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Case Report

Awake Fiberoptic Intubation Using Intravenous Dexmedetomidine as an Alternative to Airway Blocks in Patients with Previous Surgery and Radiotherapy to the Neck.

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ABSTRACT

Awake fiberoptic intubation is widely regarded as a preferred approach for managing anticipated difficult airways. This report outlines a case in which the technique was effectively used in a patient with restricted mouth opening. The success of the procedure relied on thorough airway preparation, appropriate sedation and active patient cooperation.

Keywords*: Awake Fiberoptic intubation, anticipated difficult airway, airway blocks, dexmedetomidine, restricted mouth opening.*

INTRODUCTION

Effective airway management is a fundamental component of anaesthetic care. In patients with reduced mouth opening like maxillofacial abnormalities or previous surgery or oral sub-mucous fibrosis and in trauma cases where cervical spine mobility needs to be restricted standard laryngoscopic techniques may not be feasible. Awake fiberoptic intubation offers a reliable alternative from standard laryngoscopy, enabling the airway to be secured while the patient maintains spontaneous breathing, thereby reducing the risk of hypoxia and loss of airway control.

A difficult airway may involve challenges with mask ventilation, tracheal intubation or both. Fiberoptic-guided intubation is widely regarded as the gold standard for managing such situations and is strongly recommended in the difficult airway guidelines issued by various professional organizations. The management of these cases requires careful planning and appropriate technique selection to ensure patient safety. We report a case involving an adult patient in whom awake fibreoptic nasotracheal intubation was successfully performed.

CASE PRESENTATION

We present a case of 56-year-old male patient who was diagnosed as a case of intestinal obstruction and planned for exploratory laparotomy. Patient had a past history of squamous cell carcinoma of buccal mucosa for which tumor resection and neck dissection was done four years back followed by chemotherapy and radiotherapy.

In pre-anesthetic evaluation patient was in distress due to pain abdomen but conscious to time, place and person. He had a weight of approximately 60 kg and height of 162 cm with a BMI of 23 kg/m^2.

Airway assessment revealed a reduced mouth opening of 0.5 cm (Figure 1) and restricted neck extension. Mallampati grading could not be done as even hard palate was not visible. No mandible protrusion was noted. Patient has no artificial dentures or prosthesis. The neck surface markings were not prominent due to past surgical history. The mouth opening was gradually reduced since four years after surgery. He was classified ASA grade II with anticipated difficult airway.
Prior to procedure, the anesthetic plan of awake fibreoptic intubation was explained to the patient in detail and informed consent was taken explaining benefits and risks.

On the day of surgery, vitals were found to be within normal limits and adequate nil per oral status was confirmed then patient was nebulized with 4% lignocaine 4 ml. Two drops of xylometazoline were given in each nostril. 2 puffs of 10% lignocaine were sprayed on to the oropharynx; care was taken not to reach above the toxic dose of lignocaine.

In the operating room anesthesia with patient lying supine standard monitoring was initiated including continuous electrocardiography, non invasive blood pressure, pulse oximetry and heart rate. Baseline vital signs were BP = 130/80 mmhg, HR of 84 bpm, RR = 15 bpm and oxygen saturation 96 % on room air. An intravenous 18G line secured and fluid Ringer Lactate initiated, i/v glycopyrrolate 0.2 mg was given to reduce oral secretions. The procedure and cooperation required was explained once again to the patient.

Given the anticipated difficult airway and inability to apply regional blocks due to surgery in past and limited neck extension, oxygen administration was started @3l/min via nasal cannula and intravenous infusion of dexmedetomidine 50mcg in 100ml NS was started with patient taking spontaneous respiration and achieving conscious sedation. Patient was continuously monitored for sedation by Ramsay sedation scale[1] corresponding it to 2 and was kept throughout awake, non agitated and sponateously breathing.

After, topical anaesthesia achieved by lignocaine and sedation by intravenous dexmedetomidine a flexible fibreoptic bronchoscope was introduced via the nasal route and advanced slowly while monitoring patient's breathing efforts and saturation throughout. After visualizing the glottic ring (Figure 3) (CL grade – II) the bronchoscope further advanced to see carina and then ET tube was inserted in to the trachea. The cuff was inflated and bronchoscope removed and correct placement of tube (Figure 2) was confirmed by capnography, bilateral chest auscultation.

Subsequently patient was induced using Inj. Fentanyl 100mcg i.v., Inj. Propofol 100mg i.v. and Inj. Vecuronium 5 mg i.v. to achieve muscle relaxation

Maintenance was achieved with oxygen and air and inhalational agent sevoflurane maintaining MAC of 1.0 with mechanical ventilation in volume-controlled mode, tidal volume of 500 ml, R/R – 12/min and peak pressures were around 16cm of H_2O. Throughout the surgery vitals were stable.

Figure 1 :Restricted mouth opening (0.5cm)

Figure 2 : ETT fixed

Figure 3: View of glottis on fibreoptic

DISCUSSION

Awake fiberoptic intubation is commonly preferred for the management of anticipated or known difficult airway[2], especially in patients with restricted head and neck movement or limited mouth opening or with with previous head and neck surgery.

Airway blocks play a central role in awake fibreoptic intubation by providing targeted anaesthesia of the upper airway while preserving spontaneous breathing and protective reflexes.[3] It is often used in anticipated difficult airways where loss of airway control after induction could be dangerous. They help to create ideal conditions without deep sedation like suppression of airway reflexes, improved patient comfort and cooperation, reduced need for systemic sedation, maintenance of spontaneous ventilation, hemodynamic stability, higher success rate and smoother intubation.

However, in our case patient was a follow-up case of excison of left buccal carcinoma with neck dissection. Previous neck surgery and radiotherapy led to scarring, thickening of skin and loss of skin markings which could have led to difficult or failed airway blocks. As an alternative, intravenous dexmedetomidine was preferred because of its ability to provide anxiolysis and analgesia with minimal respiratory depression and enhancing patient's tolerance to the procedure. Dexmedetomidine is an α^2-adrenergic agonist that has been used as a valuable drug during fiberoptic intubation. Proper sedation and analgesia without respiratory depression are among the advantages of prescribing intravenous dexmedetomidine during fiberoptic intubation in patients.[4]

CONCLUSION

Awake fibreoptic intubation is a reliable and safe technique for securing the airway in patients with anticipated difficul airway. Meticulous planning, adequate airway anesthesia, sedation, patient cooperation and clinical expertise are essential to achieve optimal outcomes.

Awake fiberoptic nasotracheal intubation with conscious sedation using dexmedetomidine can be a viable option in cases where airway block can be difficult or unsuccessful due to previous surgery or radiotherapy to the neck.

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