

## **Awake Video Laryngoscopy Endotracheal Intubation and Self Positioning in Super Obese Neurosurgery Patient: A Case Report**

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### **Abstract**

Safe conduct of anesthesia in a case of super obese patient, weighing 165 kgs posted for neurosurgical procedure and overcoming the challenges faced in these kind of patients. A 23 year old male presented with complaints of headache, one episode of seizure and was diagnosed to have left Cerebellopontine angle tumour. Patient is a case of recently diagnosed diabetic and systemic hypertension. Patient is super obese with weight of 165 kg and height of 179 cm. BMI calculated as 51.6. Patient was planned by the Neurosurgery team for tumour excision under anesthesia. Securing a definite airway in these patients are challenging. Awake video laryngoscopy endotracheal intubation with self-positioning of the patient was decided as the primary anesthesia plan for securing the airway. Anticipating Difficult mask ventilation and difficult intubation for our patient, we decided to do awake video laryngoscopy guided endotracheal intubation. This technique was chosen instead of awake fiberoptic intubation because the patient has adequate mouth opening and the patient discomfort and risk of raising ICP is less comparatively with this technique, however we had a fiberoptic bronchoscope on standby in case of emergency. Anesthetizing the airway plays important role in preventing unwanted gag reflexes and patient discomfort. With thorough preoperative assessment, optimization of the patient preoperatively, deciding on a step wise anesthesia plan, preparing of all expected complications, we were able to successfully complete the surgery in safe and uneventful manner in spite of many high risk factors of the patient.

### **Introduction**

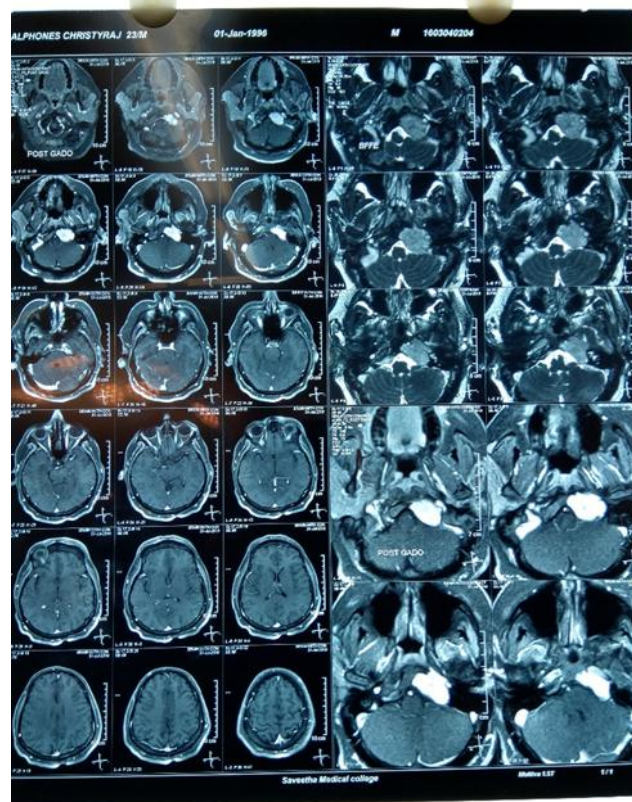
As the prevalence of obesity increases worldwide, an increasing number of obese surgical patients will require anaesthesia [1]. All Super obese patient is anticipated to have difficult airway. Securing a definite airway in these patients are challenging [1]. We have to work out, charting a suitable anesthesia plan for these patients with adequate backup and facilities for safe conduct of anesthesia. Securing a venous access, invasive arterial line for BP monitoring, securing airway, positioning of patient, adjusting ventilatory settings, delivery of correct drug dosage, managing hemodynamic changes during surgery and extubating the patient all

require special modulation and care for these super obese patients ,posing as a great challenge to the anaesthetist.

### Presentation of Case

A 23-year-old male presented with complaints of headache, one episode of seizure and was diagnosed to have left Cerebellopontine angle tumour[Fig1]. Medical history included 3 months of uncontrolled Diabetes and Systemic hypertension on medications. The sugar levels and Blood pressure was optimized during the preoperative period. No H/o of any previous surgery in past. No H/o of smoking and alcohol intake.

