

## Airway Management in a Patient with Huge Neurilemmoma on Left Neck Undergoing Tumor Excision

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### Abstract

Huge head and neck tumor may compress the trachea leading to stenosis, shift and recurrent laryngeal nerve palsy accompanied by head and neck poor activity. The patients may face special difficulty in endotracheal intubation, which imperils patients' lives. Anesthetic management of these patients remains challenging for anesthesiologists, despite the current availability of various devices for tracheal intubation. For these patients, their upper airway should be evaluated systematically and thoroughly to select the safest approach for securing the airway.

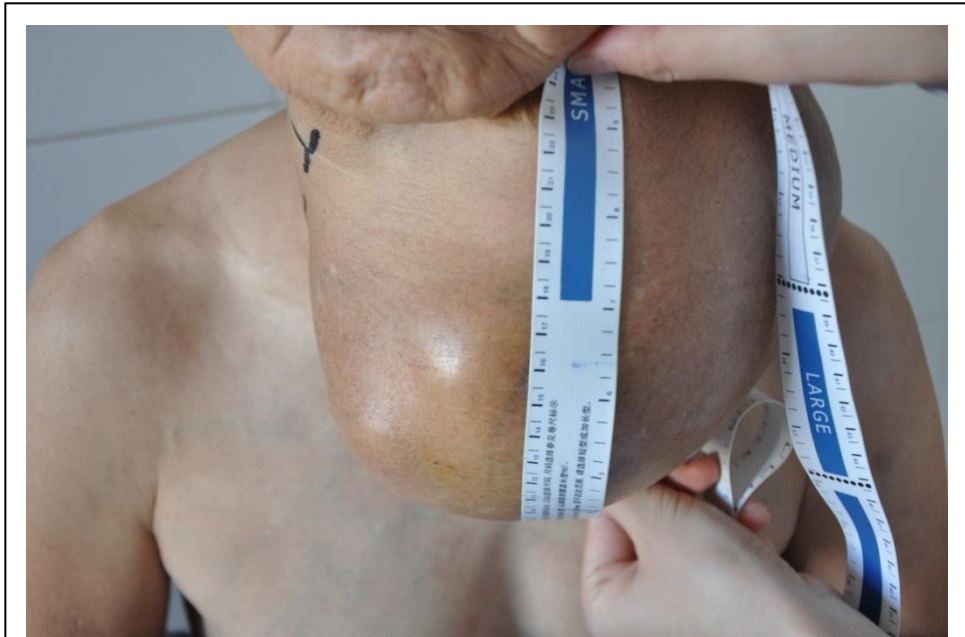
### Introduction

Large head and neck tumor may compress the trachea leading to stenosis, shift and recurrent laryngeal nerve palsy accompanied by head and neck poor activity. These patients may face special difficulty in endotracheal intubation. Anesthetic management of these patients remains challenging for anesthesiologists, despite the current availability of various devices for endotracheal intubation [1,2]. This case report emphasizes the importance of elaborate preanesthetic anatomical and functional airway evaluation in patients with huge neurilemmoma on neck requiring surgery under general anesthesia.

### Case Presentation

A 59-year-old woman was admitted to our department because of hoarseness and dyspnoea after upper respiratory infection. A size of about 19\*14\*15 cm tumor (Figure 1 and Supplementary Figure S1) was found on her left neck when physical examination. A detailed inquiry of past medical history found that 3 cm mass

was diagnosed as neurilemmoma by biopsy in her local hospital 30 years ago. She was followed up until now without operation due to economic problem.



