Case Report

Neglected cleft lip Teisser Type 4 deformity: Anesthesiologist concerns

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ABSTRACT

Since craniofacial anomalies are one of the most common causes of predicted difficult airway, they present a problem to anesthesiologists. To prevent serious issues, it is important to anticipate and prepare for difficult airway management beforehand. Developing a safe anesthetic plan requires an understanding of the development, features, and unique anesthetic problems of the more prevalent anomalies. The successful airway care of a Tessier No. 4 anomalous infant with cleft lip, cleft palate, and left orofacial cleft is described.

Key words: Difficult airway, Orofacial cleft, Tessier Type 4 cleft lip

Cleft lip and palate (CLP) is still one of the most prevalent congenital malformations despite advances in medical and genetic sciences. Craniofacial, orbitomaxillary, and lateral clefts are rare clefts compared to the cleft lip disorder [1]. The exact incidence of these craniofacial clefts is not clearly known; a few studies estimate it to be between 1.4 and 4.8/100000 live births [2,3]. In addition to having serious psychosocial repercussions, the related facial deformity impairs speech, eating, and dental development. Modern surgical procedures can make many flaws unnoticeable and can restore shape and function to near normal. Anesthesiologists usually encounter such patients in the perioperative period, and challenges include managing the airway, related co-morbidities, and caring for the pediatric population.

CASE REPORT

An 8-month-old male child weighing 6 kg in functional class American Society of Anesthesiologists I was scheduled for reconstructive surgery of the facial cleft and cleft lip. The child had been diagnosed as TEISSER no.4 anomaly, but had no other associated congenital anomalies.

On examination, he had a left corneal opacity with retracted left lower lid (Fig. 1), with right eye microphthalmos with microcornea. The cleft extended medially from the left medial canthus to the left side of the upper lip, bordering the nose laterally, also involving the soft and hard palate. Systemic examination and blood investigations were within normal limits as per age.

The child was fasted as per standard fasting guidelines. Premedication given as intramuscular injections of ketamine 24 mg and glycopyrrolate 0.004 mg. Anesthesia was induced with oxygen and sevoflurane, and a 24-gauze intravenous cannula was secured. Adequate seal of the face mask was initially achieved with a size II (relatively large as per child age) face mask by packing the orofacial defect with sterile gauze and use of an appropriate size guedels airway (Fig. 2).

After induction, the patient was given inj. Dexamethasone 1 mg iv and inj. Fentanyl 6 mcg iv. After ensuring adequate depth of anesthesia, Laryngoscopy revealed a good view of the vocal cords (Cormack Lehane grade I), and orotracheal intubation with uncuffed endotracheal tube (ETT) size 4.0 mm was accomplished easily. Intraoperative monitoring included electrocardiogram, pulse oximetry, non-invasive blood pressure, and temperature. Anesthesia was maintained with oxygen, isoflurane, iv atracurium 0.5 mg/kg, and i.v injection of paracetamol 90 mg. The total duration of surgery was 2.5 h. Losses include 30–40 mL of blood loss. He had an uneventful intraoperative course and was extubated when awake. The patient was monitored in the pediatric Intensive Care Unit during the post-operative period. The post-operative period was uneventful, and the patient was discharged on the 5th post-operative day.

DISCUSSION

The palatal shelves and eventually the hard and soft palate are formed through the 50–60th gestational days.

Access this article online	
Received - 27 August 2025 Initial Review - 10 September 2025 Accepted - 16 October 2025	Quick Response code
DOI: ***	

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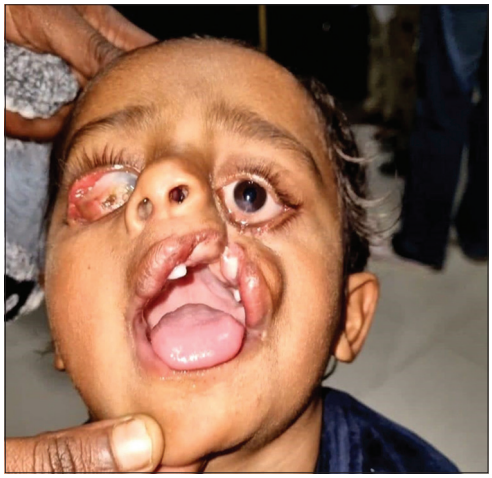

