

Timely Tracheal Stenting for Impending Central Airway Obstruction: A Stitch in Time Saves Nine

Vinod Kumar, Aditi Suri*, Nishkarsh Gupta and Seema Mishra

Department of oncoanaesthesia and palliative medicine, IRCH, AIIMS, New Delhi, India

*Corresponding author: Aditi Suri, Department of oncoanaesthesia and palliative medicine, IRCH, AIIMS, New Delhi, India, Tel: + 91- 8800798097; E-mail: aditisuri19@gmail.com

Received date: Apr 12, 2019; Accepted date: Aug 05, 2019; Published date: Aug 12, 2019

Copyright: ©2019 Kumar V, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Central airway obstruction (CAO) is ominous sequelae of malignancies of the neck or thorax. Tumor spread to adjacent tissues causes risk of airway compromise due to either extrinsic compression by tumor mass or intra tracheal infiltration leading to complete airway obstruction. Stenting of the airway as a palliative measure, in patients likely to develop CAO can greatly improve the quality of their lives.

We describe a challenging case each of anaplastic thyroid cancer and cancer esophagus with central airway obstruction managed successfully by palliative tracheal stenting.

Keywords: Central airway obstruction; Cancer esophagus; Thyroid cancer; Stenting

Introduction

Central airway obstruction can be sequelae of primary or metastatic intra thoracic malignancies like lung, thyroid, esophagus etc. These may often be associated with tumor spread to adjacent tissues like trachea causing risk of airway compromise due to either extrinsic compression by tumor mass or intra tracheal infiltration leading to complete airway obstruction. Almost 40% of cancer lung patients may end up in CAO. The incidence of thyroid cancer has risen at an annual rate of 5.4% in men and 6.5% in women from 2006 to 2010 [1]. Similarly esophageal cancers that are likely to increase by 140% in the coming years pose a major health concern.

We describe a challenging case each of anaplastic thyroid cancer and cancer esophagus with central airway obstruction managed successfully by palliative tracheal stenting.

Case Report

Case 1

A 53-year-old lady, a known case of anaplastic thyroid cancer, was admitted with features suggestive of airway obstruction like gradually progressive shortness of breath and stridor since 3 days. The dyspnea had been progressing for the past three months and had greatly hampered her activities of daily living. She was unable to ambulate and could sleep only while sitting. CT scan showed necrotic goiter with intratracheal extension in superior mediastinum and extensive bilateral lung metastasis.

An emergency rigid bronchoscopy was planned and high risk procedural consent obtained. All standard ASA monitors were attached. Since patient was hemodynamically stable, rigid bronchoscopy was performed by experienced pulmonologist under standard anesthesia technique. The trachea was intubated with size 12

rigid tracheobronchoscope. The scope revealed extensive infiltration of the mass into the trachea and presence of moderate edema in the upper one third of trachea until just below the vocal cords. Flexible bronchoscopy via the right bronchoscope revealed the presence of endobronchial nodules at the carina and right bronchial tree raising the suspicion of metastasis sans luminal narrowing. Tracheobronchial toileting was done and since the disease was clearly progressive a tracheal self-expanding metallic stent (SEMS) was deployed under vision. Lower end of the stent was conformed to be above the carina, upper end 1 cm below the vocal cords. Airway was patent post procedure and was intubated with 7.5 mm ETT. The patient remained hemodynamically stable throughout the procedure, was shifted to ICU for observation. She was extubated the next day and discharged after 2 days with a thorough counseling regarding prognosis. Oral morphine 10 mg fourth hourly was prescribed for pain. There was a dramatic improvement in her quality of life post procedure. She was able to eat, drink and interact with family members without being breathless. The disease gradually progressed and she passed away peacefully at home after 4 months.

Case 2

A 70-year-old male, a known case of cancer esophagus presented to the hospital with complaints of progressive shortness of breath, aggravated since 7 days. Past history revealed that he had defaulted treatment and lost follow up. Bronchoscopy was done to assess presence of a TEF, which revealed extrinsic compression of lower trachea and bilateral main bronchi, left more than right. The left main bronchus was seen to be slit like with difficult passage for Fiber Optic Bronchoscope (FOB). During the procedure, the patient's dyspnea worsened coupled with wheeze and he desaturated. He was thus intubated and the procedure abandoned. Presence of bronchospasm was suspected which was managed with inhaled salbutamol and budesonide. In spite of subsidence of bronchospasm, the saturation remained 40-50% at 100% FIO₂; with minimal left sided air entry. There was an episode of bradycardia managed with injection atropine 0.6 mg. The complete collapse of left lung due to blockage of left main

bronchus by a clot/thrombus was suspected. Bedside bronchoscopy was tried with minimal improvement of saturation on passage of FOB through LMB. The extrinsic compression was presumed to be due to probable esophageal growth or enlarged regional lymph nodes. Placement of SEMS as a palliative measure was thus planned after a high risk consent. Patient was anaesthetized with inj fentanyl 2 mcg kg-1 in titrated doses and injection cisatracurium 0.15 mg kg-1. Bronchoscopy was performed by an experienced pulmonologist and a Y-shaped SEMS was deployed successfully in second attempt leading to restoration of patency of LMB. The patient's saturation improved immediately He was shifted to ICU for elective mechanical ventilation and extubated on day POD1 with no residual hypoxic neurological deficit.

