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HYPERNATREMIA IN TWO COLLODION BABIES*

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In 1978, Jeanneau et al[1] described a case of hypernatremic dehydration occurring with seborrheic dermatitis. Hypernatremia associated with congenital lamellar ichthyosis was reported by Garty et al[2]. Recently, two siblings with Netherton syndrome complicated by neonatal hypernatremia were reported[3].

We present two cases of collodion babies with recurrent hypernatremia hoping that they might be of interest since hypernatremia is a rare laboratory finding for a dermatologic disorder and a preventable cause of neonatal morbidity.

Case Reports

Case 1

A four-day-old female infant having a typical collodion-baby appearance was referred to our University Hospital. She was born at term following a normal pregnancy. The parents were first-degree relatives. A male sibling with a normal appearance died during the first week of life of unknown causes.

Physical examination revealed an infant weighing 2300 g whose entire body was covered with a peeling collodion-like membrane (Fig. 1). Ectropion and eclabium along with flexion contractures of the extremities were present. The patient's temperature was 36.8°C, pulse rate 132/min, and respiratory rate 40/min.

Laboratory findings included hemoglobin 11.9 g/dl, white blood cell count 12,000/mm^3, serum vitamin A level 12 gamma/dl (normal: 15-60 gamma/dl), Na^+ 171 mEq/lt (normal: 140 mEq/lt), K^+ 4.8 mEq/lt, and Cl^- 120 mEq/lt. The chest roentgenogram was normal. Blood and urine cultures yielded no growth.

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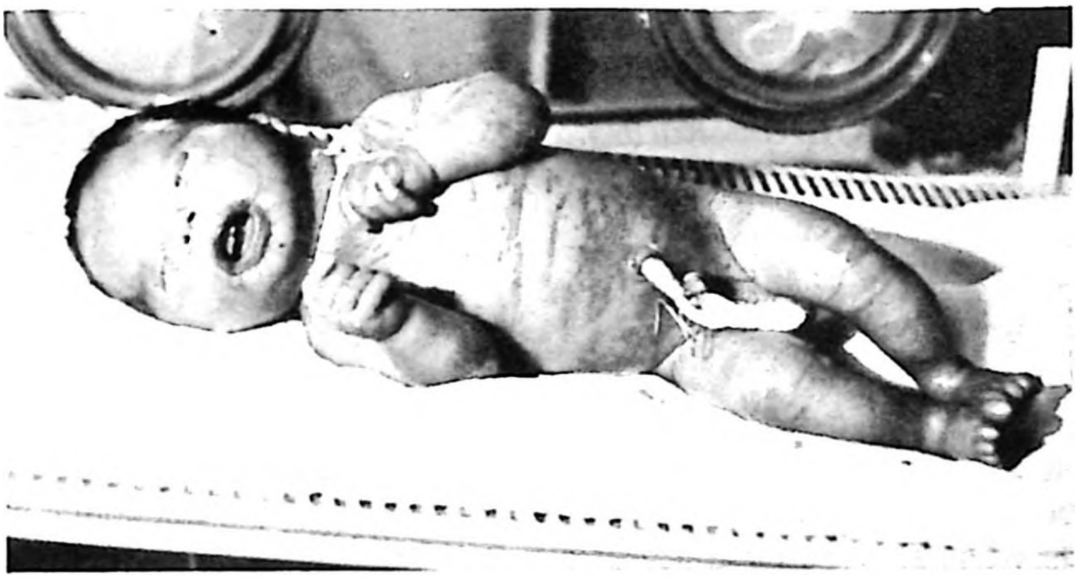

Fig. 1: General appearance of the patient.

The patient was given ampicillin and tobramycin for five days in order to prevent infection along with 5000 I.U. vitamin A. Intravenous fluids for rehydration were administered. Vasoline containing five percent lactic acid was applied topically. The patient responded well to the therapy and the serum sodium concentration returned to normal on the third day of treatment.

Case 2

A five-hour-old male infant was transferred to our University Hospital because of a generalized skin disorder. As in the first case, his parents were first-degree relatives.

Physical examination revealed an infant weighing 2290 g, who was icteric. He presented with a collodion-like membrane, eclabium and ectropion. Laboratory findings were within normal limits except for hyperbilirubinemia (total bilirubin 11.9 mg/dl and a negative direct Coombs test).

Phototherapy and topical vaseline-lanolin were applied. Hypernatremia developed on the third day of phototherapy. The serum sodium concentration was 165 mEq/lt. There was no diarrhea, vomiting, fever or other cause of hypernatremia except for the skin disorder and phototherapy. After rehydration the serum sodium level was found to be normal. Since the subsequent course was normal, the patient was discharged in a week.

After ten days, the patient was readmitted to the hospital suffering from dehydration and hyperirritability. The serum sodium level was 170 mEq/lt. The hypernatremia which had recurred was treated by the administration of intravenous fluids, and the condition improved. He was discharged and given a skin care regimen.

In the treatment of collodion babies application of topical keratolytic agents have been used and measures have been taken to prevent other complications. Erdem[4] has reported five cases treated successfully with a topical vasoline preparation which contained five percent lactic acid. Lactic acid is an alpha-hydroxy acid compound, the effect of which is anti-keratinogenic. In one of our cases vasoline containing five percent lactic acid was applied.

Complications seen in collodion babies are skin irritation, water loss via the epidermis, pyodermia and pulmonary infection[4]. We wish to emphasize that there is an elevation of serum sodium levels in collodium babies. It is known that hypernatremia may occur when there is a considerable increase in the area of thin erythematous skin or increased skin loss (burn, phototherapy, preterm or generalized dermatoses)[1-3,5]. In the cases presented, no other cause of hypernatremic dehydration such as diarrhea, vomiting, tachypnea, polyuria, fever or ambient temperature was found. In Case 1, the only cause of hypernatremia was the peeling of the skin. However, Case 2 experienced two episodes of this disorder. Phototherapy may have aggravated the water loss via the lungs and the skin, and the second episode may have only been related to the skin disease.

We are of the opinion that early recognition of hypernatremia and the replacement of water loss is extremely important, especially in neonates. Therefore, serum sodium concentrations should be routinely examined when dealing with generalized skin disorders of the newborn.

Summary

Two cases of collodion babies with hypernatremia are presented, and the importance of this electrolyte abnormality in skin disorders is also stressed.

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