(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

Analyzing the Difficulties with Anaesthesia in Primary Cleft Lip and Palate Surgeryat a Single Center

Kajal Gupta

Assistant Professor, Department of Anaesthesiology, Rama Medical College and Research Centre, Kanpur, India

ABSTRACT:

Background: Cleft lip and palate is one of the most common congenital malformations and craniofacial deformities in children. The study's objectives were to look at the anesthetic techniques used and to ascertain the difficulties and postoperative consequences related to surgery for cleft lip and palate. **Material & Methods:**A review conducted retrospectively of the anesthetic procedures performed at the Dhaka Dental College and Hospital between January 2022 and December 2022. We looked through the hospital records to find out about each and every orofacial cleft surgery that took place. A total of 120 cases were reviewed for this investigation. **Results:** Of the 120 instances, 67 (55.8%) and 53 (44.2%) of the patients were male. Most of the patients arrived after becoming one year old. Of them, about 54 (45%) were under five years old. 68 patients (56.67%) had cleft lip surgery, 37 patients (30.83%) had cleft palate surgery, and the remaining 15 patients (12.5%) had combined cleft lip and cleft palate surgery. According to reports, upper respiratory tract infections (URTIs) are the most prevalent pre-existing morbidity. The most common intraoperative complication in 8 (6.67%) URTI instances was bronchospasm. Three patients (2.5%) required reintubation after six patients (5%) had bleeding. Furthermore, just one patient (0.83%) experienced difficulty swallowing, two (1.67%) had difficulty regulating their pain, and one patient (0.83%) healed slowly. **Conclusion:** It can be difficult to provide anesthesia for cleft lip or palate surgery in children. To reduce postoperative problems, a skilled anesthesiologist should do a complete preoperative evaluation before administering anesthesia under close monitoring.

Keywords:-Anaesthetic Challenges, Cleft Lip, Palate Surgeries, malformation.

Corresponding author: Kajal Gupta, Assistant Professor, Department of Anaesthesiology, Rama Medical College and Research Centre, Kanpur, India

This article may be cited as: Gupta K. Analyzing the Difficulties with Anaesthesia in Primary Cleft Lip and Palate Surgery at a Single Center. J Adv Med Dent Scie Res 2016;4(4):341-344.

INTRODUCTION

Cleft lip and palate are the most common craniofacial deformities seen in the world. If left untreated, cleft lip can have major social and psychological effects on parents and children.[1,2] Social isolation or the abandonment of children is a common occurrence in many cultures around the globe.Every year, almost 5,000 newborns are born with cleft lip and palate.For every 1000 live births in Bangladesh, there are 3.9 incidences of cleft lip and/or cleft palate.[5] There are various techniques for treating cleft lip and palate.[6,7,8] Treatment for orofacial cleft deformities is expensive and requires extensive specialized care.[9] When should surgery be done? The "Kilners rule of 10" states that a cleft lip patient should be 10 weeks old, weigh 10 pounds, and have a hemoglobin level of 10 gm/dl; a cleft palate patient should be 10 months old, weigh 10 kilos, and have a hemoglobin level of 10 gm/dl. Corrective cleft lip surgery performed on newborns by qualified surgeons is becoming commonplace.[10,11] When administering anesthesia for cleft lip and palate operations, the anesthesiologist encounters challenges.[12] Ideally, patients with clefts should be treated by knowledgeable cleft teams in pediatric centers with specialized resources that can provide the infrastructure and expertise.The safest form of anesthetic approach that is recommended is a combination of local anesthetic with adrenaline and general anesthesia with endotracheal intubation.[13, 14] Many factors must be taken into account prior to the administration of anesthesia. Managing the anesthesia for the surgical repair of orofacial clefts can be particularly challenging due to the patient's age (often infants) and any associated congenital problems or medical conditions.[15] To prevent blood loss during surgery, a bolus of 10 mg/kg tranexamic acid was injected intravenously 15 minutes prior to the incision.[16] In order to determine the difficulties and postoperative consequences following cleft lip and palate procedures, we conducted a retrospective observational study.

