

## Case Report

### Endoscopy Assisted Transoral Approach (EATA) of a Parapharyngeal Tumour – A cosmetically acceptable approach

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#### Abstract

When considering tumours of the parapharyngeal space, surgeons are presented with a difficult decision regarding the surgical approach balancing cosmetically acceptable outcome with clear resection margins. With careful patient selection and preoperative evaluation, it is possible to obtain both of the desired outcomes through an endoscopic assisted transoral approach (EATA). This approach does not require any new and expensive equipment and utilises existing ENT infrastructure decreasing operating cost and patient morbidity and is reproducible with an acceptable learning curve.

#### Case overview


An 83-year-old gentleman with multiple comorbidities presents with a left-sided parapharyngeal space tumour with progressive enlargement over the past eight months. This tumour was excised using a two-man endoscopic assisted transoral approach (EATA) and the subsequent cavity was also repaired transorally. The post-operative stay was uneventful and the patient was discharged in 2 days. Histology revealed the mass to be a non-Hodgkin's lymphoma for which the patient is currently undergoing treatment.

#### Conclusion

Current literature advocates the use of endoscopic assisted transoral approach (EATA) for excision of carefully selected patients presenting with parapharyngeal masses. This approach should be considered whenever possible given the alternative approaches which have significant cosmetic penalties.

**Keywords:** Parapharyngeal Space, Endoscopy-assisted transoral approach (EATA), Oral Surgical Procedure

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## Introduction

Tumours of the parapharyngeal space present a challenge to the treating clinician when it comes to surgical excision. A number of approaches for excision of parapharyngeal tumours have been described, some of which, sacrifice cosmetic outcome for surgical exposure and wide local excision and some require exclusive equipment to preserve cosmetic outcome at great expense. Hitting the ‘sweet spot’ between these two outcomes has always been desired.

## Case Report

An 83-year-old man presented to the OPD with a history of a progressive swelling of tonsillar area on the left side for eight months’ duration. No history of dysphagia or change of voice was reported. He had multiple comorbidities including diabetes, hypertension, hypercholesterolaemia and ischaemic heart disease (for which stenting was performed 15 years ago). These comorbidities were within acceptable control parameters.

On examination the left tonsillar fossa was full with the tonsil pushed medially and the soft palate inferiorly. The tonsils themselves were not enlarged and the medialization did not cause any airway obstruction. Neck examination did not reveal any neck nodes and the thyroid examination was also normal. Laryngeal crepitus was present. Ear and nose examination was otherwise unremarkable.

Imaging (Contrast enhanced computer tomography CECT) showed a well circumscribed left parapharyngeal mass arising medial to the styloid process pushing the tonsil and its contents further medially and inferiorly. The mass was well away from the carotid artery and internal jugular vein with a clear plane of ‘connective tissue’ separating the structures. (Image 1)

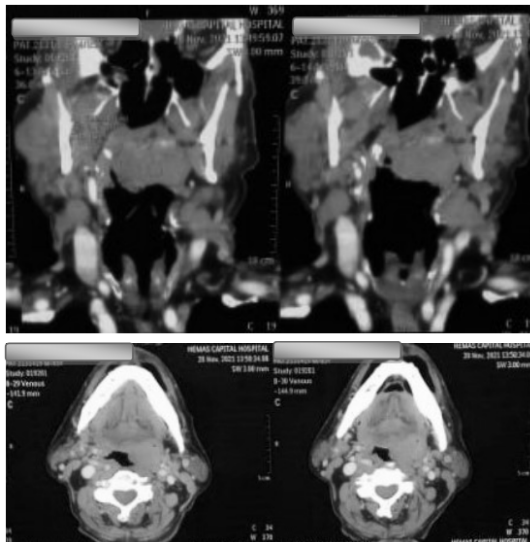


Image 1 – CECT Sagittal (above) and axial cuts (below) of the parapharyngeal mass

Preoperative anaesthetic as well as medical evaluation showed that the patient was fit to undergo general anaesthesia and the decision for an endoscopic assisted transoral approach (EATA) for excision of the tumour was taken. During the consent taking process the alternative access pathway of a trans-cervical approach was also discussed along with the chance of a temporary tracheostomy.

### Equipment and setup

The following equipment was used during the surgery

1. Functional endoscopic sinus surgery (FESS) stack with 0° and 30° rigid nasal endoscopes (adult size)
2. Standard tonsillectomy equipment with bipolar diathermy
3. Coblation wand and setup (Optional)

### Patient positioning

The patient is placed as for standard tonsillectomy with the tongue retracted and mouth held open using a Boyle-Davis mouth gag suspended by Draffin Bipods. The theatre setup is as seen in figure 1. Surgeon '2' holds the rigid endoscopic in one hand along with a suction tube or retractor in the other. Surgeon '1' can now use both hands to resect the tumour using a combination of bipolar diathermy and/or Coblation and appropriate forceps.

