - *Spindle cell infiltration consisted of hypocellary and hypercellulary areas. In the hypercellulary areas (Antoni A) which consisted of Verocay bodies view of characteristic schwannoma. (H-E x 125).*

treatment can be endoscopic or many different external approaches can be applied [median thyrotomy (laryngofissure), lateral pharyngotomy, external lateral thyrotomy (excision of the upper half of the thyroid lamina)].[1] Endoscopic techniques are especially safe in benign lesions of the larynx. In the literature, different approaches are suggested for each case according to the location and size of the tumor and the clinical presentation.[1,10] Suspension microlaryngoscopy may be easily performed and allows excellent exposure of the larynx. This approach offers the most direct and the least dangerous approach for tumor removal. The tumor can be approached, dissected and completely excised without injury to the laryngeal framework and vocal fold. Rosen reported a laryngeal schwannoma with partial excision by using suspension microlaryngoscopy. This patient, had recurrent disease and was detected at the first month follow up.[11] In our patient, after defining of the capsule the mass, complete excision in the correct plan was carried out. We did not perform a tracheotomy. Therefore, any possible complications of tracheotomy or external surgical approach were avoided.

Laryngeal schwannoma is a rare, benign neurogenic tumor. The diagnosis of schwannnoma should be kept in mind in a slowly growing laryngeal mass. Laryngeal schwannomas usually originate from the internal branch of the superior laryngeal nerve. CT and MRI are the most important preoperative diagnostic techniques. Correct preoperative diagnosis is necessary for careful surgical dissection endoscopically to preserve functions of the larynx. The surgical approach used for laryngeal schwannomas should be individualized keeping in mind the importance of maintaining laryngeal framework and vocal fold.

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