MATERIALANDMETHODS

Hospital records were examined to learn about each and every orofacial cleft surgery performed throughout this period. The case records of the indicated patients were then carefully examined. During this period, 146 patients had surgeries overall, but only 140 of them had examinations. Of those, six were removed from the study because of insufficient documentation. Premedication, anesthetic technique, induction technique,

intubation aids, muscle relaxant used for intubation, analgesics utilized, diagnosis, suggested surgical procedure, preoperative packed cell volume (PCV), vital signs, and premedication were all included in the data review. Before any procedure, the patients were checked by the surgeons, pediatricians, and anesthesiologists. Prophylactic antibiotics were started on the day before surgery for patients with elevated WBC counts but no clinical symptoms. The medicines were started and continued when the patient's WBC count decreased the next day. Surgical procedures were delayed for patients with a severe respiratory tract infection, wheezing, or creps, but not for those with a drippy nose and a clear chest. Furthermore, individuals who were anemic were not admitted for surgery. The hemoglobin limit was set at 10 g/dl. Records included information on the patient's weight, preoperative fasting guidelines, type of anesthesia, excessive bleeding, any negative surgical events, and any intraoperative issues. The anesthetic technique and post-operative problems were documented from the anesthesia records. Tables were created after data were analyzed using SPSS 23.

RESULTS

The age and gender distribution of the patients. The ages ranged into 7 divided groups. Majority of the patients presented after1st year of age. Most of them 58 (46.3%) came between 15years of age. According to gender distribution, 77(56.4%) were male and 63(45.5%)were female patients. [Table 1]

Table 1: Age and gender distribution of patients

Age	Male(n=77)	Female(n=63)	n=140	%
0-5Months	8	6	14	9.2
6-12Months	14	12	26	19.1
1-5Years	30	28	58	46.3
6-10Years	15	10	25	18.6
>10Years	10	7	17	11.4
Total	77	63	140	100.0

Among the intraoperative complications, bronchospasm occurred in 10 (7.5%) patients who had URTI, difficult intubation occurred in 8(6.1%) cases, bleeding occurred in 5 (3.4%) cases, decreased SpO2 in4(2.2%)cases, bradycardia happened in 4(2.2%) cases and 1(0.89%) case failed to be intubated.

Table 2: Intraoperative complications among study participants

Complication	n=32	%
Bronchospasm	10	7.5
Difficult intubation	8	6.1
Bleeding	5	3.4
Decreased SpO2	4	2.2
Bradycardia	4	2.2
Failed intubation	1	0.89

Postoperatively 8(6.4%) patients had bleeding and 5(3.1%) required reintubation. In addition, 4(2.2%) cases experienced difficult pain management and only 3(1.89%) had difficulty in swallowing and 3(1.89%) patient experienced delayed recovery.

Table 3: Postoperative complications among study participants.

Complication	n=23	%
Postoperative bleeding	8	6.4
Reintubation	5	3.1
Pain management	4	2.2
Difficulty in swallowing	3	0.83
Delayed recovery	3	0.83

DISCUSSION

The Dhaka Dental College and Hospital conducted a retrospective study on cleft lip, cleft palate, and combination (cleft lip and palate) procedures over the course of a year. In this investigation, a total of 120 cases were reviewed. Of these, 53 (44.2%) were female and 67 (55.8%) were male patients. 54 (45%) of the patients were younger than five years old, and the bulk of them entered after their first year of life. Similar findings from earlier research indicated that most instances manifested after the first year of life.[17, 18, 19,]