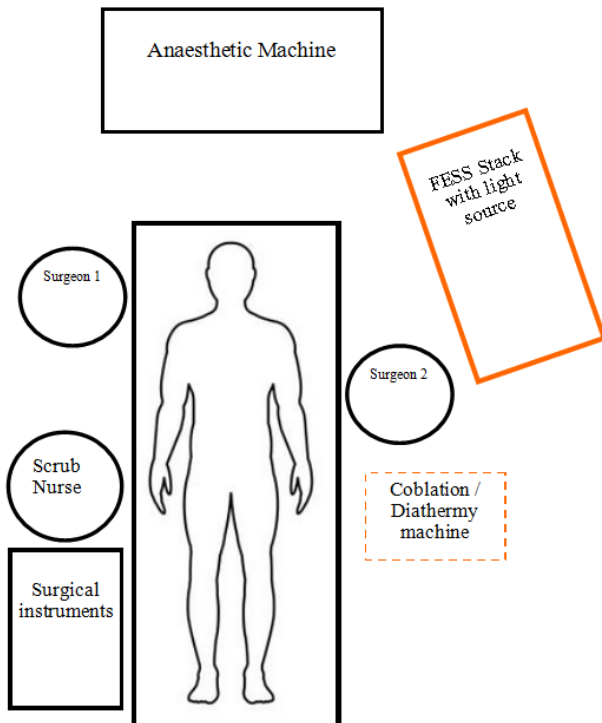
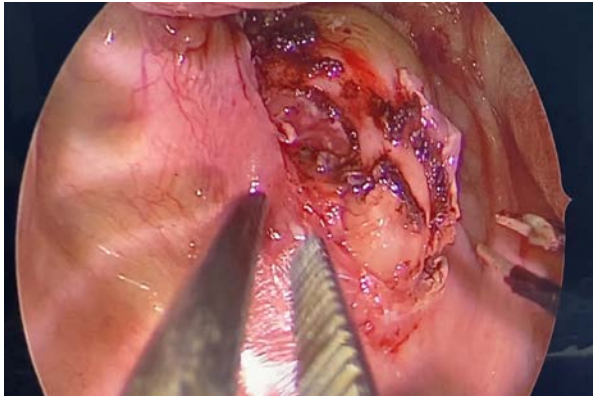


Fig. 1 - Theatre room setup for EATA indicating the positioning of Surgeon 1 and Surgeon 2

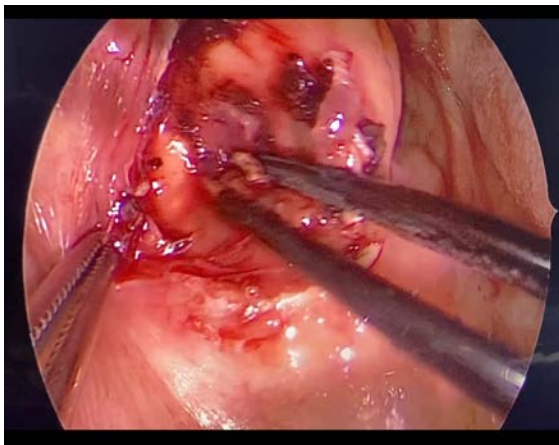
## Surgical procedure

A para median soft palate incision was made exposing the superficial surface of the tumour. Using fine tonsillar forceps, a plane was developed between the superficial surface of the tumour and the soft palate tissues. (Refer picture 1)



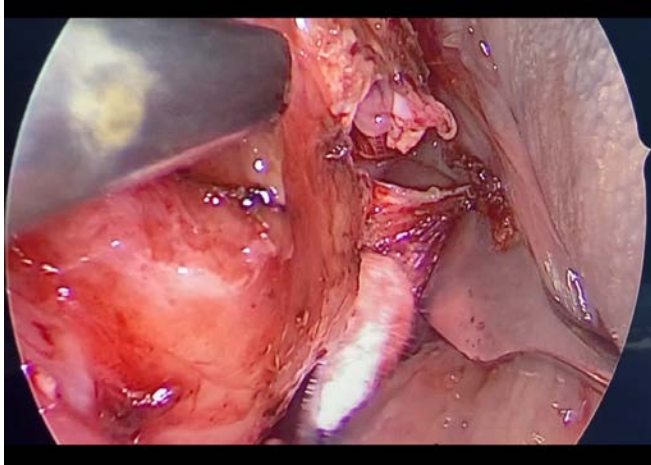
Picture 1 – Finding the correct plane between tumour and normal tissue

