Aplasia Cutis Congenita as a Sole Manifestation of Congenital Varicella Syndrome

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Aplasia cutis congenita following maternal varicella is well known. On the other hand, aplasia cutis congenita as the sole manifestation of congenital varicella syndrome is very rare. A perusal of the literature revealed only one case [2], to which we are adding two more, to alert readers of such an association.

1. Introduction

Fetal infection following maternal varicella, especially during the first 20 weeks of gestation, can result in varicella embryopathy, also known as congenital varicella syndrome or fetal varicella syndrome. This constellation of malformations was first described by LaForet and Lynch in 1947 [1]. We report a 5-day-old boy and a 17-day-old boy with aplasia cutis congenita as the sole manifestation of congenital varicella syndrome. A perusal of the literature revealed only one case [2], to which we are adding two more, to alert readers of such as an association.

2. Case Reports

2.1. Case 1. A 5-day-old Malay infant boy from Malaysia was born to a 28-year-old primigravid woman at 37 weeks gestation, following an uncomplicated normal spontaneous vaginal delivery. The Apgar score was 6 and 9 at 1 minute and 5 minutes, respectively. The birth weight was 2.6 kg, length was 48 cm, and head circumference was 34 cm. At birth, a linear skin defect was noted on the right forearm extending to the elbow. The neonatal course was otherwise uneventful.

At around the 16th week of gestation, the mother experienced constitutional symptoms of malaise and fever. Two days later, she developed an itchy rash, which started as rose-colored macules, progressing rapidly to become papules, vesicles, pustules, and crusts. New lesions appeared in crops every one to two days, and lesions at different stages of development were seen. The distribution of the lesions was typically central, with the greatest concentrations on the trunk. After the rash had subsided, she was left with hyperpigmented and hypopigmented scars in lesional areas consistent with prior varicella infection (Figure 1). The mother did not recall having varicella or varicella vaccination in the past. A diagnosis of maternal varicella was made on clinical grounds. Parents were nonconsanguineous. There was no history of maternal medications taken during pregnancy.

On physical examination, there was a linear skin defect involving two-thirds of the length of the right forearm extending to the elbow, along the distribution of the T1 dermatome (Figure 2). The lesion was depressed in comparison with the surrounding skin. There was a thin
transparent membrane at the site of the skin defect, and the underlying subcutaneous structures were obvious to the naked eye. The skin surrounding the defect was erythematous and indurated. The rest of the physical examination was unremarkable. In particular, there were no dysmorphic features.

A clinical diagnosis of aplasia cutis congenita secondary to maternal varicella was made. The infant was seen by an ophthalmologist, a neurologist, and an orthopedic surgeon who did not detect any other anomalies. Cranial MRI was normal. The wound was cleaned daily with betadine solution. Fucidin acid cream was applied twice daily to the wound which was then covered with a nonadhesive sterile dressing. The wound healed in 34 days. The parents were happy with the esthetic outcome. There was no functional impairment.

2.2. Case 2. A 17-day-old Malay infant boy from Malaysia was referred because of an extensive scar on the left flank, which was noted at birth. There was no history of vesiculobullous lesions. The infant was born to a gravida 2 para 1 30-year-old mother at term following an uncomplicated normal spontaneous vaginal delivery. The Apgar score was 7 and 10 at 1 minute and 5 minutes, respectively. The infant’s birth weight was 2.7 kg, length was 47 cm, and head circumference was 35 cm. The infant was breast-fed and thriving. The neonatal course was unremarkable.

At around 15th week of gestation, the mother developed an intensely pruritic rash consisting of erythematous macules, papules, pustules, and crusts, which appeared in crops. The rash was extensive, with the greatest concentration on the trunk. The lesions were typical of varicella. The mother was tested for varicella, and her serum varicella-zoster specific IgM was positive. She was treated with acyclovir 800 mg orally four times a day for five days. The maternal health was otherwise unremarkable. She was not on any other medications. There was no history of consanguinity and no family history of similar skin lesions.

