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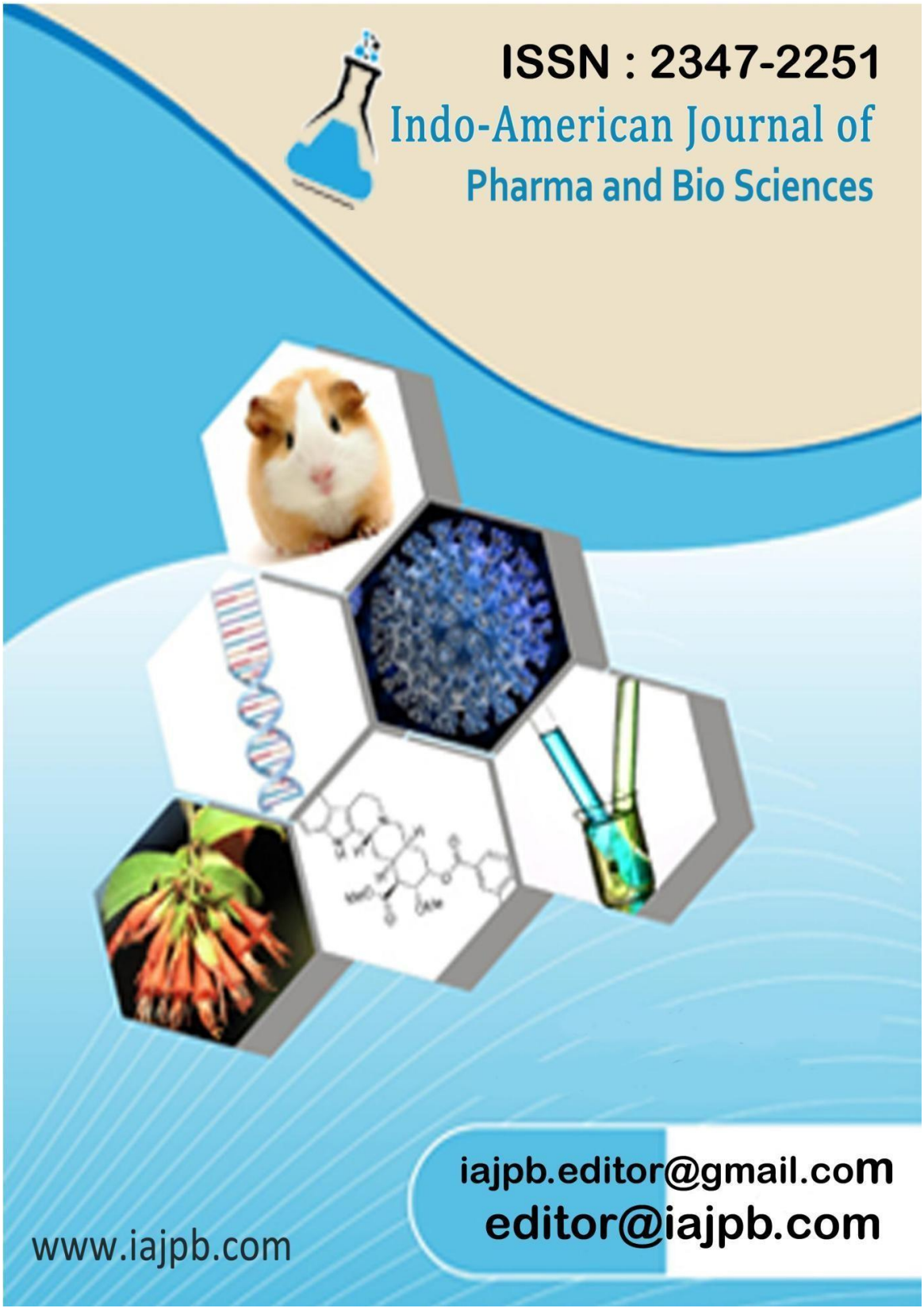

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Early Prosthetic Intervention Using a Feeding Obturator in a Newborn with Soft Palate Cleft: A Case Report

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ABSTRACT:

Cleft palate is a congenital craniofacial anomaly that disrupts the separation between the oral and nasal cavities, resulting in significant feeding difficulties during the neonatal period. In infants, the inability to generate adequate negative pressure for suckling often leads to poor weight gain, nasal regurgitation, and increased risk of aspiration. Early prosthetic intervention in the form of a feeding obturator provides functional separation of the cavities, thereby improving feeding efficiency and supporting overall growth until surgical correction is possible.

This case report describes the prosthetic management of a 4-day-old neonate diagnosed with an isolated cleft of the soft palate. A feeding obturator was fabricated using a safe neonatal impression technique and heat-cured acrylic resin. The appliance significantly improved suckling and eliminated nasal regurgitation during feeding. Early intervention with a feeding obturator can serve as an effective temporary measure to enhance feeding, reduce complications, and provide essential support to the infant and caregivers prior to definitive palatal repair.

KEYWORDS

Cleft palate; Soft palate cleft; Feeding obturator; Neonatal prosthesis; Infant feeding; Craniofacial anomaly

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Introduction

Cleft palate is a common congenital craniofacial anomaly resulting from incomplete fusion of the palatal shelves during embryologic development. The defect produces an abnormal communication between the oral and nasal cavities, compromising essential functions such as feeding, swallowing, speech development, and overall craniofacial growth. Among these, feeding difficulty is often the earliest and most concerning challenge encountered in neonates, as the inability to generate adequate negative pressure for suckling leads to inefficient milk intake, nasal regurgitation, prolonged feeding times, and risk of aspiration. These issues contribute to inadequate weight gain and impose significant emotional and psychological stress on caregivers.

