



LOW CARINAL TUMOR & AIRWAY MANAGEMENT : AN ANESTHETIC CHALLENGE

Dr Ronakkumar Pravinbhai Patel

2nd Year Resident In MD Anaesthesiology, Bjm, Ahmedabad.

Dr. Bhaarat Maheshwari*

Md Anaesthesiology, Assistant Professor, BJMC, Ahmedabad. *Corresponding Author

Dr Parul Vijaykumar Goyal

1st Year Resident In Md Anaesthesiology, BJMC, Ahmedabad.

ABSTRACT

OBJECTIVE : Aim of the study was to face challenges during airway surgeries since airway is shared by both surgeon & anesthesiologist during tracheal resection, it is imperative to maintain ventilation ,while allowing free surgical access at the same time for the surgeons.

METHODOLOGY: Plane of anaesthesia was APNEIC VENTILATION along with intermittent mass ventilation along with EtCO₂ monitoring . During procedure , SpO₂ once reached upto 70 % which required ventilation with 100 % O₂ and even intermittent suction of surgical site was done simultaneously. Even after thorough suction of surgical site and mask ventilation with 100% O₂ , there was no improvement in saturation . Therefore Surgeons were requested to abandon the procedure. Endo-tracheal intubation was done with 6.5 mm prtx ,cuffed ET tube inserted. Endo-tracheal suction was done which revealed excessive bleeding. Suction was followed by nebulization with duolin , budecort , adrenaline. After that, once SpO₂ reached to 96% , endotracheal tube was removed.

RESULT: Patient was shifted to post operative recovery room to monitor hypoxia and respiratory distress. Patient was kept in head up position with oxygen via facemask [FiO₂-0.5] along with nebulization. Patient was advised to continue steroid 8 hourly . Post-operative Chest X ray [PA] also advised. Post operative ABGA shows Pao₂ of 94%.

CONCLUSION: Good communication, coordination and cooperation between the surgeon and the anesthesiologist are mandatory throughout the perioperative period for the successful outcome and the anesthesiologist should have the knowledge of other airway management techniques and be ready with an alternative plan in case of failure.

KEYWORDS : Apneic Ventilation .

INTRODUCTION:

Primary tracheal tumors are rare with an estimated incidence of 2.7 new cases per million per year. The trachea ,main stem bronchi ,bronchus intermedius & lobar bronchus make up the central airway. Disorders of central airway leads to nonspecific symptoms such as cough , dyspnea, stridor, tachypnea, & hemoptysis followed by progressive airway obstruction thus necessitating treatment. These approaches include complex interventions requiring one lung ventilation or cardiopulmonary bypass .

Anesthetic technique include various applications such as one lung ventilation ,fiberoptic intubation ,jet ventilation & apneic oxygenation ,general anesthesia with or without neuromuscular blockade. Since airway is shared by both surgeon & anesthesiologist during tracheal resection, it is imperative to maintain ventilation ,while allowing free surgical access at the same time for the surgeons. It is therefore important to anticipate problems & formulate airway management options in the preoperative period for successful perioperative outcomes.

CASE HISTORY :

A 30 yrs old female weighing 54kg presented to ENT department of our hospital with a history of progressive dyspnea along with hemoptysis [on & off episodes] since 2 yrs that is aggravated from last 6 months. The patient's medical history, surgical history & family history were non significant.

EXAMINATION:

Vital signs were normal.

The oxygen saturation as measured by the pulse oximetry was 96% on air .

RESPIRATORY SYSTEM

Auscultation of chest revealed no air entry on left side & slightly decreased air entry towards right side.

The airway was evaluated as MALLAMPATI grade I along with adequate mouth opening and neck movements.

INVESTIGATIONS:

Hemogram : 10.7 gm% WBC count : 7100/cumm Platelet : 3.03 lacs.
LFT : DB/TB - 0.19/0.33 U/C : 21/0.91 Sr. Electrolytes : Na/K - 140/3.77
RBS : 103 PT/INR : 14.8/1.16 APTT : 30.9

No abnormality detected on the chest xray.

The arterial blood gas analysis revealed PaO₂ of 88.4 mmHg on room air with SpO₂ 96%

Preoperative PFTs revealed obstruction ventilation defects with reduced vital capacity , & flow volume loops demonstrated flow limitation during both phases of respiration.

Computer tomography scan of the thorax revealed a well defined 19mm×15mm lobulated homogeneously enhancing hyperdense lesion at carinal region causing complete obstruction of left main stem bronchus & partial obstruction of right main stem bronchus p/o bronchial carcinoid.

