ARTICLE

Halo Scalp Ring

A Case Series and Review of the Literature

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Background: Halo scalp ring is an uncommonly reported alopecia of the scalp that arises perinatally.

Objectives: To describe 5 new cases of halo scalp ring, and to review the literature.

Setting: An outpatient dermatology clinic in an urban area; patients diagnosed in a 2-year period were included in the study.

Results: Halo scalp ring is most commonly a temporary, nonscarring alopecia that occurs in patients born to primigravidas.

Conclusions: Halo scalp ring is a distinctive form of alopecia attributed to caput succedaneum. It is underreported and generally has a good prognosis. However, scarring may occur.

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UNUSUALLY prolonged pressure on the vertex of the scalp by the cervix during a difficult delivery, often in primigravidas, may result in caput succedaneum, a common birth injury associated with contusion and, rarely, necrosis of the scalp. Caput succedaneum consists of soft tissue swelling and bruising that often resolve in several days without sequelae. However, hair loss may occur as a consequence of pressure necrosis. This alopecia has been called halo scalp ring.[1,2] Although usually a temporary defect, scarring has been reported.[1-5] We describe 5 cases of this distinctive annular alopecia and provide a review of previously reported cases.

PATIENT REPORTS

PATIENT 1

A 2-year-old boy had localized hair loss noticed shortly after birth. The patient was born to a 24-year-old primigravida who underwent 20 hours of labor prior to vaginal delivery. At birth, caput succedaneum was noted by the pediatrician. On examination, the child had a well-defined ring of nonscarring alopecia (**Figure 1**). The parents shaved the child's head below the ring of thinned hair in an effort to make the hair loss less noticeable. Reexamination of the patient at age 4 years revealed complete resolution of the hair loss.

PATIENT 2

A 6-month-old boy had an area of alopecia noted at birth. The child was the product of a full-term pregnancy and was delivered vaginally to a 27-year-old primigravida. The pregnancy had been uncomplicated, and the mother took no prenatal medications. At delivery, mild bruising of the scalp with caput succedaneum was documented. The child was referred to a dermatology clinic for atopic dermatitis. On examination, the child had linear patches of nonscarring alopecia in an annular configuration around the vertex of the scalp (**Figure 2**). The hair loss improved over the next several months.

PATIENT 3

A 2-month-old girl had localized alopecia perinatally, which progressed in size for the first month of life. The patient was a 2.64-kg term infant, delivered by cesarean section because of failure to progress. The mother, a primigravida, denied taking any prenatal medications, including methimazole. Periocular edema and a large

PARTICIPANTS AND METHODS

Four cases of halo scalp ring were diagnosed in the pediatric dermatology clinic at St Luke's–Roosevelt Hospital Center, New York, NY (cases 1-4), and 1 case was diagnosed at Children's Memorial Hospital, Chicago, Ill (case 5). These cases were seen from March 1999 to March 2001. A MEDLINE review of the literature, in English and other languages, yielded 5 reports (6 cases) of halo scalp ring.

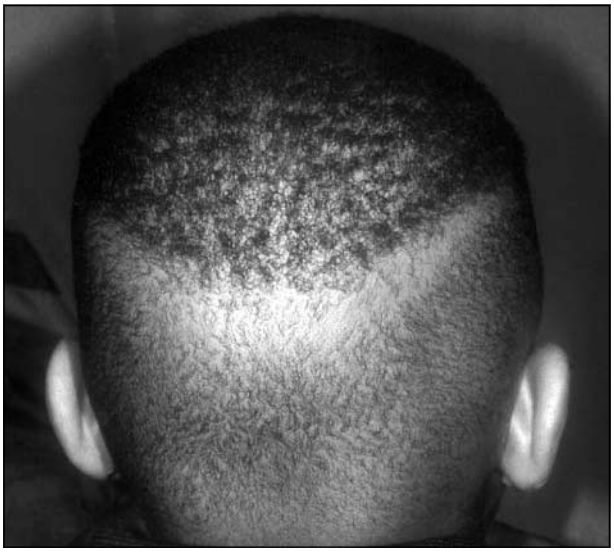

Figure 1. A 2-year-old boy with a ring of nonscarring alopecia.

caput succedaneum were noted at birth by the pediatrician (**Figure 3**). The alopecia had a "chevron" shape consisting of 2 linear bands on the parieto-occipital area. Hair regrowth was seen over the next 6 months.

PATIENT 4

A 4-month-old boy born vaginally to a 22-year-old primigravida had a linear pattern of thinned hair noted shortly after birth. No complications were documented in the medical record. However, the labor had been more than 20 hours. The parents recalled the child having some molding of the head. On examination, nonscarring hair loss in a linear, bandlike pattern was seen at the vertex of the scalp.

PATIENT 5

A 6-month-old girl came to a dermatology clinic with hair loss seen shortly after birth. The patient was born vaginally and without complications to a primigravida. A caput succedaneum was present at birth. Symmetrical thinning of the hair in a circular pattern around the parieto-occipital area was noted at age 2 months.