Figure 1: Anomalous child with Tessier no 4 orofacial cleft lip and palate (consent taken from parents of patient for photograph)

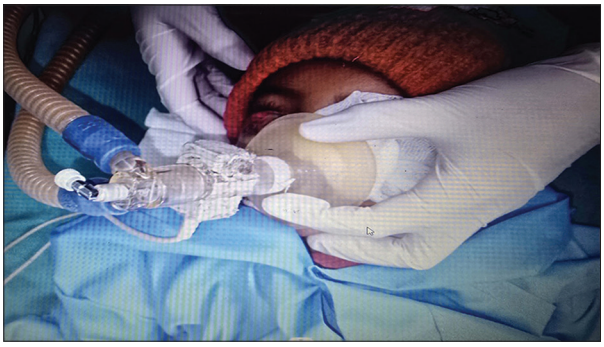

Figure 2: Bag and mask ventilation with sterile soaked guaze with large size facemask

Failure of proper fusion of these structures leads to the formation of facial clefts [4]. These account for the second most common congenital malformation of the entire body. Most of the classifications of craniofacial clefts are restricted to the analysis of sharply defined areas of the face.

Kawamoto [2] gave the first classification of craniofacial anomalies in 1886. Subsequently, Sanvenero-Rosselli [5], Burian [6], and other authors attempted classification of these defects. Tessier [4] in 1990 gave a simplified and widely accepted classification [7]. He classified craniofacial defects according to the anatomical defects as facial, craniofacial, and laterofacial [1]. Teissier no. 4 is a rare anomaly characterized as an uncommon skeletal tissue anomaly with orbital dystopia, shortened ocular-oral distance, a large harelip that extends to the cheek, and other abnormalities [8].

The etiology of the craniofacial cleft is multifactorial. Maternal infections such as toxoplasmosis, and intake of thalidomide drugs, alteration in phenylalanine levels have been implicated in its causative factors [9].

The complete N. 4 oro-oculofacial cleft includes bone and soft-tissue defects to a variable degree. It extends vertically from the lacrimal portion of the inferior eyelid medially to the infraorbital foramen on the orbital floor, continuing down through the maxillary sinus and cheek to penetrate the maxillary arch in the classic location of the labiomaxillary cleft, that is, between the lateral incisor and canine. It then runs vertically from the lacrimal part of the inferior eyelid medially to the infraorbital foramen on the orbital floor. Extrophy of the maxillary sinus is frequently associated, and there is usually a marked decrease in the oculo-oral distance, as was observed in our case. Tessier clefts are commonly associated with cardiac anomalies, mainly congenital heart diseases, that may pose an additional challenge to the attending anesthesiologist, so a detailed pre-anesthetic checkup is necessary [10].

In such instances, feeding, corneal protection, and maintaining airway patency should come first [3]. It is widely known that children with CLP often have airway difficulties. For this reason, a thorough preoperative assessment is necessary to identify potential problems and choose the best method for ensuring proper breathing and oxygenation during surgery [8]. Age (<6 months), bilateral harelip, and retrognathism are considered predictive factors for difficult laryngoscopy and intubation [11].

As our patient had an extensive perioral cleft, which involves the cheek and extends up to the lower lid, this could jeopardise their capacity to ventilate using a face mask if tracheal intubation proves difficult. To combat these problems, sterile gauze soaked in saline was used to seal the defect and fit Guedel's airway after anesthesia was induced. Through this, we were able to address these issues. An appropriate substitute for patients in a comparable age range may be the laryngeal mask airway (LMA) insertion performed following sedation in the pediatric age group [8]. Since there have been reports of children with LMA who have anomalous airway anatomy and cannot be ventilated, we have kept the equipment for difficult intubation and emergency tracheostomy ready [12-14].

CONCLUSION

Although airway problems pose a significant challenge in craniofacial deformities, careful inspection, anticipating complications, planned preparation, and a team approach can lead to successful therapy.

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Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Komal L, Haramritpal K, Amanpreet K, Rubina R, Rajvir K. Neglected cleft lip Teisser Type 4 deformity: Anesthesiologist concerns. Indian J Case Reports. 2025; October 27 [Epub ahead of print].