ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at: www.ijmacr.com

Volume – 4, Issue – 6, November – December - 2021, Page No. : 226 – 229

Airway management and anaesthetic considerations in bilateral complete cleft lip and cleft palate posted for cheiloplasty

[1]Dr. Sharada Adiga M, [2]Dr. Prajna Jayaram, [3]Dr. Shankar Gururaj

Corresponding Author: Dr. Sharada Adiga M

How to citation this article: Dr. Sharada Adiga M, Dr. Prajna Jayaram, Dr. Shankar Gururaj , "Airway management and anaesthetic considerations in bilateral complete cleft lip and cleft palate posted for cheiloplasty", IJMACR- November – December - 2021, Vol – 4, Issue - 6, P. No. 226 – 229.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Anaesthetic management in a paediatric patient can present anatomical and physiological challenges to the anaesthetics. Therefore, surgery of cleft lip and palate in children will require more careful consideration and thorough knowledge with a careful clinical application in preparation by the anaesthetics as they are not miniature version of adults.

Keywords: Cleft Lip, Cleft Palate, Difficult Airway, Anaesthesia

Introduction

Cleft lip and palate are one of the most common congenital deformity. An uncorrected cleft lip can have a significant social and psychological consequences for both the child and the family. On the other hand, a cleft palate leads to feeding difficulty and speech deformity.

The prevalence of clefting ranges from 1:3000 to 1:200 live births for cleft lip and 1:2500 for cleft palate.

The cause of cleft lip-palate is multifactorial including genetic and environmental factors. It is familial. Some cases may result from mechanical obstruction. Teratogenic exposure is also associated with cleft lip-palate.

Cleft is not just a surgical problem but individuals with clefts and other craniofacial anomalies require the coordinated care of several specialists. They include neonatologists, paediatricians, surgeons, anaesthesiologists, dentists, as well as those in speech pathology, otolaryngology, audiology, genetics, nursing, mental health, and social medicine.

So here is a case report of an infant with bilateral complete cleft lip and palate with its anaesthetic implications.

Case report

A 11 months old male child weighing 6 kg presented with the complaints of inability to feed and deformity of the upper lips. He was born by a full term normal vaginal delivery. He had no history of repeated upper respiratory tract infection (URTI), regurgitation and

cyanotic spells. There was no history of consanguineous marriage. He was posted for cheiloplasty.

On general physical examination, patient was found to be afebrile with a heart rate of 108 bpm and a respiratory rate of 26/min. There was complete bilateral cleft lip and palate and two uvulae. Mallam Patti classification could not be assessed. Neck movements were normal. Systemic examination and preoperative routine investigations were within normal limits. Hb was 12.8 gm. Serum electrolytes, blood urea, serum creatinine and all the parameters of liver function test was within normal limit. Chest X- ray (PA view) and 2D echo were normal.

Child was kept fasting for 4 hours. On the day of surgery an intravenous line was secured by 24G cannula in the right hand. Basic monitoring like electrocardiogram (ECG), SpO2 and non-invasive blood pressure (NIBP) was done in the operating room. The child was premedicated with Inj. Glycopyrrolate 0.03mg, Inj midazolam 0.12mg, Inj ondansetron 0.6mg and Inj fentanyl 10µg IV. The child was pre-oxygenated with 100% oxygen for 3 minutes by facemask and anaesthesia was induced with sevoflurane in incremental doses starting from 2-4%. Bag and mask ventilation was tried and was found to be inadequate and difficult. Immediately two sterile gauze piece was used to fill in the defects of the palate and bag and mask ventilation was tried again. It was found to be adequate. Inj thiopentone sodium 35mg was given. We preferred Inj suxamethonium for muscle relaxation for intubation anticipating difficult laryngoscopy and intubation. After this, IPPV was continued for 30 seconds. Intubating fibreoptic bronchoscope as well as conventional rigid handle bronchoscope was not available so MacIntosh blade No. 1 was used. The larynx was found to be anterior and was not visualized with MacIntosh blade. So Miller Blade No. 1 was used and was introduced laterally to avoid hindrance opposed by the central lip prominence or the vomer prominence. Larynx was still not visualized and found to be Cormack Lehane grade IV. So backward, upward, right pressure (BURP) was given by a trained assistant, which converted the Cormack Lehane Grade to III. Trachea was intubated with uncuffed RAE (south pole) tube of size 3.5mm. Bilateral air entry was checked and found to be equal. Simultaneously EtCO2 waveforms confirmed the placement of the tube and the tube was fixed at 9cm. Throat packing was done and bilateral air entry was checked and found to be equal.

Anaesthesia was maintained with sevoflurane 2-3% with Oxygen and nitrous oxide. Inj cisatracurium 0.40mg was given with subsequent top ups of 0.08 mg. Intraoperative vital signs remained stable. Blood loos was 35 ml and a total of 150 ml of Ringer Lactate+ 5% dextrose was given as IV fluids. Paracetamol suppository 70 mg was given for postoperative analgesia per rectally.