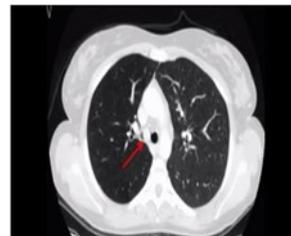


Fig 1- CECT Thorex.

Preoperative bronchoscopy was done under sedation at Gujrat cancer research institute, ahmedabad and confirmed a polypoid growth /mass seen at lower end of trachea which partially obstructs the left main bronchus that permits air due to dynamic obstruction & lesion bleeds on touch.

Other biochemical and hematological parameters were normal.

PREOPERATIVE ADVICES:

Patient received a course of broad spectrum antibiotics ,bronchodilator therapy and nebulization preoperatively.

CONSENT taken with ASA –V with post op ventilator support.

PREPARATION:

18 G intracath taken on left dorsal aspect of hand and patency checked .

Inj Dexona [8mg] and Inj Hydrocort [100mg] given intravenously .

Patient was monitored with the help of NIBP, ECG, and SpO2.

As a premedication , Inj Glycopyrrolate [0.2mg] and Inj Emset [4mg] given intravenously.

Plan of anaesthesia was **APNEIC VENTILATION** along with intermittent mass ventilation along with EtCO2 monitoring .

Patient was preoxygenated with 100% O2 for 3-5 minutes with the help of Bain's circuit at flow of 8-10 L/Min . Patient was taken in deer plane of anesthesia with the help of inhalational agent SEVOFLURANE along with mask ventilation . After Check ventilation was done anaesthesia was followed by Inj PROPOFOL 75 mg iv and lastly Inj SUXAMETHONIUM 75 mg iv. Maintenance of anesthesia was done by giving intermittent doses of Inj PROPOFOL [10 mg] and Inj SUXAMETHONIUM [20mg] iv.



Fig 2- Intraoperative endoscopic view of mass.

Surgeons tried for excision biopsy of carinal mass [partial excision was done]. During procedure , SpO2 once reached upto 70 % which required ventilation with 100 % O2 and even intermittent suction of surgical site was done simultaneously.

Even after thorough suction of surgical site and mask ventilation with 100% O2 , there was no improvement in saturation. Therefore Surgeons were requested to abandon the procedure. Endo-tracheal intubation was done with 6.5 mm prtex ,cuffed ET tube inserted. Endo-tracheal suction was done which revealed excessive bleeding. Suction was followed by nebulization with duolin , budecort , adrenaline. After that, once SpO2 reached to 96 % , endotracheal tube was removed.

On auscultation , air entry increased on left side along with foreign sounds.

Patient was shifted to post operative recovery room to monitor hypoxia and respiratory distress. Patient was kept in head up position with oxygen via facemask [FiO2-0.5] along with nebulization. Patient was advised to continue steroid 8 hourly . Post-operative Chest X ray [PA] also advised. Post operative ABGA shows Pao2 of 94%.

ADVICES:

Patient was shifted to ward after overnight observation with head up with face mask with oxygen (Fio2 -0.5) followed by nebulization every 6 hrly with duolin & budecort and ABGA sos.

DISCUSSION:

Primary tumors of trachea are relatively uncommon which possess challenge to both anesthesiologist and surgeon. Most of primary tracheal tumors are malignant , generally squamous cell or adenoid ,cystic carcinomas which comprises OF 75% of all the tumors of trachea.

Anesthetic management for tracheal resection is unique because of narrowed airway diameter and the challenge of maintaining ventilation during the peri-operative period. Anesthesiologist involved in the perioperative care of patients with central airway obstruction must be aware of techniques that allows maximum surgical access to the airway with minimal interference by the ETT while ensuring adequate ventilation and oxygenation at the same time.

Various techniques have been described to manage patient with carinal mass which includes apneic oxygenation , high frequency jet ventilation , fiberoptic intubation ,rigid bronchoscopy with side arm ventilation .IF REQUIRED FOR COMPLETE RESEction , one lung ventilation or cardiopulmonary bypass is must .

CHALLENGES TO ANESTHESIOLOGIST :

Management of compromised airway because of large mass present in trachea .

Maintenance of oxygenation [hypoxia] and ventilation [hypercarbia]

Management of sharing airway both by anesthesiologist and surgeon.

Management of bleeding which may obstruct ventilation.

Management of reactive airway like bronchospasm and laryngospasm.

Prevention of spillage to the healthy lung.

CONCLUSION:

Primary carinal tumor of the trachea is a challenge both to the surgeon and more so to the anesthesiologist ,who has to ensure a patent airway and effective gas exchange throughout the procedure . Good communication, coordination and cooperation between the surgeon and the anesthesiologist are mandatory throughout the perioperative period for the successful outcome. However, the anesthesiologist should have the knowledge of other airway management techniques and be ready with an alternative plan in case of failure.

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