Using the ‘extra capsular dissection technique’ used in tonsillectomy this plane is then developed medially as well as laterally around the tumour. (Refer picture 2)



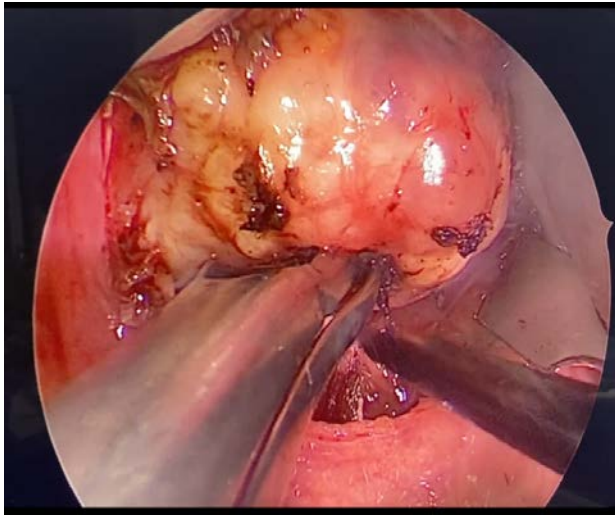
Picture 2 – Developing the plane medially and laterally

Further retraction can be supplied by ‘surgeon 2’ during the procedure by using tonsillar pillar retractors this is especially important when resetting the lateral surface as its relations are close to major vessels. (Refer picture 3)

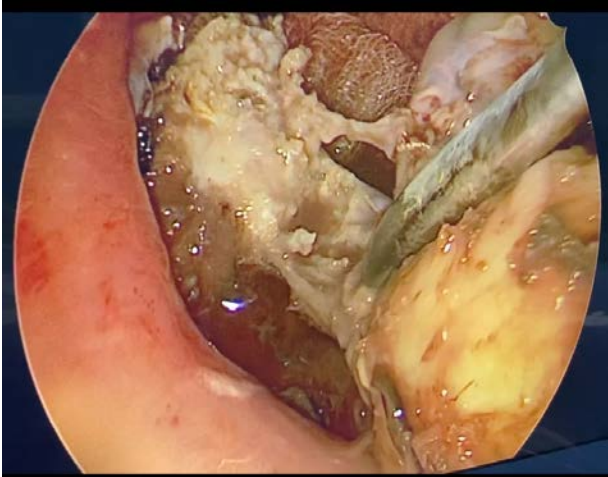


Picture 3 – Lateral dissection of the tumour

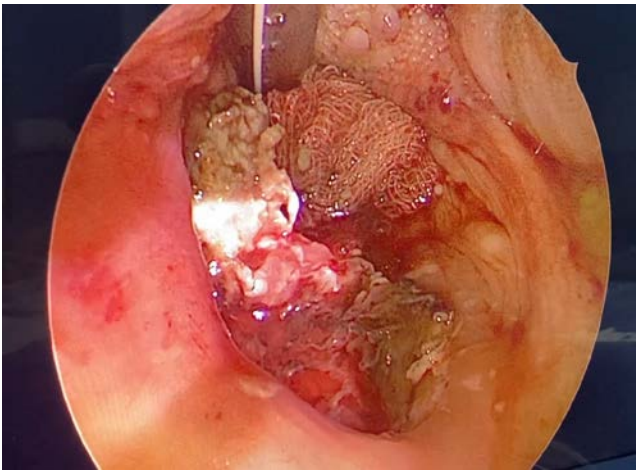
Feeding vessels to the lesion were discovered postero-laterally and were managed by careful bipolar diathermy with good retraction. (Picture 4) ‘Surgeon 2’ can gently hold the tumour with tonsil holding forceps for the final delivery of the lesion. (Picture 5, Picture 7)



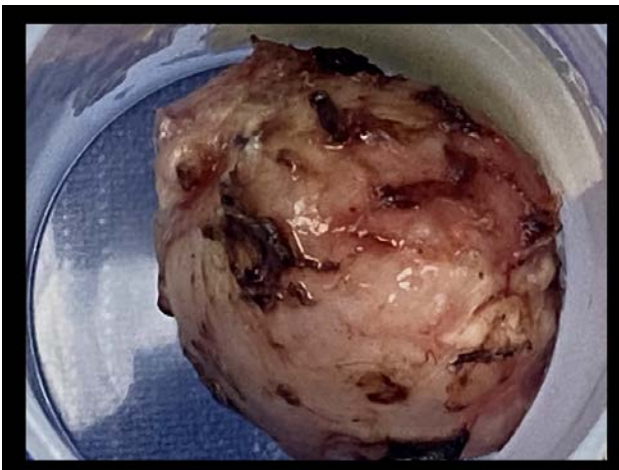
Picture 4 –Bipolar diathermy of feeding vessels



