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Case Report

The Management of a Neonate with Cleft Palate

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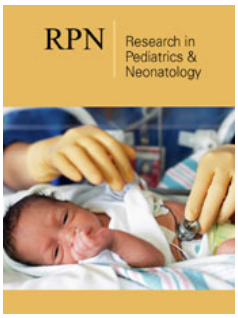

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Abstract

Background: A cleft palate is a split or gap in the roof of the mouth resulting from tissues failing to fuse during child development before birth. When established early, cleft palate is treatable through various corrective procedures and therapies. It is a common problem with velopharyngeal and palatal dysfunction with a myriad of possible causes, including smoking or drinking alcohol during pregnancy.

Case: It is a case where one is predisposed to loss of folic acid that helps in child development. Undoubtedly, a cleft palate can be treated through surgery, especially when diagnosed early with potential causes determined. This case study offers significant insights into the articulation skills assessment results and the associated phonologic applications. The findings also provide crucial insights associated with velopharyngeal function.

Conclusion: Inclusion of dental care and speech therapy in a rehabilitation program is imperative for the healing process, especially when other treatment measures have already been put in place.

Keywords: Cleft palate; Corrective; Surgery; Dental care; Folic acid

Introduction

A cleft palate is a gap, split, or opening that is located in the roof of the mouth. It stems from the failure of fusion in of the mouth tissues inside the oral cavity, particularly during fetal development [1]. In most cases, a cleft palate involves a split of the upper lip as well, and that is the reason why they are frequently discussed together. However, the condition can arise without an impact on the lip [2-15]. Therefore, it is a birth defect that needs to be corrected through therapy and other procedural measures that are approved at different stages of the baby's age. The condition is likely to cause dental disorders, inadequate occlusion, facial and nasal deformities as well as respiratory, nutritional, hearing and speech problems [16].

Timely establishment of potential velopharyngeal issues and immediate referral to a specialized team of cleft palate personnel are critical in addressing the hearing, speech, and language challenges [4]. It is a prominent case with velopharyngeal and palatal dysfunction as their experiences are evident and, therefore, a definitive diagnosis is an essential step in rectifying the problem [1]. As one of the prevalent congenital disorders in the US, the cleft palate has received notable interest from key stakeholders in children's health and welfare [10].

This case study offers significant insights into the articulation skills assessment results and the associated phonologic applications. It is a situation involving a newly born baby with a deformity that requires procedural correction, which may take time for all corrective measures to be implemented. The findings also offer crucial insights associated with velopharyngeal function, specifically speech. It is established that the adoption of a comprehensive rehabilitation program, running up to three years, is essential for the corrective and healing process. It may involve various phases based on the age of the patient till the patient is ready for surgical procedure to be conducted for the anticipated corrections.

Patient information

The patient is a 32-week-old male child, 1,343 grams in weight. Historical data shows normal prenatal checkups that were done regularly under usual circumstances. However, many medications were administered throughout the pregnancy to ascertain safe delivery. Significant challenges are noted before and during delivery, with profound implications on the health and welfare of the infant.

Clinical findings

Before this assessment, a lot had been observed by the parent and, together with the doctor's assessment, confirms the need for corrective surgery. The assessment shows that a doctor has examined the infant, and significant abnormalities have been established. It is a case of posterior, cleft palate with no cleft lip and prominent occiput. Moreover, perineal groove, anteriorly displaced anus, prominent labia minora, wide-spaced nipples, and two creases in each palm were also noted [6].

Timeline

The assessment is traced back to prenatal engagements, where the amniotic fluid is investigated for diagnostic purposes. The objective is to affirm the health of the fetus and ensure safe delivery. The infant was intubated at delivery and placed on SIMV Pr 11/7, R 40, FiO2 40%. Other measures conducted include administration of surfactant, investigations like complete blood count, blood for culture and sensitivity, blood group, DCT and screening. There was also a blood gas analysis done post surfactant delivery, blood glucose evaluation, UVC placement, and administration of Ampicillin. The doctor also initiated Caffeine Citrate and Gentamicin and ordered a CT Brain, which were essential in determining the degree of pathology.