The patient's selection during the preoperative assessment is crucial to the general anesthesia's safety

during facial cleft surgery. According to the study's findings, 68 people (56.67%) underwent surgery to correct cleft lips, 37 people (30.83%) underwent surgery to correct cleft palates, and 15 patients (12.5%) underwent both treatments. A local injection of lidocaine and adrenaline was administered to each patient while they were under general anesthesia and endotracheal intubation. Surgery for cleft lip and palate is typically done on newborns and early children under general anesthesia.[19] Comorbidities and symptoms associated with orofacial clefts should be taken into account during a comprehensive preoperative anesthetic examination.[3] 15 minutes prior to incision, a bolus of 10 mg/kg tranexamic acid administered intravenously reduced intraoperative hemorrhage and enhanced the surgical field.[16] We now know from this study that efforts at intubation beyond three are hazardous. Postponing the case for six months improved the chances of symptomatic infants receiving a successful intubation.[18] Of the pre-existing comorbidities among the patients, upper respiratory tract infections (URTIs) accounted for 12 (10%) cases. Since surgical repair reduces URTI, the risks of anesthesia or severe respiratory episodes should be weighed against the procedure's benefits individually.[21] There were eight patients (6.7%) with congenital cardiac issues. If a patient has multiple comorbidities, it could be better to wait for cleft surgery until their condition improves and the advantages outweigh the risks. Eight (6.67%) of the URTI patients who had intraoperative problems encountered bronchospasm; six (5%) patients had difficult intubation; three (2.5%) individuals experienced bleeding; two (1.67%) patients had decreased SpO2; and two (1.67%) patients experienced bradycardia. The fact that there was only one unsuccessful intubation reported in this study may have been due to the anesthesiologist's early preparation and expectation that every patient would have a difficult airway. According to another study, the most common intraoperative problems were airway obstruction, bronchospasm, and trouble with intubation.[22] Postoperative care is crucial. These patients receive intravenous antibiotics and fluids, oral antibiotics, local wound care, and analgesics as part of their postoperative therapy.[23] Three (2.5%) of the patients in our study needed reintubation, and six (5%), suffered bleeding after surgery. Merely 0.83% of the patients had trouble swallowing, 0.83% of the patients had a delayed recovery, and 1.67% of the patients had problems controlling their pain and suffering.

CONCLUSIONS

Cleft lip and palate surgery necessitates difficult anesthesia. Children make up the majority of patients who require cleft lip and palate repairs. When combined with endotracheal intubation, general anesthesia is the safest type of anesthesia. We found that the primary preoperative problem was URTI, in addition to intraoperative and postoperative difficulties. For cleft lip and palate surgery, we advise using both local anesthetic with adrenaline and general anesthesia with controlled ventilation.

