

# Suprahyoid Pharyngotomy for Base of Tongue Carcinoma

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## Summary

Carcinoma of the tongue remain one of the greatest management challenges for the head and neck surgeon because of the adverse effects of treatment on oral and pharyngeal function. In early carcinoma of the base of tongue however, the prognosis is encouraging and function of swallowing and speech is preserved despite surgery. Suprahyoid pharyngotomy is one of the surgical approaches advocated for resection of base of tongue tumours with primary anastomosis.

**Key Words:** Carcinoma of the base of tongue, Suprahyoid pharyngotomy

## Introduction

The management of carcinoma of the base of tongue remains difficult despite recent advances in surgical techniques. Treatment selection is based on tumour staging, patient's willingness, probability of cure and preservation of function mainly swallowing and speech. Tumour which is limited to the base of tongue can be resected via a suprahyoid pharyngotomy approach which was performed for the case presented.

## History

A 51 years old Malay female presented with dysphagia, blood stained saliva and change in voice for few months duration. She does not smoke, consume alcohol or chew betel nut. On

examination of the throat, there was no obvious mass noted, tongue movement was normal and no neck nodes were palpable. Flexible laryngoscope revealed a mass arising from the midline of the base of tongue sparing the vallecula with the epiglottis and laryngeal structures being normal. There was no lateral pharyngeal wall involvement. She underwent a direct laryngoscopy and oesophagoscopy where a biopsy of the tongue base mass was taken and reported as squamous cell carcinoma. A MRI scan was performed and confirmed the localized base of tongue tumour with no evidence of pre-epiglottic space or nodal enlargement.

She underwent a bilateral supraomohyoid neck dissection with tumour resection via a suprahyoid pharyngotomy approach. A

This article was accepted: 2 March 2003

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## CASE REPORT

tracheostomy was initially performed to secure an airway. A direct laryngoscopy was performed and an apron incision made incorporating the tracheostomy wound. Subplatysmal flaps were raised up to the lower borders of mandible. Bilateral supraomohyoid neck dissection were then performed. Base of tongue tumour resection was performed via a suprahyoid pharyngotomy approach from the apex of the sulcus terminalis to the vallecula. Frozen sections revealed clear surgical margins. Ryle's tube and redivac drains were inserted and the wound was closed in layers. She was managed in the ICU for 2 days post - surgery and recovered uneventfully. A barium swallow performed 10 days post - surgery showed no evidence of leak. She was weaned off her tracheostomy tube and nasogastric feeding and was able to tolerate semisolid diet well and subsequently underwent rehabilitation with the speech pathologist. The lymph node groups were negative for malignancy. At 2 years post - surgery she has retained her functions of swallowing and speech relatively well with no evidence of recurrence.

### Discussion

The surgical approach to the base of tongue and the posterior wall of oropharynx and hypopharynx is controversial. Fundamental to the success of surgery is an accurate assessment of the tumour in preoperative planning and meticulous attention to detail. Treatment results for base of tongue carcinomas are measured in terms of speech and swallowing function, need for gastrostomy / tracheostomy tubes, local / regional / distant control and patient survival and quality of life.

Prognosis of base of tongue carcinoma is generally poor, overall cure rates for most series regardless of therapeutic modality is usually about 30%. The 5 year survival rates are between 20 to 50%.<sup>1</sup> Factors that contribute to the poor survival rates are late presentation of symptoms, rapid spread through the

genioglossus muscle and spread across the midline. Muscle contractions of the genioglossus also help to propel the malignant cells through potential space within the intrinsic musculature and the lymphatics. Another factor is due to the presence of palpable cervical lymph nodes in 60 to 70% of these patients at initial presentation. Presence of lymph nodes decreases survival rates significantly.

Resection of tumour from tongue base is invariably associated with morbidity such as impaired speech or chronic aspiration. Mandibulectomy procedures are indicated for larger lesions with impaired tongue mobility implying deep tongue infiltration or floor of mouth extension with mandibular involvement. This procedure is associated with additional morbidity including visible scarring of the lip, facial depression, loss of support of oral cavity structures, salivary incontinence, malocclusion, temporomandibular joint pain, nonunion and impairment of the oral phase of swallowing<sup>2</sup>. Mandibulotomy may be an alternative when the mandible is not involved to provide adequate surgical exposure thus avoiding the previously mentioned complications<sup>2</sup>.

Lateral pharyngotomy approach is used most commonly to expose benign and malignant tumours of the lateral and posterior walls of the oropharynx and hypopharynx as well as those arising from the base of tongue and postcricoid areas. Benign tumours of the supraglottis such as adenomas and cystic lesions may also be approached via this technique. Tumours of the base of tongue involving the vallecula are not amenable to a transhyoid (suprahyoid) approach and may be resected through a lateral pharyngotomy. The limitations of lateral pharyngotomy are in patients with carcinoma who require a supraglottic or total laryngectomy or in whom resection involves more than a third of the pharyngeal circumference.

Pull through hemiglossectomy procedure is preceded by creating a "visor" flap approach. This approach eliminates the functional and cosmetic deformity of bisecting and reconstructing the lower lip which occurs to at least a minimal extent despite the most meticulous repair. It is used in T1 and small T2 (< 3 cm) anterolateral tongue tumours. The limitations in this technique are tumours greater than 3 cm in diameter or if there is deep invasion of the tongue and not for posterior based tumours behind the sulcus terminalis.

Suprahyoid pharyngotomy is an excellent approach when combined with neck dissection for the treatment of T1 and T2 lesions of the base of the tongue. Tumours of the tongue excised by suprahyoid pharyngotomy should ideally be limited to the tongue base, posterior to the circumvallate papillae.<sup>3</sup> Involvement of the lateral pharyngeal wall or tonsil may require extension of the approach, such as lateral pharyngotomy for adequate exposure. T1 and T2 squamous cell cancer as well as other small malignant or benign tumours in this site may be resected through this approach. Excisions of cancers of the posterior wall of the oropharynx or hypopharynx may be accomplished using this technique. Primary closure of the mucosa of the posterior pharyngeal wall to prevertebral fascia or reconstruction with a split thickness skin or dermal graft will complete the reconstruction.

Correct preoperative staging is essential to determine whether suprahyoid pharyngotomy is

the best surgical approach for small squamous cell carcinomas, adenocarcinomas or benign tumours of the base of tongue or posterior pharyngeal wall. Physical examination especially palpation remains the most important aspect of the evaluation. MRI scanning has proved to be the most sensitive modality to evaluate tumours involving the base of tongue because of the excellent soft tissue definition it provides. It can show any invasion of the preepiglottic space and depth of infiltration into the base of tongue.<sup>4</sup> The structure of the oropharynx and hypopharynx plays a key role in swallowing. Temporary aspiration is a predictable postoperative occurrence.

Cardiopulmonary performance must be considered in patient selection. Patients with severe pulmonary disease may require either laryngotracheal separation or laryngectomy to prevent postoperative aspiration.

A major pitfall in the suprahyoid pharyngotomy technique is underestimating the size of the tumour, with respect to extension either anterior to the circumvallate papillae or high into the area of the tonsil.<sup>5</sup> Extension anteriorly may require the removal of the oral tongue, which may result in chronic aspiration and difficulty in swallowing requiring either completion laryngectomy, laryngotracheal separation or placement of gastrostomy tube. Lateral extension into the tonsil or palate, or both may be inadequately exposed by this technique. Posterior extension into valleculae may require supraglottic laryngectomy.

## CASE REPORT

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