

Anesthetic Management of an Emergency Case of a Patient with Grossly Deviated Trachea

Bhavna Gupta, Satheesh G, Varnitha MS

All India Institute of Medical Sciences, Rishikesh

ABSTRACT

There is paucity of case reports highlighting the emergency anesthesia management of cases with deviated trachea. A 66-year-old female was posted in emergency for ventriculoperitoneal shunt in view of features suggestive of raised intracranial pressure. She was a diagnosed case of hypertension, diabetes, and acoustic neuroma for 2 years. She presented to the emergency in diabetic ketoacidosis. On chest X-ray examination, she had deviation of trachea at two levels. Successful anesthesia management of case is being discussed in this case report. Meticulous preparation and perioperative management are the key factors in safety of patients who present for emergency surgery with deviated trachea.

Key words: Anesthesia, deviated trachea, emergency management

INTRODUCTION

Tracheal deviation happens when trachea is pushed to one side of neck by abnormal pressure in chest cavity or neck. Causes of displacement of trachea away from the side of pathology include pneumothorax, pleural effusion, retrosternal goiter, and mediastinal neoplasms such as lymphoma, germ cell tumors, lymphadenopathy, and thymic tumors. Causes of displaced trachea to the same side include apical lung fibrosis, collapsed lung segments, or previous pneumonectomy. In cases of emergent nature of surgery, cause of tracheal deviation could not be ascertained. We briefly describe anesthetic management in one such case.

CASE REPORT

A 66-year-old female was posted in emergency for ventriculoperitoneal shunt in view of features suggestive of raised intracranial pressure. She was a diagnosed case of hypertension (HT), diabetes, and acoustic neuroma for 2 years. She was admitted in emergency with altered sensorium, multiple episodes of vomiting, and raised blood sugar in the range of 450–540 mg% with positive blood ketones. Her vitals were in normal range, pulse

was 78/min, blood pressure was 130/89 mmHg, and respiratory rate was 16/min. Chest auscultation was equal on both sides and no murmur was heard. Her airway examination was suggestive of bucked upper incisors, and missing lower incisors, Malampati grading was Grade II, thyromental distance, and sternomental distances were within normal range. Spine curvature was within normal range. Neck examination revealed apparently no abnormality except for deviated trachea to the right side at the level of suprasternal notch, pemberton sign was negative. Her chest X-ray was suggestive of tracheal deviation at two levels and widened mediastinum [Figure 1]. Electrocardiography was suggestive of T wave inversion in lead III and avF.

She was managed for diabetic ketoacidosis (DKA) with ongoing intravenous fluids and insulin, and gradually blood sugars were decreased to 239 mg% before induction. We induced the patient with 60 mg fentanyl, thiopentone 200 mg, after ensuring check ventilation, succinylcholine 100 mg was given and patient was intubated with stented flexometallic endotracheal tube (ETT) sized 7, without any resistance at any level and ensuring bilateral air entry. Case was handed over to surgeons, surgery lasted for 1 h with minimal blood

Address for correspondence:

Bhavna Gupta, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India.

© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

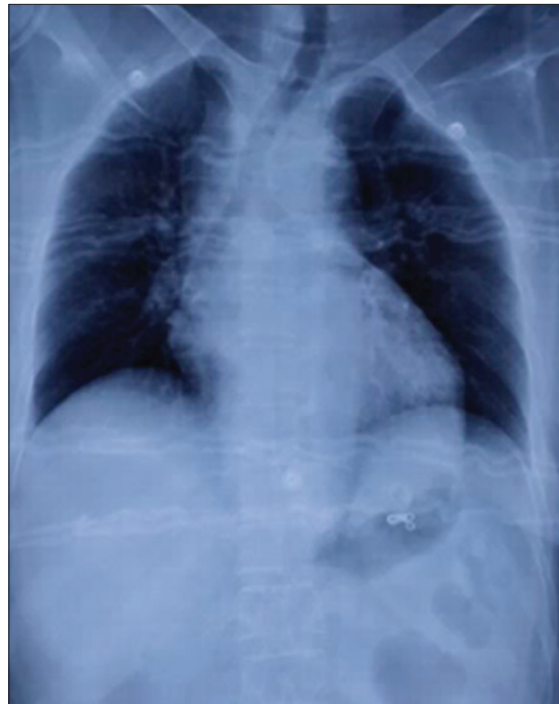


Figure 1: Deviated trachea at two levels

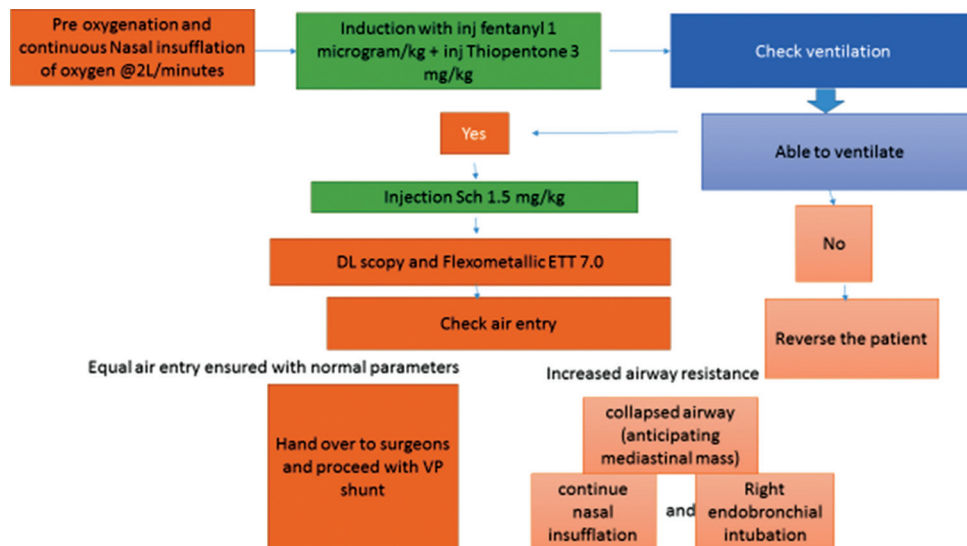


Figure 2: Plan of case management and back up

loss. She was maintained on 50:50 O₂:N₂O with isoflurane, and top up of fentanyl, and vecuronium. Her blood sugars were managed according to modified Vellore regimen and were maintained in 120–180 mg% range. She was extubated uneventfully with stable vitals.

DISCUSSION

Management of our case revolved around the management of DKA, airway concerns especially deviated trachea, raised intra cranial pressure, and multiple comorbidities such as

coronary artery disease, HT, and diabetes mellitus. Sugars were managed with fluids and insulin therapy. Work up of the patient with respect to deviated trachea could not be done due to emergent nature of surgery.

Trachea is located in the midline at the level of clavicles, and with slight deviation to right at the level of aortic arch. Causes of displacement of trachea away from the side of pathology include pneumothorax, pleural effusion, retrosternal goiter, and mediastinal neoplasms such as lymphoma, germ cell tumors, lymphadenopathy, and thymic tumors. Causes of

displaced trachea to the same side include apical lung fibrosis, collapsed lung segments, or previous pneumonectomy. Our patient had apparently no history of long-standing respiratory or cardiac or thyroid disease.

Due to her emergent nature of surgery, we had taken all possibilities of deviated trachea in our patient and had made a plan for the same [Figure 2]. We used flexometallic ETT sized 7, and length 32 cm, so as to mold according to deviated trachea. We also kept supraglottic devices for ventilation. According to literature, in most of the previous reported cases of tracheal deviation, authors have advanced the ETT beyond the deviated area and were successful in the same. There are two reports of tracheal deviation, in which there was a failure of intubation in one, in which author has placed laryngeal mask airway for ventilation, and the patient had tracheal diverticulum, along with deviated trachea.^[1] In the other case report, the patient had severe tracheal deviation up to 90°, the authors had placed the tip of ETT above the area of resistance without cuff ballooning,

and saline soaked gauzes were packed around tracheal inlet to minimize leakage.

CONCLUSION

Meticulous preparation and perioperative management are the key factors in safety of patients who present for emergency surgery with deviated trachea.

REFERENCES

1. Davies R. Difficult tracheal intubation secondary to a tracheal diverticulum and a 90 degree deviation in the trachea. *Anaesthesia* 2000;55:923-5.

How to cite this article: Gupta B. Anesthetic Management of an Emergency Case of a Patient with Grossly Deviated Trachea. *J Clin Res Anesthesiol* 2020;3(2):1-3.