Case Report

Indian Journal of Anesthesia and Analgesia
Volume 8 Number 4 July-August 2021
DOI: http://dx.doi.org/10.21088/ijaa.2349.8471.8421.67

Anaesthetic Management of a Patient with Endotracheal Tuberculosis Posted for Endoscopic CSF Leak Repair

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Abstract

Introduction: Patient with tracheal tuberculosis with active lung infection requiring Intubation using Double lumen Endotracheal tube pose a challenge to anesthesiologist to prevent contamination of healthy lung.

Case Report: 55 year female presented with complaints of nasal discharge for 2 weeks, cough with expectoration for one week. A diagnosis of CSF Rhinorrhoea was made. HRCT chest report showed tree in bud opacities suggestive of TB. General anaesthesia was planned. Preoperatively nebulized with Lignocaine with adrenaline; Patient was Pre medicated, Preoxygenation done with 100% oxygen. Induced with Inj Propofol. 35F Left Double lumen tube was inserted under fibreoptic guidance and was confirmed by chest rise and $ETCO_2$ and Tube fixed in place. A portable ventilator was used with Tidal volume of 5ml per kg for the right lung and regular ventilator with same tidal volume to left lung. Intra operative vitals were stable throughout the procedure. The patient was extubated after adequate spontaneous efforts. After extubation the patient started desaturating, saturation went upto 70% on room air, immediately the patient was reintubated and shifted to ICU with ET tube insitu. The patient was extubated in ICU after 2 days and shifted to postoperative ward.

Conclusion: In patients with active lung infection a plan for Double lumen ET tube may help in avoiding the infection spreading to healthy lung, intubation period is crucial to avoid most common problems such as malposition, airway trauma and tension pneumothorax caused by high ventilating pressure or large tidal volumes in patients.

Keywords: Double Lumen tube; One Lung ventilation.

How to cite this article:

Shri Easwari S, Ravi Madhusudhana, Sravanthi GNS/Anaesthetic Management of a Patient with Endotracheal Tuberculosis Posted for Endoscopic CSF Leak Repair/Indian J Anesth Analg. 2021; 8(4): 453-455.

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Introduction

Patient with active lung infection planned for general anaesthesia pose a challenge to anaesthesiologist to prevent contamination of healthy lung, controls distribution of ventilation and facilitate single lung lavage. Use of double lumen endotracheal tube requires skill and precision to avoid contamination and get control of differential ventilation.

Case Report

A 55 year old female presented with complaints of nasal discharge for 2 weeks, cough with expectoration for one week. No comorbidities present. On examination clear fluid of nasal discharge was present. A diagnosis of CSF Rhinorrhoea was made. Systemic examination – Respiratory System Bilateral crepitations present (right>left). Other systems were normal. Routine investigations were done and was within normal limits. HRCT chest report showed tree in bud opacities (Right>Left) suggestive of Tuberculosis (TB). AFB sputum sample also confirmed diagnosis of Active TB and she was started on Anti tubercular drugs.

General anaesthesia was planned. 18G IVCannula secured in Left forearm, preloaded with 500ml RL. Monitoring included pulse oximetry, ECG ,invasive blood pressure, end-tidal carbondioxide. Preoperatively nebulized with Lignocaine with adrenaline; Patient was Pre medicated with Inj glycopyrrolate, Inj Midazolam and Inj fentanyl. Preoxygenation done with 100% oxygen. Induced with Inj Propofol and loading dose of IV Vecuronium 5mg was given, Bag and Mask ventilation was given for 3-4mins. 35F Left Double lumen tube was inserted under fibreoptic guidance and was confirmed by chest rise and $ETCO_2$ and Tube fixed in place. A portable ventilator was used with Tidal volume of 5ml per kg for the right lung and regular ventilator with same tidal volume to left lung. Intra operative vitals were stable throughout the procedure.

Anaesthesia was maintained with 50% nitrous oxide in oxygen, IV Propofol, IV Vecuronium along with volatile inhalational agent maintained with positive pressure ventilation. Further analgesia was supplemented by Inj.Paracetamol IV and Inj Diclofenac IV. The haemodynamic parameters remained stable throughout the procedure. The procedure lasted for 6hrs during which 4 crystalloids was given. The patient was extubated after adequate spontaneous efforts. After extubation the patient started desaturating, saturation <70% on room air, immediately the patient was reintubated and shifted to ICU with ET tube insitu. The patient was extubated in ICU after 2 days and shifted to postoperative ward.

Discussion

Double lumen tubes are the most commonly used tubes for lung isolation. They are designed to isolate, selectively ventilate and/or collapse either lung. In practice, a left sided DLT that is too small requires a large endobronchial cuff volume, which might increase malposition.[1]

There are two basic methods of verifying the position of a DLT: auscultation and bronchoscopy. Verifying DLT position purely by auscultation can frequently result in malposition. If the DLT position verified initially by bronchoscopy at the of intubation, the bronchoscopy should be repeated before the initiation of one-lung ventilation.[2]

The DLT needs to be replaced with a single-lumen ETT post-operatively before the patient is shifted to the ICU, if post-operative ventilation is contemplated. This decision involves weighing of risk-benefit ratio by the anaesthesiologist, as changing the tube with a loss of airway control,and regaining it with ETT can be very risky at times; particularly when surgery has lasted long and fluid resuscitation with large amounts could have caused oedema of upper airway. For such occasions, airway exchange catheters (AECs) should be considered, the longer ones especially design for DLTs should be optimal. The AECs serve a dual purpose, it would act as a guide to the airway and would permit jet ventilation through the central lumen thus preventing hypoxia during airway exchange.[3]

Our patient was stabilised with differential ventilation and during extubation required oxygen supplementation due to the diseased lung not able to contribute much and a little bit of residual sedation, later was able to maintain saturation and was extubated.

Conclusion

In patients with active lung infection a plan for Double lumen ET tube may help in avoiding the infection spreading to healthy lung, intubation period is crucial to avoid most common problems such as malposition, airway trauma and tension pneumothorax caused by high ventilating pressure or large tidal volumes in patients.

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