Discussion

The importance of early integration of palliative care into clinical practice cannot be stressed enough. Poverty, illiteracy, lack of access to healthcare is common barriers to providing palliative care services. A recent Cochrane review too has established the need of early palliative care services [2]. Patients and even clinicians are often unaware that palliation of distressful symptoms is possible. Gradual progression of tumor into adjacent areas in head and neck tumors leads to dysphagia, dyspnea and stridor.

CAO is particularly common with the anaplastic variant of thyroid cancer. Similarly it can be the result of progressive disease in cancer esophagus due to external compression or due to intra luminal tumor infiltration. In the absence of timely guidance, patients often present late to the emergency in severe respiratory distress.

An airway stent is prosthesis to maintain patency of the hollow airway structures [3]. Rigid bronchoscopy with a trachea bronchial stent placement is an excellent option to achieve effective palliation of airway symptoms. Sadly there is wide variation in clinical practice and ambiguity in patient selection as well as timing of stent placement due to lack of guidelines. Stents are available in silicone, metallic; like self-expandable metallic stents (SEMS) and hybrid varieties. [3,4]. Bandyopadhyaya and Induru discussed the pros and cons of the same in two patients of lung cancer [5]. They concluded that airway stenting can provide symptom palliation but there is a need to establish guidelines for good patient selection to achieve maximum benefit and ensure judicious use of health resources. Also, the short lived nature of relief must be conveyed sensitively to the patient and family [5]. Similarly, Oki et al achieved effective palliation of respiratory symptoms by placing silicone Y stent in three patients [6]. The authors would thus like to emphasize the need and efficacy of this palliative procedure to improve the quality of life of patients with advanced cancer.

Similarly, palliative stenting of the trachea is currently being practiced as a measure for TEF and extrinsic compression in cancer esophagus patients. But due to absence of timely tracheal stenting, numerous patients land up in severe life threatening CAO. Although brachytherapy is the preferred approach for early dysphagia, yet the subset of patients with severe dysphagia and short life expectancy must be offered stenting at the earliest to preserve the quality of their limited life. Steyerberg EW, et al. developed a prognostic tool to aid clinicians in patient selection for the same and further research on the same is needed [7]. Timely intervention can save both the patient and physician the stress of an emergency life threatening complication.

Conclusion

Stent placement before progression to anticipated CAO can avoid an emergency high risk procedure and enable judicious utilization of healthcare resources. This can be a valuable measure to prolong symptom free survival and maintain quality of life of the patient. Further research and possibly guidelines for the ideal patient selection and optimal timing of stenting is desirable.

The authors would thus conclude that timely palliation of airway stenting is advisable by airway stenting after proper patient selection to maintain longevity and quality of life. Guidelines for patient selection form a topic of future research.

References

1. Shah JP (2015) Thyroid carcinoma: Epidemiology, histology, and diagnosis. *Clin Adv Hematol Oncol* 13: 3-6.
2. Haun MW, Estel S, Rücker G, Friederich HC, Villalobos M, et al. (2017) Early palliative care for adults with advanced cancer. *Cochrane Database Syst Rev* 6: CD011129.
3. Folch E, Keyes C (2018) Airway stents. *Ann Cardiothorac Surg* 7: 273-283.
4. Mudambi L, Miller R, Eapen GA (2017) Malignant central airway obstruction. *J Thorac Dis* 9: S1087-S1110.
5. Bandyopadhyay D, Induru RR (2011) Role of Palliative Tracheobronchial Stenting in Hospice Patients: Boon or Bane? *Am J Hospice Palliat Med* 28: 445-448.
6. Oki M, Saka H, Kitagawa C, Kogure Y (2009) Silicone Y-Stent Placement on the Carina Between Bronchus to the Right Upper Lobe and Bronchus Intermedius. *Ann Thorac Surg* 87: 971-974.
7. Steyerberg EW, Homs MYV, Stokvis A, Essink-Bot ML, Siersema PD, et al. (2005) Stent placement or brachytherapy for palliation of dysphagia from esophageal cancer: A prognostic model to guide treatment selection. *Gastrointest Endosc* 62: 333-340.