

CASE REPORT

Collodion Baby - A Case Report

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Abstract

The term “collodion baby” refers to a clinical entity used for newborns who are encompassed by a translucent, tight and parchment paper-like skin sheets, so called Collodion membrane, on the entire body surface. Two forms can be identified: collodion baby and its most severe form, harlequin fetus or maligna keratoma. Clinically, the collodion babies may encounter dehydration, electrolyte imbalance, temperature malfunction and increasing sepsis risk because of severe skin damage. Therefore, morbidity and mortality rates are fairly high in these cases. Those who survive may develop Ichthyosis. We report here a case of Collodion baby who was managed with intravenous fluids antibiotics and emollients with special emphasis on temperature maintenance and asepsis. Despite all the efforts the patient succumbed to fulminant sepsis on 3rd day of life. This case report draws the attention towards the problems encountered during management of collodion babies and the need of management guidelines for such babies.

Keywords: Collodion; Ichthyosis; Membrane; Sepsis

Introduction

Collodion baby syndrome is a condition where the skin is covered with thick parchment-like membrane. The frequency of collodion baby is very low. It is estimated that there are 1:300,000 cases of newborns worldwide [1-3]. Collodion baby is a characteristic clinical entity which may precede the development of one of a variety of ichthyoses or occur as an isolated and self-limiting condition. Although the collodion membrane is only an evanescent condition of the newborn, neonatal complications can occur in 45% of all collodion babies, leading to a mortality rate of ~11% in the first few weeks of life [4,5].

The Collodion baby is at the risk of high losses of transcutaneous fluid, risk of dehydration, hyponatremia and skin infections (gram-positive and *Candida spp.*). There is also the risk of pneumonia secondary to aspiration of desquamated material in the amniotic fluid [3,6,7]. No clear-cut guidelines are available for the management of collodion babies especially regarding fluid management and skin care. We present this case to highlight its rarity and the complications that follow it and the need of a guideline for its management.

Case Report

A 38 weeks term appropriate for gestational age male baby of 2600 gm weight was born vaginally to a 26 year old primigravida in our hospital. There was no history of consanguinity. Antenatal history was uneventful. Baby cried soon after birth. Apgar scores were 7 and 8 at 1 and 5 minutes respectively. Baby's whole body was covered with parchment-like membrane with cracks at different sites. Ectropion of both the upper eyelids was present and mouth was kept open and movements at joints were restricted by the membrane. There was distortion of the pinna and peeling of the skin, more over the chest around the neck region and over the flexor aspect of limbs. Depending upon the phenotype, diagnosis of collodion baby was made. Baby was shifted to NICU in view of tachypnea and put under radiant warmer and managed with oxygen, intravenous fluids, antibiotics and emollients. In view of risk of excess transcutaneous fluid loss in such patients, strict input and output charting was done on 6 hourly basis by urine output monitoring, weight charting and signs of dehydration. Membrane started shedding off on day one with exposure of erythematous skin. Patient did not require extra fluid as hydration remained well maintained throughout. Sepsis screen (CRP – positive, I:T ratio >0.2, micro ESR 15mm in 1st hour) came out to be positive at 24 hour of life although blood culture came out to be sterile. Serum electrolytes, S.urea and S.creatinine were normal. Chest X ray was suggestive of pneumonia. Baby's condition kept

on deteriorating in terms of respiratory distress and the baby expired on third day of life.

Discussion

The term Collodion baby was coined by Hallopeau in 1884 [6]. In this condition, the baby is born with a tight parchment-like translucent membrane all over the body. Mouth is kept open and joint movements are restricted by the tightness of the membrane. Membrane causes ectropion and distortion of the pinnae. These babies are prone to hypothermia, dehydration and sepsis thus requiring management in intensive care units. In collodion babies fluid and electrolyte balance and body temperature must be carefully monitored. In addition to this the membrane must be lubricated and to achieve elasticity and desquamation an adequate hydration of the skin are the major components of management [8]. Suitable eye care and pain control should be carried out for the collodion babies with ectropion. Humidified incubators and water dressings followed by emollient agents are the essentials of the management [9]. Present case was managed with intravenous fluids, antibiotic, emollients, eye drops. Special care was taken to maintain temperature, hydration and a sepsis. Still patient landed up into fulminant sepsis and could not survive.

In most cases, the baby develops an ichthyosis or ichthyosis-like condition or other rare skin disorder. Most cases (approximately 75%) of collodion baby will go on to develop a type of autosomal recessive congenital ichthyosis (either lamellar ichthyosis or congenital ichthyosiform erythroderma) [9]. In around 10% of cases, the baby sheds this layer of skin and has normal skin for the rest of its life. This is known as self-healing collodion baby [10]. The remaining 15% of cases are caused by a variety of diseases involving keratinization disorders. Known causes of collodion baby include ichthyosis vulgaris and trichothiodystrophy [11]. A retrospective study of 29 newborns with collodion membrane showed Congenital ichthyosiform erythroderma and lamellar ichthyosis to be the most common final diagnoses [12]. There is a striking relationship between ichthyosis and collodion membrane formation. Ichthyosis is a skin disorder characterized by excessive dryness of skin and increased formation of epidermal scales.

Ichthyosis can be classified into three groups: 1) true ichthyosis, 2) ichthyosiform states and 3) epidemolytic hyperkeratosis. Among the true ichthyosis are three groups as follows: autosomal dominant ichthyosis (Ichthyosis vulgaris, ichthyosis simple, fish skin disease), X-linked recessive ichthyosis (ichthyosis nigricans, ichthyosis of the male, saurodermia) and autosomal recessive ichthyosis (lamellar ichthyosis, nonbullous congenital ichthyosiform erythroderma) [9]. Collodion babies develop autosomal recessive ichthyosis. Lamellar ichthyosis is characterized by hyperkeratosis caused by various mutations, TGM1 being the commonest [11].

Conclusion

Collodion babies are prone to several complications and need intensive monitoring and multi-disciplinary approach.

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