At the end of the surgery, muscle relaxation was reversed with neostigmine 0.3 mg and glycopyrrolate 0.06 mg. Throat pack was removed and the child was extubated uneventfully after the child was fully awake. Postextubation vital signs were within normal limits and child was shifted to PICU.

Discussion

Majority of children with a cleft are usually of an isolated malformation. There are two considerations as anaesthesiologists in managing a child with cleft lip palate defect. One is by the possibility of associated syndromes with cleft lip palate deformity and the other one is difficulty in managing the airway in a child with cleft lip palate deformity.

Cleft lip palate deformity is associated with syndromes approximately in 22% of children. Features in most of the associated syndromes may have a degree of mandibular hypoplasia which makes both airway management and surgery difficult. Most common syndromes include pierre robin sequence, treacher collins syndrome, fetal alcohol syndrome, velocardiofacial syndrome. Cardiac defects are also common in cleft lip palate deformity of about 1.3-51% of incidence. There can be limb defects also in a child with clefts like polydactyly, clubfoot. The presence of bilateral clubfeet is usually associated with renal and cardiac anomalies.

In a child with cleft , often there is a few problems faced by the anaesthesiologist with either airway maintainance or with laryngoscopy or both. These airway difficulties is also compounded by the inherent characteristics of a normal infant's airway.

Xue et al found a 4.77% incidence of difficult laryngoscopy in child with cleft lip or palate.

Other contributions to difficult laryngoscopy was age, infants less than 6 months, combined bilateral cleft lip and palate, micrognathia, left sided cleft lip and alveolus. Micrognathia and other congenital anomalies of the upper airway can cause respiratory problems in immediate postoperative period. Infants with bilateral cleft palates and those with a history of severe feeding difficulties or with a history of recurrent upper respiratory tract infection have a higher incidence of peri-operative respiratory complications.

Therefore, anaesthesia for cleft lip and palate is very rewarding. Anaesthesia can vary from extremely challenging, if faced with a neonate or an infant with a rare syndrome and a difficult airway with congenital heart disease, to a fairly routine in a healthy infant with a simple defect of the upper lip. Both are equally rewarding, especially when the parents see the dramatic improvements after surgery. The anaesthesiologist and a surgeon play a vital role in the correction of cleft lip and palate.

References

1. Muraika L, Heyman JS, Shevchenko Y. Fiberoptic tracheal intubation through a laryngeal mask airway in a child with Treacher Collins syndrome. Anesth Analg. 2003;97:1298-9.

2. Shprintzen RJ, Siegal-Sadewitz VL, Amato J, Goldberg RB. Anomalies associated with cleft lip, cleft palate or both. Am J Med Genet 1985; 20: 585–95

3. Sandberg DJ Magee WP Denk MJ Neonatal cleft lip and cleft plate repair AORN 2002;75: 490-99.

4. Xue FS Zhang GH Li P Sun HT Li CW Liu KP Tong SY Liao X Zhang YM. The clinical observation of difficult laryngoscopy and difficult intubation in infants with cleft lip and palate Paediatr Anaesth. 2006;16:283-89

5. Gunawardana RH Difficult laryngoscopy in cleft lip and palate surgery. Brit J Anaesth 1996; 76:757-59

6. Nargozian C. The airway in patients with craniofacial abnormalities. Paediatr Anaesth. 2004;14:53-9.

7. Hatch D. Airway management in cleft lip and palate. Brit J Anaesth 1996; 76:755-56.

Legend Figures

Figure 1

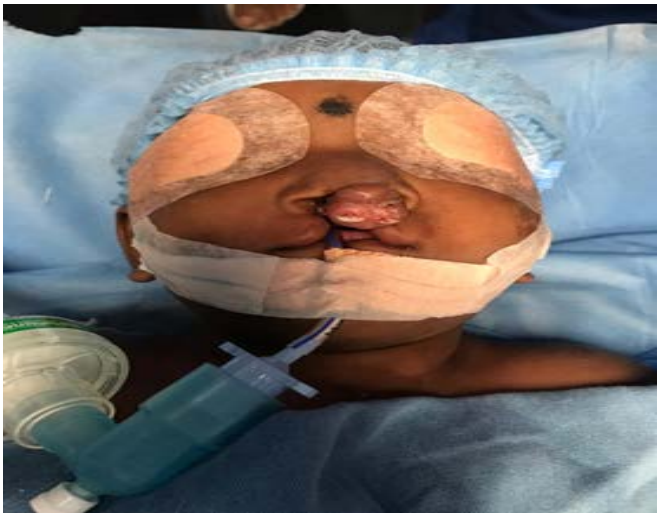

Figure 2