On physical examination, the infant was alert and not in distress. Vital signs were normal. There was an extensive irregular, depressed, white scar over the left flank

\[Figure\ 4:\ Same\ 17-day-old\ infant\ with\ aplasia\ cutis\ congenita\ over\ the\ left\ flank\ (back\ view).\]
congenital varicella syndrome [4, 6, 7]. An area of erosion was noted on the posterior aspect of the scar. The rest of the physical examination was unremarkable.

A clinical diagnosis of aplasia cutis congenita secondary to maternal varicella was made. The infant’s varicella-zoster specific IgM was negative. On the other hand, the varicella-zoster specific IgG was elevated at 3011 mIU/ml (>100 mIU/ml is considered as positive).

The infant was seen in consultation by various specialists, including a neurologist, an ophthalmologist, and an orthopedic surgeon, who could not detect other anomalies. He was referred to a plastic surgeon for follow-up care. The parents were happy with the esthetic outcome. There was no functional impairment.

### 3. Discussion

Humans are the only known reservoir for the varicella-zoster virus [3]. The virus is transmitted by direct contact with varicella or zoster lesions or by inhalation of infected airborne droplets [3]. The incidence of varicella has been estimated at 0.1–0.7 per 1000 pregnancies [4]. Up to 25% of the infants born to women who contract varicella may become infected [4, 5]. Approximately 2% of fetuses exposed to varicella or zoster lesions or by inhalation of infected air can become infected at birth [5]. The virus is transmitted by direct contact with infared infections (e.g., varicella-zoster specific IgG was negative. On the other hand, the varicella-zoster specific IgG in the infant. In one study, only 4 of 16 (25%) infants with clinical manifestations of intrauterine varicella infection had positive varicella-zoster specific IgM [20].

Aplasia cutis congenita or congenital absence of the skin is characterized by a localized or widespread, complete or partial absence of different layers of the skin at birth [21]. The condition can present at birth with lesions that have already healed with scarring or with a glistening absence of skin that heals with scarring, as is illustrated in our two cases. Frieden classified aplasia cutis congenita into 9 groups, depending on the site of the skin defect, associated anomalies, associated syndromes of malformation, and exposure to teratogens as causative agents [21]. Group 8 refers to aplasia cutis congenita linked to teratogens such as medications (e.g., methimazole) and intrauterine infections (e.g., varicella and herpes simplex) as is illustrated in the present cases. Aplasia cutis congenita as one of features of congenital varicella syndrome is well known. Srabstein et al. reported a newborn infant with aplasia cutis congenita on the left lower leg with flexion contracture at the ankle, knee, and hips, cutaneous scars in the lumbar area, bilateral cataracts, microphthalmia, and micrognathia [22]. The infant was born to a mother who had contracted varicella between 13 and 15 weeks’ gestation. On the other hand, aplasia cutis congenita as a sole manifestation of congenital varicella syndrome is extremely rare. A perusal of the literature revealed only one case. Bailie reported a newborn infant who had congenital absence of the skin over the left side of the neck and shoulder [2]. There were no associated anomalies. The mother of this infant had varicella at 15 weeks’ gestation. Our patients add two more examples of this association. In our opinion, aplasia cutis congenita as a sole manifestation of congenital varicella syndrome is extremely rare and if the affected infant has a constellation of features of congenital varicella syndrome. The diagnosis may not be obvious if aplasia cutis congenita is the sole manifestation and if the maternal history of varicella is overlooked. The
present two cases help to alert readers that aplasia cutis congenita can be the sole manifestation of congenital varicella syndrome.

Consent

Verbal consent has been obtained from the parents of the children to have the photos of the children published.

Disclosure

Professor Alexander K. C. Leung serves on the editorial board and is one of the academic editors of *Case Reports in Pediatrics*. The manuscript was sent out for independent peer-review.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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