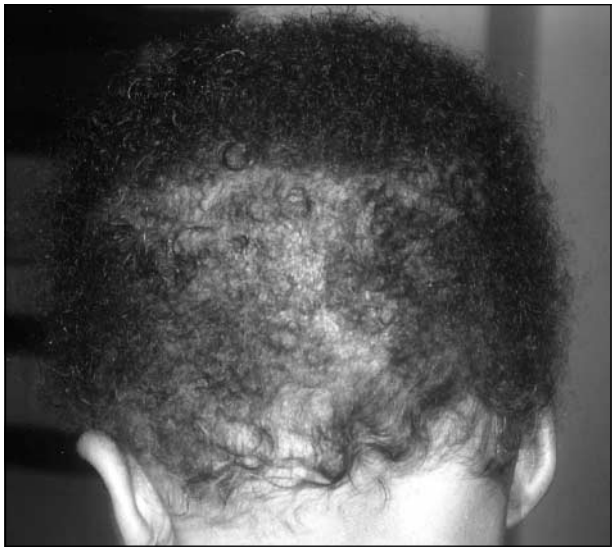

Figure 2. A 6-month-old boy with linear patches of annular, nonscarring alopecia.

Figure 3. A 2-month-old girl with alopecia in a chevron shape.

COMMENT

Halo scalp ring is a diagnosis that has never before been reported in the pediatric literature. Five reports (6 cases) have been described in the dermatology literature.[1-5] This type of alopecia is forme fruste of caput succedaneum and represents a pressure necrosis phenomenon of the neonatal scalp at the rim of the cervical os. Pressure necrosis with caput succedaneum is a result of prolonged pressure leading to reduced blood flow and hypoxic-ischemic tissue damage.[6,7] A halo scalp ring can be as wide as 9 cm and may manifest as full-thickness necrosis or just mild alopecia, as seen in our patients. A review of the literature reveals that cases of permanent, scarring alopecia are associated with premature rupture of membranes and a hemorrhagic, necrotic caput succedaneum (**Table**). Caput succedaneum is more common with prolonged labor in primigravidas. This clue can aid the diagnosis of halo scalp ring.

Previously Reported Cases of Halo Scalp Ring*

Reference	Mother's History	PROM	Delivery	Findings at Delivery	Scarring
1	G3/P2	6-d	Vaginal	CS w/necrosis	Yes
2	G3/P2	No	Vaginal	CS	No
2	G1/P0	2-d	Cesarean	CS	No
3	G1/P0	No	Difficult 2-d vaginal	Crusted CS w/necrosis	Yes
4	G2/P0	7-d	. . .	Hematoma w/necrosis	Yes
5	G1/P0	2-d	. . .	CS w/necrosis	Yes

*G indicates gravida; P, para; PROM, premature rupture of membranes; CS, caput succadaneum; and ellipses, data not available.

What This Study Adds

Halo scalp ring is an annular scalp alopecia that appears in the first year of life. Pediatricians are not familiar with this form of alopecia because reports have not appeared in the pediatric literature.

We describe 5 patients with halo scalp ring. The alopecia develops because of pressure of the cervical os on the scalp and is associated most commonly with a history of prolonged labor and caput succedaneum. While permanent scarring and scalp necrosis may occur, 3 of our patients had complete hair regrowth. We believe that halo scalp ring is common in infants and that it is important for pediatricians to be aware of this form of alopecia.

Halo scalp ring is a diagnosis that requires no further investigation for congenital anomalies. However, it mimics other causes of scarring alopecia of infancy, which can be worrisome and require extensive evaluation.[8] Traumatic and pressure necrosis alopecias may also be related to the birthing process or perinatal care, such as fetal scalp monitors or lack of positional movement.[9] These diagnoses can be excluded easily based on location and shape of the alopecia and ulcerations, as well as history of the traumatic event.

The incidence of halo scalp ring is unknown, but it is most likely underreported, as we observed 5 cases over 2 years. We posit that the diagnosis is often not made because halo scalp ring has not been reported in the pediatric literature and is therefore not familiar to pediatricians. Furthermore, referrals to a pediatric dermatologist may not be made because the hair will often regrow with time. Three of our patients and 2 patients in the literature[2] had complete regrowth in a few months to years.

Recognition of halo scalp ring can prevent unnecessary work-up. Halo scalp ring is a benign process that has no systemic associations and does not warrant further investigation. Although the natural course of the alopecia is gradual regrowth, a hemorrhagic or necrotic caput succedaneum present at birth may portend a poor prognosis because deep ulceration can destroy hair follicles, resulting in scarring alopecia. Autologous keratinocyte grafts can be used to treat large ulcerations, although this will not improve the associated hair loss. Observation is the most appropriate initial therapy, and tissue expansion and surgical excision should be considered for any residual areas of scarring alopecia at school age to prevent the psychological trauma that can occur in children with cutaneous abnormalities.

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