**Fig.1: MRI Brain of the patient**



Patient is super obese with weight of 165 kg and height of 179 cm. BMI calculated as 51.6. Patient had no drug allergies, a normal ECG, CBC, basic metabolic panel, and chest X-ray pre-operatively. The Patient PFT was as follows FEV1:55% FVC:62% FEV1/FVC: 88% of predicted value. The other parameters were Stop Bang: 5/8 positive, SpO2: 95% at RA

Preoperatively chest physiotherapy and breathing exercises were started. The patients airway was examined: Mouth opening:>3fingers, Dentition: Normal, MMP – III, Neck Movements : Normal, Short Neck, TMD – 3 finger breath, Neck circumference – 50 cm

A triple lumen central line catheter established in right IJV using ultrasound guidance by modified seldingers technique under local anaesthesia. Special OT table was arranged to accommodate the huge size and weight of the patient. Patient was counselled preoperatively about the anesthetic plan. Patient was shifted to the operation theatre and connected to American society of Anesthesiologist recommended standard monitors. Oxygen was supplied by nasal cannula at 3 liters/minute. Patient was premedicated with Inj.Glycopyrrolate 1.5cc

and Inj.Midazolam 3mg was given. Inj.Dexmedetomidine infusion started with loading dose of 90mcg over 20 minutes followed by maintenance dose of 45 mcg/hr

Patient airway anesthetized by nebulisation with 2% lignocaine 8cc half an hour prior to surgery, followed by 10cc of 2% lignocaine gargling two times. Then 10 % lignocaine spray was used to adequately anesthetize the airway. Transtracheal block given with 2 cc of 2% lignocaine [Fig.2].

**Fig 2: Transtracheal Block in the Patient**



After adequately anesthetising the patient's airway, Using Video laryngoscopy (KING VISION 3 size channelled blade) endotracheal intubation done with 8.0 size Flexometallic tube [Fig.3] and the position of the tube confirmed with bilateral equal chest rise and Etco2 graph. Throughout the procedure was very comfortable and did not show any signs of airway irritation and tolerated the endotracheal tube well. Patient self-positioned himself to the modified lateral surgical position and then patient was given GA with Inj.Fentanyl 200mcg, Inj.Propofol 180mg and Inj.Atracurium 50 mg and Isoflurane 0-2% was used as maintenance [Fig.4]. Inj.Dexmedetomidine infusion was continued at maintenance dose. Repeat dosage of muscle relaxant was given with the help of TOF monitoring [4]. Invasive blood pressure monitoring was done throughout the surgery by cannulating right radial artery. Ventilatory settings in volume control mode was set with tidal volume of 600ml, respiratory rate of 12/min, PEEP of 7cm H2O initially and then increased to 12 cm H2O. The airway pressures and adequate tidal volume delivery was monitored throughout the surgery. The initial SpO2 was 91 % so the ventilatory settings were changed and small amount of reverse Trendelenburg position was given and then the saturation improved to 95%.

**Fig 3: Awake Video laryngoscopy Endotracheal Intubation**



**Fig. 4: Patient Connected to Mechanical Ventilator**



The duration of surgery was 6 hrs. Intraoperatively there was blood loss of 500-550 ml and patient received 6 units of crystalloids and maintained adequate urine output. There were no major hemodynamic complications intraoperatively. The patient was planned for elective extubation and was shifted to ICU unreversed and was connected to ventilator in ICU. Inj. Dexmedetomidine and Inj. Fentanyl infusion was continued in ICU. Patient was extubated uneventfully in ICU on the next day morning. No complications were noted from surgery or anesthesia.

## Discussion

As the prevalence of obesity increases worldwide, an increasing number of obese surgical patients will require anaesthesia. In adults, the World Health Organization and the National Institute of Health define obesity as a BMI  $\geq 30$  kg/m<sup>2</sup>. Obesity is also associated with an increased incidence of medical co-morbidities; including non-insulin dependent diabetes,



hypertension, and decrease in sleep efficiency associated with sleep apnea, cardiopulmonary disease, venous thromboembolism, and psychosocial disease [3]. Obesity is associated with greater anesthetic risk compared to other patients. Anticipating Difficult mask ventilation and difficult intubation for our patient, we decided to do awake video laryngoscopy guided endotracheal intubation. This technique was chosen instead of awake fiberoptic intubation because the patient has adequate mouth opening and the patient discomfort and risk of raising ICP is less comparatively with this technique, however we had a fiberoptic bronchoscope on standby in case of emergency. Anesthetizing the airway plays important role in preventing unwanted gag reflexes and patient discomfort [4]. Our patient was cooperative throughout the procedure and was comfortable because of the elaborative steps taken to anesthetize the airway. We did not face any difficulty in introduction of the video laryngoscope and intubation. All the drugs administered were titrated according to the altered pharmacokinetics in the obese patients [2]. Securing an intravenous cannula is also difficult in these patients, and it is always better to secure a central venous access and for accurate monitoring of hemodynamics invasive blood pressure monitoring was done.

## **Conclusion**

With thorough preoperative assessment, optimization of the patient preoperatively, deciding on a step wise anesthesia plan, preparing of all expected complications, we were able to successfully complete the surgery in safe and uneventful manner in spite of many high-risk factors of the patient. Clearly the conduct of anesthesia in a morbidly obese patient can pose a formidable challenge to the anesthetist. A better understanding of the pathophysiology and complications that accompany obesity improve their care and outcome.

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## **Authors' Contributions**

All the authors were actively involved in the management of the patient and in the process of publishing this case report.

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Nil.

## **Conflicts of Interest**

There are no conflicts of interest.

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