Definitive surgical repair of the palate is typically deferred until several months of age to allow for adequate infant growth and to optimize surgical outcomes. During this interim period, prosthetic intervention plays a vital role in supporting the infant's nutritional and developmental needs. A feeding obturator serves as a non-surgical, interim prosthetic device that restores separation between the oral and nasal cavities, thereby enabling improved suckling efficiency, reducing regurgitation, and facilitating safer feeding. Early introduction of a feeding obturator has been shown to enhance neonatal health, provide caregivers with increased confidence, and contribute positively to pre-surgical management. This report presents the fabrication and clinical utility of a feeding

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obturator for a neonate with isolated cleft of the soft palate.

Case Report

A 4-day-old female neonate was brought to the Department of Prosthodontics with a primary complaint of feeding difficulty since birth. The parents reported prolonged feeding times, frequent nasal regurgitation, and inability to maintain adequate suction during breastfeeding. The infant was born full-term through an uncomplicated vaginal delivery, with no relevant prenatal or perinatal complications. Medical, family, and genetic histories were non-contributory.

Extraoral examination revealed no associated craniofacial anomalies. Intraoral examination demonstrated an isolated cleft of the soft palate, extending from the uvular region anteriorly along the midline, consistent with a Veau Class I presentation (Figure 1). As surgical palatal repair was not planned in the immediate neonatal period, prosthetic intervention with a feeding obturator was indicated to facilitate efficient feeding and prevent aspiration-related complications.

Given the patient's age and the risk of airway obstruction, a minimal-volume impression technique was selected. The neonate was positioned in a prone, face-down orientation to maintain airway patency, as recommended in current neonatal impression protocols. A custom tray was fabricated, and a minimal quantity of addition silicone (vinyl polysiloxane) putty was first adapted to record the primary form. This was followed by a controlled wash impression using light-body material to record finer details. The impression was completed while the infant was crying—an advantageous state for clearance of secretions and maintenance of airway patency (Figures 2,3). No gagging or respiratory distress occurred during the procedure.

The impression was poured in Type II dental stone, and the cast was inspected for accuracy (Figure 4). A wax spacer was adapted over the palatal defect, and a 0.9 mm (20-gauge) stainless-steel safety wire was contoured across the anterior region to act as a retrieval mechanism and prevent accidental ingestion or aspiration. The obturator was processed using heat-cured clear acrylic resin, and the terminal ends of the wire were covered with acrylic buttons to avoid mucosal injury (Figure 5).

Following finishing and polishing, the obturator was inserted intraorally (Figure 6s). The fit was stable, and no areas of impingement were observed. The infant was fed in the clinic to evaluate functional performance. With the obturator in place, suckling efficiency improved markedly, nasal regurgitation was eliminated, and the infant demonstrated coordinated sucking and swallowing. The parents reported immediate improvement in feeding comfort and reduced feeding time.

Comprehensive instructions were provided to the caregivers regarding insertion, removal, hygiene, supervised feeding, and the need for periodic evaluation. The infant was reviewed after 24 hours and subsequently on a monthly basis. Growth parameters were monitored, and the obturator remained effective without complications. Plans were made for serial refabrication in accordance with craniofacial growth until definitive palatoplasty, typically performed between 9 and 12 months of age, could be scheduled.

Discussion

Feeding impairment is a primary functional challenge in infants with cleft palate due to the inability to generate intraoral negative pressure and maintain an effective suck–swallow mechanism. This results in inadequate caloric intake, nasal regurgitation, and increased aspiration risk, making early feeding support essential for appropriate growth and timely surgical intervention.

The feeding obturator remains a well-established interim prosthetic aid that restores functional separation of the oral and nasal cavities. By providing a stable surface for nipple compression, it enhances suckling efficiency and markedly reduces regurgitation. Reports consistently demonstrate improvements in feeding performance, caregiver confidence, and neonatal weight gain following obturator therapy.

Neonatal prosthodontic procedures must prioritize airway safety. Minimal-material elastomeric impressions, prone positioning, and vigilant monitoring significantly reduce the risk associated with intraoral procedures in newborns. Incorporation of a safety retrieval wire, as

employed in this case, is strongly recommended to prevent accidental aspiration of the appliance. Continuous follow-up is imperative due to rapid craniofacial growth during early infancy. Regular assessment ensures proper fit, maintains hygiene, and guides timely refabrication until definitive palatoplasty is undertaken. In the present case, the obturator provided effective functional improvement and supported nutritional stability during the pre-surgical period.

Conclusion:

A feeding obturator is an effective and reliable interim prosthetic aid for infants with cleft palate, providing immediate improvement in feeding efficiency and reducing complications such as nasal regurgitation and aspiration risk. Early prosthetic intervention supports adequate nutrition, enhances caregiver confidence, and contributes to optimal pre-surgical preparation. Consistent follow-up and timely adjustments ensure continued effectiveness until definitive palatal repair can be performed. This case demonstrates the value of a well-designed feeding obturator in the comprehensive early management of neonatal cleft palate.

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Figures

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Figure 1: Intraoral view of a neonate with a Veau Class I cleft palate

Figure 2: Preliminary impression

Figure 3: Final wash impression

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Figure 4: Cast

Figure 5: Feeding plate – Obturator

Figure 6: Insertion of Obturator

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