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Schwannoma of the larynx—an uncommon cause of vocal cord immobility

We present a rare case of schwannoma of the larynx in a 26-year-old Chinese patient. The tumour was excised using a lateral thyrotomy approach, with satisfactory restoration of laryngeal function. The presentation, management, and outcome of treatment for this type of tumour are discussed.

We report the first case of a schwannoma of the larynx in a Chinese patient. The tumour was excised using a lateral thyrotomy approach, with satisfactory restoration of laryngeal function postsurgery. The presentation, imaging findings, and management of these tumours are discussed, and the relevant literature is reviewed.

Case report

A 26-year-old Chinese man presented to the Ear, Nose and Throat clinic at Queen Mary Hospital with a 12-month history of hoarseness. He did not have dysphagia or other upper airway symptoms. No palpable lymph nodes were present. Indirect laryngoscopy revealed a submucous bulge in the left aryepiglottic fold, extending to the false vocal cord, which obscured the true vocal cord. Elective microlaryngoscopy confirmed the findings. Translaryngeal fine-needle aspiration cytology was inconclusive, although it demonstrated no evidence of malignancy.

A computed tomography (CT) scan showed a dumbbell-shaped, soft-tissue mass in the left supraglottis, which extended from the aryepiglottic fold superiorly to the false vocal cord inferiorly, pushing the latter medially (Fig 1). The imaging features of periphery enhancement and central necrosis were suggestive of a schwannoma.

Subsequently the patient underwent surgical excision using a lateral thyrotomy approach. Intra-operatively, the tumour mass was found arising from the left aryepiglottic fold, resulting in medial bulging of the left false vocal cord. The mass was completely excised and the thyrotomy closed by primary intention. A prophylactic tracheostomy was performed. Postoperative recovery was uneventful and the patient was decannulated 11 days after surgery.

Macroscopically, the surgical specimen consisted of a well-circumscribed, encapsulated, tan-coloured tumour mass, measuring 3.5 x 2.5 x 1.5 cm. Microscopic sections showed densely cellular areas, composed of compact elongated cells with palisading (Antoni A pattern) and a less cellular, loosely textured core.
pattern in which cells often contained lipid (Antoni B pattern) [Fig 2]. Immunohistochemical studies demonstrated reactivity for S100 protein. The overall features were consistent with schwannoma. Four months after the operation, the patient’s voice quality had improved and there was full mobility of his vocal cords.

Discussion

The first neurogenic tumour of the larynx was described by Vé rocay in 1908. Since then, there have been few reports documented in the literature, accounting for less than 0.1% of all benign tumours of the larynx. There are two types of neurogenic tumours: schwannomas and neurofibromas. A schwannoma is a solitary, encapsulated, slow-growing benign tumour. More common in women, there is an increased incidence in the sixth and seventh decades of life. Laryngeal schwannomas most commonly occur in the aryepiglottic folds in the supraglottis (80%). The remaining 20% arise from the false vocal cords and the true vocal cords. It is postulated that the internal branch of the superior laryngeal nerve is the most likely nerve of origin. Symptoms are related to the mass effect of a slow-growing tumour in the larynx, and include sore throat, odynophagia, dysphagia, stridor, dyspnoea, dysphonia, hoarseness, and a foreign body sensation in the throat. In this case, the tumour occurred in the left aryepiglottic fold and the patient complained of hoarseness only.

Schwannomas are diagnosed histologically by immunohistochemical study for S100 protein reaction and by electron microscopic Antoni A and B patterns. The Antoni A pattern is characterised by compact, spindle-shaped cells, with their nuclei aligned in parallel rows resembling a palisade. The Antoni B type is less cellular, loosely organised, with vacuoles and spindle-shaped nuclei. The proportions of these two components are variable, and may change abruptly or blend imperceptibly. Enzinger and Weiss suggest that the diagnosis of schwannoma can be made in the presence of three features:

1. encapsulation;
2. Antoni A and B areas; and
3. a positive S100 reaction.

All three features were seen in this case.

On CT scan, small schwannomas are seen as a homogenous, enhancing mass. Tumours larger than 3 cm in size often exhibit heterogenic density on contrast enhancement, with centrally distributed areas of low attenuation, surrounded by a peripheral enhancing ring. Cystic changes have also been observed. On magnetic resonance imaging (MRI) studies, T1-weighted imaging of a schwannoma shows variable intensity, and it is well-enhanced after gadolinium injection. However, CT and MRI appearances are not diagnostic and cannot always differentiate schwannomas from other benign tumours of the larynx.

Diagnosis can be achieved by endolaryngeal fine-needle aspiration or incision biopsy, although it may be difficult to distinguish between schwannoma and neurofibroma. In addition, the capsule tends to hinder biopsy. However, these investigations do not alter management. Surgical removal is the treatment of choice. Endoscopic excision is recommended for small lesions, especially for a true vocal cord tumour. For larger tumours, an external approach with median thyrotomy, lateral pharyngotomy, or lateral thyrotomy have been described. The lateral thyrotomy approach was used for this case, as it offered the most direct route for tumour excision, avoiding the risk of injury to the vocal fold and laryngeal mucosa. Recurrence or malignant sarcomatous changes following surgical treatment are extremely rare.
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References


Coming in the June 2004 issue of the Hong Kong Medical Journal

- Eye medications during pregnancy
- Validity of hair analysis in the diagnosis of heavy metal poisoning
- Initial experience of wireless capsule endoscopy in Chinese patients with suspected small bowel diseases