

Unanticipated failed intubation in a neonate due to laryngeal web

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Citation

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Abstract

Unanticipated difficult intubation is a challenge to the anesthesiologist mainly in intestinal obstruction cases in view of risk of aspiration. Here we present a rare case of failed intubation in a 12 hour neonate with anorectal malformation and bilateral cleft lip and palate posted for colostomy and successful anesthetic management by bag and mask ventilation and using halothane as the main anesthetic.

CASE REPORT

A 12 hour old neonate weighing 1.8 kg came with history of anorectal malformation and cleft lip and palate posted for colostomy. There was no significant antenatal history and antenatal check ups were normal. At Birth child cried immediately, on examination -General condition was fair, bilateral cleft lip and palate present, pulse was 120/minute, cardio-respiratory examination was normal. All investigations were within normal limits. After taking informed and written consent, patient was taken in the operating room and covered with warm cotton rolls. Patient was preoxygenated and premedicated with Inj. Glycopyrrolate 4 microgram/kg. Sedation was achieved with Inj. Midazolam 0.03mg/kg and induced with Inj. Thiopentone 5mg/kg and after confirming that mask ventilation is possible, Inj. Succinylcholine 2mg/kg was given. Then laryngoscopy was performed and on visualization of vocal cords, intubation was tried with 3.5mm internal diameter endotracheal tube, but couldn't be intubated as the tube couldn't be passed beyond vocal cords. Then 3mm internal diameter endotracheal tube was tried, still couldn't be intubated. Finally, 2.5mm and 2mm internal diameter endotracheal tubes were tried, but we were not able to pass the tube beyond vocal cords. Later after failed intubation, the airway was managed with bag and mask ventilation using halothane 3% which was later decreased to 1% as maintenance. Since maintenance of saturation was possible so decision to continue the case with intermittent positive pressure ventilation using nitrous oxide and oxygen mixture, case was conducted by giving local anesthetic lignocaine 4 mg/kg at the site of skin incision and colostomy was

performed. After the surgery was over, halothane and nitrous oxide were shut off and the patient was ventilated with 100% oxygen, then the patient started taking good spontaneous respirations. Later oro-pharyngeal suctioning was done to remove secretions and neonate was kept on spontaneous respiration and monitored for 30 minutes. After examining vitals and checking bilateral air entry was equal on both sides and no signs of distress were present, the patient was shifted to neonatal intensive care unit for further monitoring and management. Post operative bronchoscopy was done 1 week later and the patient was diagnosed to have laryngeal web just below the vocal cords. Thus, we managed the case successfully.

DISCUSSION

Unsuspected laryngeal webs creating difficult intubating conditions in the operating room have been characterized as rare (1). It has been reported that 75% of laryngeal webs occur at the level of the vocal cords, and the remainder are in the subglottic or supraglottic location (2). Patients can have symptoms such as stridor and dyspnea. Laryngeal webs have been described in children at an incidence of 1 in 10,000 births (3).

F Hrska et al states that failed intubation drill in neonate should be fibre-optic bronchoscopy, laryngeal mask airway, esophageal – tracheal – Combitube and flexible video intubating scope can be used in difficult intubation in paediatric patients(4). Laryngeal mask airway has been recommended as the choice in failed intubation. There is a case of failed intubation in a 8 day old neonate wherein the

airway was maintained using a laryngeal mask airway.⁽⁵⁾ Here in our case, mask ventilation was adequate and after good laryngoscopy wherein the vocal cords were visible but even 2mm endotracheal tube couldn't be passed beyond the vocal cords. Then considering the gravity of the situation and as we were not knowing the extent of oral malformation for introduction of laryngeal mask airway, we went ahead with bag and mask ventilation. Grein AJ et al states that there is no evidence from controlled trials to prove the superiority of laryngeal mask airway over bag and mask ventilation even in cranio-facial anomalies⁽⁶⁾. Here we were comfortable with bag and mask ventilation, and we were able to maintain saturation intra-operatively.

Halothane is a volatile anesthetic, potent to be administered as a single anesthetic agent. Its potency, pleasant smell and lack of bronchoirritant effects make it useful in operations on patients, particularly small children who need inhalation induction. It decreases bronchoconstriction by relaxing bronchial smooth muscle, allows administration of high inspired oxygen concentration, provides stable level of muscle relaxation, causes moderate degree of hypotension thereby decreases blood loss and is rapidly eliminated through lungs which allow prompt return of protective airway reflexes among patients⁽⁷⁾. Here we had given sedation but avoided muscle relaxants except for Inj. Succinylcholine and maintained on Oxygen, nitrous oxide and halothane mixture in view of failed intubation and only Inj. Lignocaine 4mg/kg was given at the site of incision.

Sevoflurane and halothane are similar as induction and maintenance anesthetic and there are limited complications and side effects. But, halothane has somnolence property and it affects liver functions which is not there with sevoflurane⁽⁸⁾. So sevoflurane would have been the anesthetic of choice but as we didn't have sevoflurane vaporizer, we went ahead

with halothane. Thus we managed the case successfully.

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