Other assessments included the processing of ABG and Abdominal X-ray/Chest X-ray, examination of the infant, and facilitation of bedside echocardiogram. The doctor also conducted capillary blood gas analysis and post endotracheal tube adjustments. It also involved a complete blood count with acceptable results and capillary blood gas on SIMV. The arterial blood gas analysis was facilitated the following day to check carbon dioxide and oxygen levels. Desaturation of SpO_2 to 87% occurred and doctors were alerted by nursing staff. After this, assessment was found to be efficient and appropriate as per the goals for the day. The findings provided a clear path on possible complications that are associated with the deformity.

Normal assessments of active problems, medications, respiratory, infections and cardiovascular complications were conducted on ward rounds. Arterial blood gas analysis was also conducted to establish blood carbon dioxide and oxygen levels, which was essential for monitoring the progress . Throughout the assessment, cranial infection was established together with the enlarged 3rd ventricle. The overall immunotherapy-1-2 drops of EBM and KUB ultrasound were ordered as a measure to affirm the earlier determined results of blood ions and responsiveness of the immune system. Conducting a complete blood count and metabolic profile was essential for appropriate comparison purposes, particularly the metabolic profile. Finally, the capillary blood gas analysis was conducted to establish the changes in the arterial blood gas levels.

Diagnostic assessment

Significant phases have been conducted to correct the defect. They include prenatal consultation, which involves a genetic diagnosis via prenatal ultrasound, involving sampling of amniotic fluid to establish the possibility of the unborn baby having the problem [12]. An essential prenatal review was through resonance, establishing the child's sound to be hypo- or hyper-nasal [3]. This assessment is demonstrated through listening to breathing, including the level of the sound pitch.

Therapeutic intervention

Lip taping NAM is another implemented essential diagnostic assessment and repair procedure. Using a regimen is critical in narrowing the child's cleft lip gap [13]. It attaches wire and acrylic nasal stents to intraoral denture which molds premaxilla, alveolar ridges and nasal cartilages into normal form before surgery in neonatal period to reduce the severity of oropharyngeal defect prior to surgery [17]. At the age of 1 year, the baby can undergo a surgical procedure to correct the defect, if it still exists, as per the interventions conducted in prior phases [9].

Follow-up and outcomes

Appropriate follow-up should commence immediately after the first phase of the suggested interventions. However, close monitoring and rechecking of the healing progress should be done between 6 to 8 weeks after the corrective surgery for the cleft palate [15]. This procedure can take place within the guidance of the family's convenience. Notable changes in terms of comfort is expected to be part of the outcomes. Between age 3 to 5 years, regular follow-up should be done with the medical team to establish integrity in the reconstructive tissues [5]. The child's speech is expected to be normal without difficulties. It is a crucial follow-up step to affirm the healing process and perform any other corrective procedure if expected results are not achieved [8]. It is a technical corrective procedure that requires the patient's or a guardian's consent. The parent provided and signed the authorization to allow the medical procedure to commence as planned. Signing one is not just for ethical purposes but also critical for medical record-keeping with the hospital [2].

Discussion

The appropriateness of this case report is that it provides an in-depth assessment of the condition and illustrates adopted corrective measures for the same. It also offers a clinical position on the defect and possible practices that can be adopted at home and in a hospital to mitigate the effects and challenges of cleft palate [14]. This case also points out that the cleft palate is caused by wide-ranging conditions, including genetic materials that a child is likely to inherit from parents [10]. Alcohol drinking or smoking in

pregnancy may also result in folic acid depletion [7]. However, the findings of this case are only based on an individual cleft palate case and, therefore, are not appropriate for generalization.

Patient perspective

This treatment was conducted on an infant without recollection of the antecedent events. However, it is a corrective procedure that will repair the defects satisfactorily when performed in the early stage of the issue. The parent was anticipating a standard practice with constructive results [11].

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