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COLLODION BABY: A RARE PRESENTATION AND ITS COMPREHENSIVE NEONATAL MANAGEMENT IN A TERTIARY CARE SETTING

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ABSTRACT Collodion baby, a rare congenital skin disorder of cornification, presents at birth with a characteristic taut, shiny membrane encasing the newborn. While often a transient phenotype, it can signify an underlying autosomal recessive ichthyosis or other genodermatosis. With an estimated incidence of 1 in 50,000 to 100,000 live births, prompt diagnosis and meticulous neonatal management are paramount to prevent severe complications such as hypernatremic dehydration, hypothermia, and infection. This report details the clinical presentation and management of a 2.2 kg male neonate, born at 38 weeks 6 days gestation, diagnosed with Collodion baby at PES Institute of Medical Sciences and Research, a tertiary care center in rural Andhra Pradesh, India. We highlight the effectiveness of comprehensive supportive care, including a high-humidity incubator environment, rigorous fluid and electrolyte monitoring, precise temperature regulation, and proactive skin and infection management, in achieving a favorable outcome. This case underscores the challenges of managing such a rare condition and the importance of evidence-based, compassionate care in diverse healthcare settings.

KEYWORDS : Collodion baby, Neonatal dermatology, Ichthyosis, Disorders of cornification, Skin barrier dysfunction

INTRODUCTION:

Collodion baby is a distinct neonatal entity characterized by a tight, shiny membrane covering the entire body at birth [1]. This condition signifies a disorder of keratinization and epidermal barrier formation. The membrane typically desquamates within weeks, revealing either normal skin ("self-healing collodion baby") or evolving into various forms of autosomal recessive congenital ichthyosis (ARCI) [2,3]. Its rarity, with an incidence of 1 in 50,000 to 100,000 live births, underscores the need for specialized care [4].

The compromised epidermal barrier leads to significant transepidermal water loss (TEWL), risking hypernatremic dehydration, hypothermia, and systemic infections [5] . Thus, immediate recognition and specialized supportive care are critical to prevent life-threatening complications. This report details the clinical course and management of a newborn with Collodion baby at our tertiary care center in rural Andhra Pradesh, India.

CASE PRESENTATION:

A male infant was born at 38 weeks 6 days gestation via normal vaginal delivery to a primi gravida mother. Antenatal history was unremarkable. Birth weight was 2.2 kg (small for gestational age). Apgar scores were 7 and 9.

On immediate post-delivery examination, the neonate was active, alert, and normothermic. He was entirely encased in a thick, taut, shiny membrane resembling oil parchment (Figure 1). Characteristic facial features included bilateral ectropion, flattened ear pinnae, and an "O-shaped" mouth (eclabium). Hair was normal. Ophthalmic examination was normal except for ectropion. Abdominal and cranial ultrasounds showed no significant abnormalities. Based on these classic findings, a diagnosis of Collodion baby was made. Differential diagnoses like Harlequin ichthyosis were ruled out due to less severe hyperkeratosis and absence of deep fissures. Skin biopsy was not performed acutely as its utility in early differentiation of ichthyosis types is limited [2] .

DISCUSSION:

Our case demonstrates the typical presentation of Collodion baby, a rare congenital dermatosis primarily diagnosed clinically [1,2] . Prognosis varies; while some cases are "self-healing," others progress to more severe ichthyosis[3,4]. Regardless, immediate neonatal management is crucial due to the defective epidermal barrier.

The impaired barrier causes substantial insensible water loss, predisposing to hypernatremic dehydration and hypothermia [5]. The compromised skin also increases susceptibility to bacterial and fungal infections .[6]

MANAGEMENT : Comprehensive NICU management included:

1. Environmental Control: Incubator with high humidity (>60%) and precise temperature regulation (32-34°C) to minimize TEWL and prevent hypothermia.

2. Fluid & Electrolyte Balance: Meticulous monitoring of temperature, weight (twice daily), and fluid input/output. IV fluids administered as needed for euvolemia and electrolyte balance.

3. Nutritional Support: Ensured good caloric intake via breast milk or nasogastric/orogastric tube feeds, as required.

4. Skin Care: Daily bathing with warm water and mild, pH-neutral cleanser.Frequent (every 2-4 hours) liberal application of bland emollients (e.g., white soft paraffin, petroleum jelly) to maintain moisture and reduce cracking.Antiseptic creams (e.g., topical fusidic acid) applied to erosive lesions to prevent secondary infection.

5. Eye Care: Regular instillation of preservative-free artificial tears (e.g., carboxymethylcellulose 0.5%) every 2-4 hours to prevent exposure keratitis. Ophthalmological consultation obtained.

6. Ear Care: Gentle removal of scales. Baseline hearing screening (OAE/BERA) planned.

7. Pain Management: Non-pharmacological comfort measures and oral paracetamol considered as needed.

8. Infection Control: Strict hand hygiene and aseptic techniques. Antibiotics reserved for confirmed infections.

9. Psychological Support: Regular counseling for parents regarding condition, management, and prognosis, emphasizing bonding.

Figure 1: Images showing collodion baby

The infant showed gradual improvement, with membrane shedding revealing erythematous but intact underlying skin. Further follow-up is planned for final skin phenotype assessment.

CONCLUSION:

Newborn Collodion babies face significant risks of hypernatremic

dehydration, hypothermia, and infection due to their compromised epidermal barrier. This case highlights that prompt identification and immediate comprehensive, multidisciplinary neonatal care are paramount. Meticulously executed supportive care, focusing on a high-humidity environment, fluid and electrolyte balance, thermoregulation, and proactive skin and infection management, can achieve favorable outcomes even in resource-constrained settings. This report emphasizes vigilant identification and evidence-based management for these vulnerable neonates.

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