CASE REPORT

Low Carinal Tumor & Ventilatory Management : An Anesthetic Challenge

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ABSTRACT

Surgical resection of carinal tumors is an anesthetic as well as surgical challenge ,which requires meticulous planning and good interaction between surgical and anesthetic teams for successful outcome. A 30 Yrs old female presented with a history of progressive dyspnea along with hemoptysis since 2 yrs that aggravated from last 6 months posted electively for carinal mass biopsy along with resection. Clinical examination revealed no air entry on left side & slightly decreased air entry towards right side. CT scan of chest revealed 19×15mm carinal mass causing complete obstruction of left main stem bronchus & partial obstruction of right main stem bronchus p/o bronchial carcinoid. Patient was managed with Apneic ventilation technique along with intermittently EtCO2 monitoring done during mask ventilation. Our aim was to maintain patent airway , adequate oxygenation and ventilation with readiness to deal excessive bleeding. We allowed just partial resection biopsy as tumor was of bleed on touch variety. Patient was managed successfully with vigilant actions to abandon the procedure timely with good postoperative outcome .

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.

Anesthetic technique include various applications such as fiberoptic intubation ,jet ventilation, apneic oxygenation ,general anesthesia with or without neuromuscular blockade , one lung ventilation,ECMO and CABG. 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. 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 has aggravated within 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.

INVESTIGATION

All routine investigations were normal.

ABGA revealed PaO2 of 88.4 mmHg, PCO2 28.1mmhg, PH-7.46, HCO3 -24 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.

CT scan of the thorax revealed a well defined [19cm×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.

Preoperative fiberoptic Bronchoscopy done under sedation confirmed a polypoid mass seen at lower end of trachea which partially obstructs the left main bronchus

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that permits air due to dynamic obstruction & lesion bleeds on touch.

PREOPERATIVE ADVICES

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

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

PREPARATION

All mandatory monitors attached.

As a premedication, Inj Glycopyrrolate [0.2mg] , Emset [4mg], Dexona [8mg] and Hydrocortisone [100mg] given intravenously .

PLAN OF ANESTHESIA was **APNEIC VENTILATION**

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 taken in plane of anesthesia with the help of inhalational agent SEVOFLURANE . Afterwards Check ventilation done followed by Inj PROPOFOL 75 mg iv and lastly Inj SUXAMETHONIUM 75 mg given iv. Maintenance of anesthesia was done by giving intermittent dose of Inj PROPOFOL [10 mg] and Inj SUXAMETHONIUM [20mg].

Surgeons tried for excision biopsy of carinal mass [partial excision was done]. During procedure, SpO2 reached upto 70%. Even after intermittent suction of surgical site,mask ventilation was not possible. Therefore, SURGEON'S REQUESTED TO ABANDON THE PROCEDURE. Endotracheal intubation was done with 6.5 mm portex, cuffed ET tube . Endotracheal suction was done which revealed excessive bleeding. Then nebulization with duolin, budecort, adrenaline was done. SpO2 reached to 96 % with good spontaneous efforts of respiration and consciousness , endotracheal tube removed.

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

Patient was shifted to PACU to monitor hypoxia and respiratory distress and advised for head up position with oxygen via facemask [FiO2-0.5] along with nebulization. Patient was advised to continue steroid 8 hrly. Postopertive ABGA and Chest X ray [PA] also advised. Histopathology revealed carcinoid type of tumor. Further referred for cardiothoracic intervention.

DISCUSSION

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 perioperative 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 while ensuring adequate ventilation and oxygenation .

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

CHALLENGES TO ANESTHESIOLOGIST ARE compromised airway, sharing of airway, management of hypoxia , hypercarbia, obstruction of ventilation due to bleeding and spillage, bronchospasm and laryngospasm.

Surgeon planned for excision biopsy and resection of the mass with rigid bronchoscopy along with side arm ventilation.

During the procedure, bleeding started ,mask ventilation could not help to manage hypoxia .Therefore endotracheal intubation done along with vigorous suctioning. We requested surgeons to abandon the procedure as bleed on touch mass can produce can't ventilate scenario.

These types of patients should be operated at well equipped tertiary centre with facility of ECMO/CABG.

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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