Picture 5 – Tumour released from medial attachments



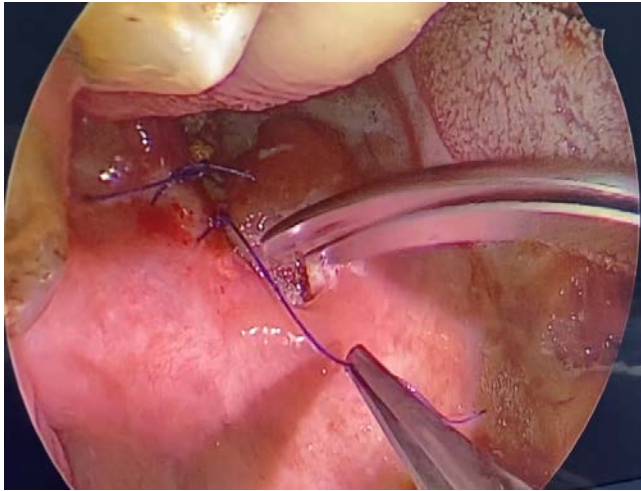
Picture 6 – Palatal defect and cavity



Picture 7 – Completely excised tumour specimen



Following complete excision of the tumour, haemostasis is achieved using bipolar cautery and the cavity was packed with Surgicel. (Picture 6) Soft palate incision margins were then sutured using absorbable sutures. (Picture 8)



Picture 8 – Soft palate repair

### **Post-operative period**

The patient had an uneventful post-operative period and was discharged on post-operative day 2. Histology revealed the mass to be a non-Hodgkin's lymphoma and the appropriate oncology referral was done. The patient is currently undergoing further treatment.

### **Discussion**

Most parapharyngeal tumours are essentially asymptomatic, presenting as an incidental finding on oral and neck examination. On rare occasions patients may even present with features of ipsilateral eustachian tube obstruction and even snoring with or without obstructive sleep apnoea. Ipsilateral Horner's syndrome as well as vagal nerve palsy have also been reported<sup>1</sup>. Imaging in the form of contrast enhanced CT scanning as well as MRI will help determine the type of parapharyngeal tumour in accordance with its position. If the patient has a functional swallowing disorder due to physical obstruction or nerve palsy endoscopic swallowing assessment can also be done.

There are many approaches described in the excision of parapharyngeal space tumours. Traditionally approaches to the space were confined to the transcervical approach or the transcervical–transparotid approach with or without a mandibular osteotomy and the infratemporal fossa approach<sup>1,2</sup>. These techniques carried the risk of significant cosmetic scarring and morbidity. With the advent of newer technology, techniques such as Transoral Robotic Surgery (TORS) and Endoscope-Assisted Transoral Surgery (EATS/ EATA) were introduced<sup>1,3</sup>. An endoscopic transnasal approach has also been described in certain literature<sup>2</sup>.

When considering a patient for Endoscope Assisted Transoral Surgery(EATS) there are a few factors which need considering apart from fitness for general anaesthesia. Of these, the most important factor with regard to tumour resectability is the mobility of the tumour which can be assessed through

palpation<sup>4</sup>. Mobility of the tumour means that the tumour is more medial and less infiltrative. Red flag clinical features such as odynophagia and trismus indicate a more lateral invasive tumour. Another point to consider is the patient's ability to open the mouth and his/her Mallampati scores. These however are subjective to the operator's experience. Skull base invasion, encasement of great vessels, presence of concomitant neck disease (neck metastasis) and invasion of the mandible are all contraindications for transoral resection<sup>4</sup>. The need to resect more than 75% of the palate also presents significant reconstruction problem and is a relative contraindication as well<sup>4</sup>.

Advantages of EATA include minimal access with good cosmetic outcome, can be done in a standard ENT unit using a combination of tonsillectomy and FESS instruments and if patient selection is done properly, significant decrease in post-operative morbidity including first bite syndrome<sup>5,4</sup>. Meta-analysis of studies have shown EATA for management of parapharyngeal tumours (with careful patient selection) to be safe, minimally invasive and cosmetically acceptable<sup>6</sup>.

### **Conclusion**

1. Where possible, patients presenting with para pharyngeal masses should be considered for endoscopic assisted transoral surgery (EATS) since it provides a minimally invasive and safe approach to treating this disease.
2. No new equipment needs to be purchased for this technique and the technique is easily reproducible in standard ENT units.
3. Careful patient selection is the key for optimal results.

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