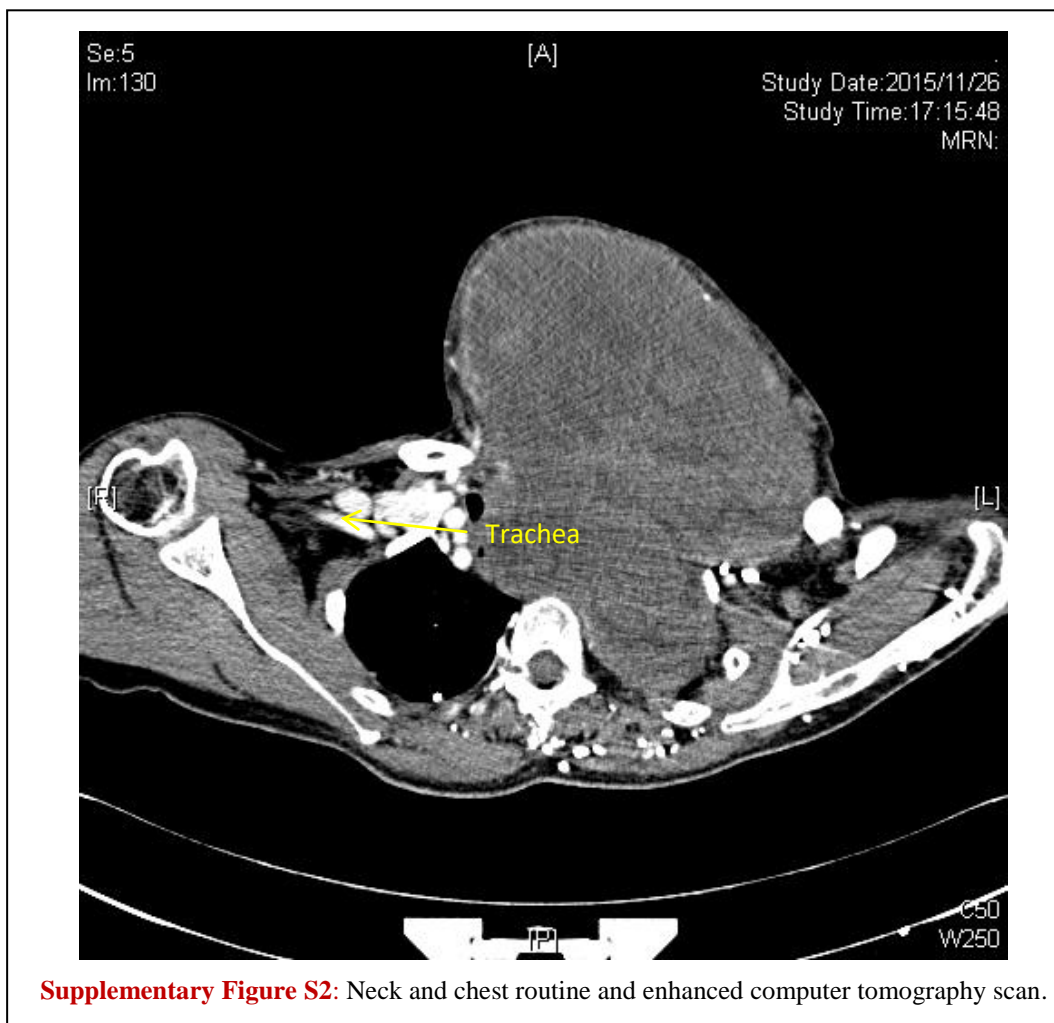
**Figure 1:** Anterior view of the patient's tumor.



