



Palliative Emergency mediastinal tracheostomy in carcinoma thyroid

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Abstract

Emergency mediastinal tracheostomy is life saving in patients with unresectable cervical tumors, in whom the site of the tracheostomy lies in the upper mediastinum in the tumor free area. Radiotherapy increases the risk due to substernal adhesion and presence of vascular structure make the procedure complex in this area. Careful nibbling of manubrium and left sternoclavicular joint with lateral traction of proximal 1-2cm of innominate artery after their origin from aorta gives a good exposure of substernal segment of trachea.

Introduction

Medullary carcinoma of thyroid involving tracheal lumen can cause life threatening respiratory distress. Establishing a patent airway by standard tracheostomy is not appropriate as the site is obscured by tumour tissue. To establish an airway in the mediastinal segment of trachea by Partial splitting sternotomy under local anaesthesia pose a significant challenge in a post radiotherapy patient due to extensive substernal inflammation and adhesion. In such case, nibbling of manubrium sterni and left sternoclavicular joint with lateral traction of the proximal innominate artery gives a good exposure of the substernal segment of trachea.

Case Report

A 35 year old male, a known case of medullary carcinoma of thyroid with tracheal infiltration underwent multiple cycles of radiotherapy, debulking of tumor and bilateral modified radical neck dissection presented to emergency room with stridor and tachypnea (respiratory rate-45/min). His room air oxygen saturation was 89% and with high flow oxygen (8 Ltr/min) the oxygen saturation increased to 98%. A palliative emergency tracheostomy planned under local anaesthesia.

Initially, the incision was given in the midline at the level of upper tracheal rings, but due to adhesions and inflammatory tissue at the site the standard tracheostomy was not possible to carry out. Therefore, the incision was further extended

over the manubrium in the mid line up to sternal angle. The retrosternal space was difficult to reach due to dense adhesion. Hence instead of partial upper median sternotomy we preferred to resect a part of manubrium and left sternoclavicular joint lying over the trachea with the help of a bone nibbler. Trachea could be reached with blunt finger dissection after retracting the Innominate artery to the right. (Fig-1). A 6mm Size cuffed tracheostomy tube passed through the anterior tracheal stoma and the skin layer is closed with interrupted nylon suture. Patient was relieved of stridor and room air oxygen saturation improved to 98% with no tachypnea.



Figure-1: Exposure of mediastinal portion of trachea after nibbling the sternum and left sternoclavicular joint

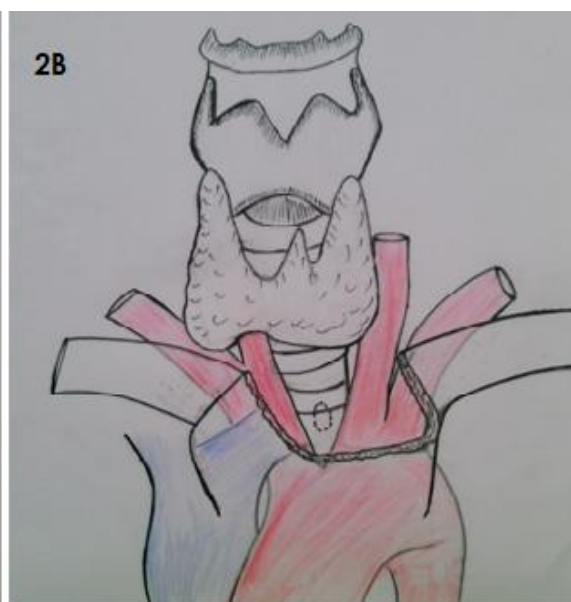
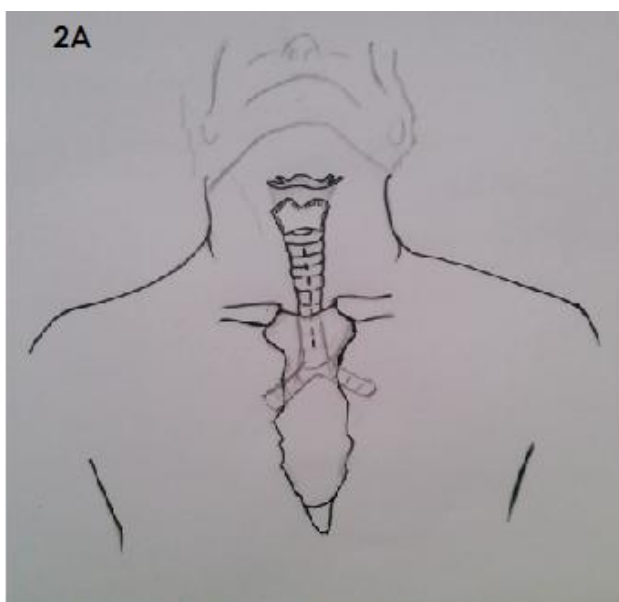


Figure-2A: schematic illustration of cervical incision in the mid line for standard tracheostomy extended to chest over the manubrium for mediastinal tracheostomy. **Figure -2B:** Schematic illustration of mediastinal tracheostomy showing the mediastinal segment of trachea and its relation with great vessels after resection of manubrium sterni and left sternoclavicular joint. Dotted circle over the anterior tracheal wall is the site of tracheostomy.

Discussion

Cervical tumors with local advancement up to the thoracic inlet are known to cause mechanical airway obstruction. Historically, curative mediastinal terminal tracheostomy involving cervical tracheal excision has been associated with high operative mortality, generally secondary to mediastinal infection and rupture of the innominate vessels. Simple palliative mediastinal

tracheostomy in such patients allows immediate relief of respiratory symptoms. It is less morbid and simpler as the procedure involves only anterior wall of trachea. Radiotherapy induced retrosternal adhesions and the presence of vital structures in the anterior mediastinum pose a significant challenge to the surgeons.⁽¹⁻⁴⁾ Careful resection of the manubrium, medial clavicular heads, and the proximal first two costal cartilages

permits a safe access to the superior mediastinum in emergency.

Conclusion

Emergency mediastinal tracheostomy improves the respiratory symptoms in patients with cervical malignancy involving the trachea where standard tracheostomy is not possible due to malignant tissue. It is prudent to nibble the bone where partial splitting sternotomy pose a surgical challenge due to prior neck irradiation

Compliance with Ethical Standards

This study was not funded

This article does not contain any studies with animals performed by any of the authors

Informed consent was obtained from the individual participant included in the study

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