REFERENCES

1. Sandberg DJ, Magee WP Jr, Denk MJ. Neonatal cleftlip and cleft palate repair. AORN J. 2002;75(3):490-8;quiz 501-4, 506- 8. doi: 10.1016/s0001-2092(06)61171-x.
2. VasudevanPC.Oxforddeskreference:clinicalgenetics. ArchDisChild.2006;91(8):718.doi:10.1136/adc.2006 .095802.
3. Denning S, Ng E, Wong Riff KWY. Anaesthesia forcleftlipandpalatesurgery.BJAEduc.2021;21(10):38 4-389.doi:10.1016/j.bjae.2021.06.002.
4. Gunawardena RH. Anaesthesia in cleft lip and cleftpalatesurgeryofchildren.CeylonMedJ.1990;35(2):63-6.
5. FerdousKM,SaifUllahM,ShajahanM,MitulM,Isla mMK,DasKK,MannanMA, RahmanMJ,Biswas S, Salek AJ, Das BK. Simultaneous repair ofclefthardpalatebyvomerflapalongwithcleftlipinu nilateral complete cleft lip and palate patients. IntSchResNotices. 2013;2013:1-5.
6. AgrawalK.Cleftpalaterepairandvariations.IndianJPla stSurg.2009;42Suppl(Suppl):S102- 9.doi:10.4103/0970- 0358.57197.
7. Liao YF, Cole TJ, Mars M. Hard palate repair timingand facial growth in unilateral cleft lip and palate: alongitudinalstudy.CleftPalateCraniofacJ.2006;43 (5):547-56.doi:10.1597/05-119.
8. LiaoYF,MarsM.Hardpalaterepairtimingandfacial morphology in unilateral cleft lip and palate:Beforeversusafter pubertalpeakvelocityage.CleftPalateCraniofacJ.20 06;43(3):259-65.doi:10.1597/04-196.1.
9. AkitoyeOA,Fakuade BO, Owobu TO, EfunkoyaAA, Adebola AR, Ajike SO. Anaesthesia for cleft lipsurgeriesinaresourcepoorsetting:techniques,outco me and safety. Pan Afr Med J. 2018;31:105. doi:10.11604/pamj.2018.31.105.15513.
10. BosenbergAT, KimbleFW.lnfraorbitalnerve blockin neonates for cleft lip repair Anatomical study andclinicalapplication.BrJAnaesth.1995;74:506-508
11. Bösenberg AT. Anaesthesia for cleft lip and palatesurgery.SouthAfricanJAnaesthAnalg.2007;13(5):9-14.
12. Qureshi FA, Kamran M, Ilyas M, Laiq N. Anesthetistexperienceforcleftlipandcleftpalaterepair: areview of 172 smile train sponsored patients at hayatabad medical complex, peshawar. J Postgrad MedInst. 2009;23(1):1-5.
13. ColbertSD,GreenB,BrennanPA,MercerN.Contempor arymanagementofcleftlipandpalateinthe United Kingdom. Have we reached the turningpoint?.BrJOralMaxillofacSurg.2015;53(7):59 4-8.
14. TremlettM.Anaesthesiaforcleftlipandpalatesurgery.C urrAnaesthCritCare.2004;15(4-5):309-16.
15. KwariDY,ChindaJY, Olasoji HO, Adeosun OO.Cleft lip and palate surgery in children:

anaestheticconsiderations. Afr J Paediatr Surg. 2010;7(3):174-7.doi:10.4103/0189-6725.70420.
16. DurgaP,RaavulaP,GurajalaI,GunnamP,Veerabathula P, Reddy M, et al. Evaluation of theEfficacyofTranexamicAcidontheSurgicalFieldinPrimaryCleftPalateSurgeryonChildren-AProspective,RandomizedClinicalStudy. CleftPalateCraniofacJ.2015;52(5):e183-7.doi:10.1597/14-263.
17. Iregbulem LM. The incidence of cleft lip and palateinNigeria.CleftPalateJ.1982;19(3):201-5.
18. JindalP,KhuranaG,GuptaD,SharmaJP.Aretrospectiveanalysisofanestheticexperiencein2917 patients posted for cleft lip and palate repair.AnesthEssaysRes.2013;7(3):350-4.doi:10.4103/0259-1162.123233.
19. AdenekanAT,FaponleAF,OginniFO.Anestheticchallengesinoro-facialcleftrepairinIle-Ife,Nigeria.MiddleEastJAnaesthesiol.2011;21(3):335-9.
20. HodgesSC,HodgesAM.Aprotocolforsafeanasthesiaforcleftlipandpalatesurgeryindevelopingcountries.Anaesthesia.2000; 55(5):436-41.doi:10.1046/j.1365-2044.2000.01371.x.
21. Kotur PF. Surgical repair of cleft lip and palate inchildrenwithupperrespiratorytractinfection.IndianJAnaesth.2006;50(1):58-9.
22. McQueenKK,MageeW,CrabtreeT,RomanoC,Burkle FM.Applicationofoutcomemeasuresininternational humanitarian aid: comparing indicesthroughretrospectiveanalysisofcorrectivesurgicalcarecases.PrehospDisasterMed.2009;24(1):39-46.
23. AzizSR,RheeST,RedaiI.CleftsurgeryinruralBangladesh:reflectionsandexperiences.JOralMaxillofacSurg.2009; 67(8):1581- 8.doi:10.1016/j.joms.2008.11.021.