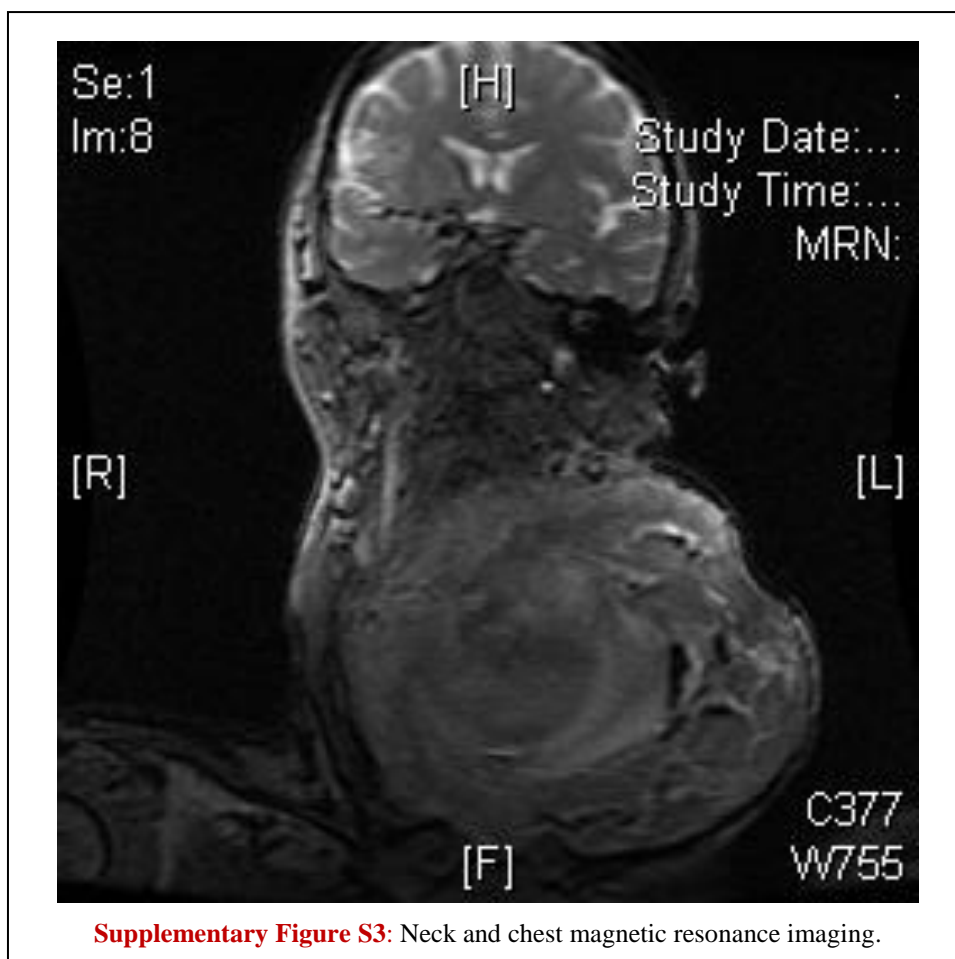
**Supplementary Figure S1:** Lateral view of the patient's tumor.

Neck and chest routine and enhanced computer tomography scan (**Supplementary Figure S2**) revealed that huge soft tissue mass in the left anterior neck, size of 20.2\*14.9 cm, compressed the trachea to the right side obviously. The largest cross-section was in the neck. The left subclavian was deformation, tracheal was

compressed to the right side and the right side of the chest wall collateral circulation opened. Electronic laryngoscope suggested that hypopharynx was pressed by outside tissue. The left vocal cord bad acted. Huge soft tissue mass on the left neck, internal uneven density, extended to the superior mediastinum, the size of about 20.2\*14.9 cm, neck structure was compressed to the right side. Neck and chest magnetic resonance imaging (**Supplementary Figure S3**) implied that a size of 19.2 \* 14.3 \* 15.8 cm huge mass was on the left neck, T1WI lesion subject exhibited slightly hyperintense and the edge was low signal and high signal. T2W1 was mixed-signal after enhancing the edge with irregular enhancement. The left common carotid artery and vein were compressed to back, showing less clear. Tracheal was compressed to the right. The left thyroid showed unclear and right thyroid morphology was normal.



**Supplementary Figure S2:** Neck and chest routine and enhanced computer tomography scan.



Improving the preoperative examination, the surgeon decided to implement huge tumor excision under general anesthesia for this patient. Monitoring ECG, BP, SpO<sub>2</sub>, CVP, urine, after fully surface anesthesia we tried to intubate via fibrobronchoscope when the patient was awake. However, the patient could not tolerate. We had to use visual laryngoscope and observed the patient's the epiglottis and smooth vocal cords. Then we decided to rapidly intubate a 6.5 # enforced endotracheal tube and intubated successfully ([Supplementary Figure S4](#)). The huge tumor was totally excised ([Supplementary Figure S5](#)).



**Supplementary Figure S4:** Supine view of the patient's tumor.



**Supplementary Figure S5:** An intact tumor specimen.

### **Discussion**

Large head and neck tumor may be life-threatening during airway management. Preoperative careful evaluation of airway-related anatomy and imaging is helpful to avoid loss of airway control. [Supplementary Table S1](#)

reveals common reasons for difficult intubation in patients with head and neck cancers [3]. Detailed procedures for the physical examination of the airway are described elsewhere [4-6].

**Supplementary Table S1:** Common reasons for Difficult Airway or Intubation in Head and Neck Cancer Patients.

Limited head and neck mobility and position
Limited mouth opening
Limited upper airway open space resulting from tumor, edema, or previous surgery
Distorted anatomy of the airway by tumor expansion or previous surgery
Fixation of tissues of head and neck, oral cavity, pharynx, or larynx by tumor, surgical scars, or radiation fibrosis

If a difficult airway or intubation is anticipated, we secure the airway with a fiberoptic-guided intubation in the awake patient after fully topical anesthesia of the upper airway under adequate sedation. If the intubation is potentially difficult, we apply a topical anesthetic to the upper airway, and proceed with a direct examination of the patient's airway while he or she is mild sedated. This awake, direct evaluation allows selection of the safest approach for securing the airway. If the patient's vocal cords can be visualized, it is appropriate to proceed with fast induction under general anesthesia. In this case, after fully surface anesthesia we tried to intubate via fibrobronchoscopic manipulation when the patient was awake. However, the patient could not tolerate and cooperate. We had to use visual laryngoscope and observed the patient's the epiglottis and smooth vocal cords. Then we decided to rapidly intubate a 6.5 # enforced endotracheal tube and intubated successfully.

We sum up experience and lessons as follows:

- Choose the right anesthetic technique: determining the correct position of the trachea to ensure airway patency is the key to success of anesthesia and surgery; Preoperative using neck and chest X-ray, CT examination to fully assess the displacement and stenosis of the tracheal;
- Correct choice of anesthetic induction and intubation way: patients with respiratory obstruction and dyspnea should be free of sedative and analgesic premedication before operation; Avoid rapid intubation when mouth, head and neck act badly, vocal cord paralysis, an estimated difficult intubation and shortness of breath, spontaneous ventilation should be maintained;
- Awake oral or nasal intubation to ensure safety, giving high frequency ventilation and oxygen to relieve symptoms of hypoxia and improve narcotic tolerance.

In conclusion, anesthetic management of patients with huge neck neurilemmoma surgery remains challenging for anesthesiologists, despite the current availability of various devices for tracheal intubation [1,2]. For these patients, their upper airway should be evaluated systematically and thoroughly to select the safest approach for securing the airway.

## References

1. [Atkins JH, Mandel JE, Mirza N. Laser ablation of a large tongue hemangioma with remifentanyl analgesedation in the ORL endoscopy suite. ORL J Otorhinolaryngol Relat Spec. 2011;73\(3\):166-9.](#)

2. [Bent JP. Airway hemangiomas: contemporary management. Lymphat Res Biol. 2003;1\(4\):331-5.](#)
3. [Dougherty TB, Nguyen DT. Anesthetic management of the patient scheduled for head and neck cancer surgery. J Chin Anesth. 1994;6\(1\):74-82.](#)
4. [Ovassapian A. Fiberoptic airway endoscopy in anesthesia and critical care, New York, NY: Raven Press; 1990:135-48.](#)
5. [Benumof JL. Management of the difficult adult airway: with special emphasis on awake tracheal intubation. Anesthesiology. 1991;75\(6\):1087-110.](#)
6. [Mallampati SR, Gatt SP, Gugino LD, et al. A clinical sign to predict difficult tracheal intubation: a prospective study. Can Anaesthetists Soc J. 1985;32\(4\):429-34.](#)

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