

Case Report

Halo scalp ring: an undiagnosed neonatal scalp alopecia

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ABSTRACT

Halo scalp ring is a rare less frequently diagnosed non scarring alopecia seen in neonatal period. Although a few cases can land up in scarring alopecia if necrosis and deep inflammation due to Caput Succedaneum supervenes. It is imperative to diagnose the condition as various forms of alopecias in infants can lead to psychological disturbance among parents. Herein we report a case of Halo Scalp Ring alopecia so as to keep in mind this condition so that unnecessary investigations of the child can be avoided and in case scarring occurs the child can be referred on time to a plastic surgeon for hair restoration surgeries.

Keywords: Halo scalp ring, Infantile alopecia, Caput succedaneum

INTRODUCTION

Halo scalp ring is a band of localized curvilinear alopecia seen in neonate over the parieto-occipital part of scalp.¹ It is usually considered a temporary alopecia, but in few cases scarring alopecia occurs.² This case is peculiar as the incidence of Halo scalp ring is rare and it was associated with caput succedaneum which makes it rarer further. Also, since the site of alopecia was occipital important differentials should be ruled out before making the diagnosis so that appropriate counselling of the child's parents can be done. In India it largely remains underdiagnosed. This case reports highlights this rare entity and throws light on some common differentials.

CASE REPORT

A 10-days-old female infant born out of spontaneous normal vaginal delivery at 35 weeks to 19-years-old primigravida mother was referred to our department by pediatrics unit for necrotic lesion over occipital scalp

with partial loss of hair in circumferential pattern. On enquiry, baby did not take any medications and the pregnancy was otherwise unremarkable, except for the prolonged labor which lasted for about 20 hours. Birth weight was 2.5 kg. Mild swelling was noted immediately by the treating physician. Two days later erythema and increasing oedema was noted by patient's mother over posterior aspect of scalp. A day later, ulceration was observed that prompted for dermatology consultation. On examination child was clinically well. A well-defined necrotic ulcer of approximately 2x2 cm size was present along with partial loss of hair in circumferential manner superimposed on erythema and oedema over parieto-occipital scalp, giving subtle evidence for caput succedaneum (Figure 1-2). On palpation, the swelling was soft, boggy, fluctuant and the ulcer was tender and seemed to be extending till deep subcutaneous layer superficial to periosteum. There was purulent discharge from the ulcer. Her complete blood count was within normal limit and both blood and wound cultures were found to be negative.

Table 1: Differential diagnosis of alopecia in infants.

Features	Aplasia Cutis	Pressure Alopecia	Neonatal Occipital Alopecia	Halo Ring Alopecia
Onset	Congenital	Within Few Weeks of pressure insult	2-3 months after birth	Perinatal period
Site	Vertex usually	At the site of pressure	Occipital	Usually at site of caput succedaneum
Presentation	Absence of the epidermis, dermis, and occasionally subcutaneous tissue	Erythema, Swelling, tenderness followed by ulceration	Band-like shape or oval alopecic patch with sharp lower margin extending to the nape and upper limit is merged with the hair of the vertex in a less marked manner	Curvilinear band of alopecia located bordering the caput succedaneum
Type of Alopecia	Scarring	Scarring or non scarring	Scarring	Non scarring
Prognosis	Lesions will typically heal within a few weeks to a few months with an atrophic, hairless scar	Prognosis depends on ischemia severity and timely treatment with reperfusion therapies or mobilization	Is a physiological phenomenon	Is temporary phenomenon, non scarring but if necrosis occurs can be associated with scarring

An ultrasound confirmed the depth of the wound up to subcutaneous layer of scalp. There was no history of any traumatic event or use of fetal scalp monitors during vaginal delivery. So, based on shape and location of alopecia and ulceration a diagnosis of Halo ring alopecia secondary to caput succedaneum was confirmed. Patient's parents were counseled about the unpredictable complete regrowth of hairs due to presence of necrosis in our case and oral and topical antibiotics were given for treatment of necrotic ulcer.



Figure 1: A well-defined necrotic ulcer of size 1x2 cm over occipital area with underlying erythematous, edematous swelling over occipital area, Curvilinear alopecia at occipital area overlying the caput succedaneum.



Figure 2: Curvilinear alopecia in red marking is seen.

DISCUSSION

Halo scalp ring is a band of localized alopecia seen in neonate over the parieto-occipital part of scalp.¹ It is an incomplete phenotypic expression of caput succedaneum and was first described by Patricia Neal in year 1984.² Exact incidence of Halo scalp ring is largely not known with approximately 30 cases reported in literature so far. It is usually seen in premature infants.³ It is usually considered a temporary alopecia, but in few cases scarring alopecia have been reported.⁴ Unusually prolonged labor can lead to undue pressure over fetal scalp by the cervical OS in utero. This leads to

hypoperfusion and hypoxemia of cutaneous vasculature leading to localized loss of hair and swelling of soft tissue over parieto-occipital scalp, commonly known as Caput Succedaneum.⁵ As caput succedaneum occurs due to subcutaneous serohaematic extravasation, it generally do not leave any sequel giving it an overall good prognosis.⁶ Risk factors for halo scalp rings include primigravida birth, premature rupture of membranes or prolonged labor, although cases have been reported without prolonged labor too.⁷ The other close differential diagnosis of this condition includes Aplasia Cutis, Pressure Alopecia, Neonatal Occipital Alopecia which can be easily differentiated based on duration of presentation, site and shape of alopecia (Table 1). Occurrence and association of halo scalp ring with succedaneum suggests in utero pressure plays an important role in formation of halo scalp ring.⁷ It is seen in a 'chevron like pattern' along parieto-occipital scalp due to high pressure over bony prominences. These rings are variable in size ranging from 1 to 4 cm in width and rings as long as 9 cm have also been reported.⁶ Although alopecia is usually temporary, presence of necrosis poses risk for permanent scarring.⁸ As the hair loss is usually transient; many cases remain unreported. It is a clinically diagnosed condition and doesn't require further assessment and frequent follow-ups.⁹ Secondary bacterial infection treatment and local wound care should be sought and in case of necrotic lesions leading to scarring alopecia.¹⁰ Patient should be referred for hair transplant surgery or surgical excision.

CONCLUSION

Halo scalp ring is not associated with any congenital anomaly so early identification helps in minimizing unnecessary testing. Our case highlights to look for subtle changes of caput succedaneum which can prompt clinician to look into scalp more closely to determine circumferential injury that might accompany caput succedaneum. Other associated birth injuries like subgaleal hemorrhage and cephalhematoma needs additional investigations.

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REFERENCES

1. Oskardmay AN, Morrell DS. Curvilinear Alopecia in an Infant. Clin Pediatr. 2019;58(6):704-706.
2. Martín JM, Jorda E, Alonso V, Villalón G, Montesinos E. Halo scalp ring in a premature newborn and review of the literature. Pediatr Dermatol. 2009;26:706-8.
3. Pang RX, Cheng A, Mohammed JA. An unusual scalp lesion in a premature infant. Paediatr Child Health. 2020;25:268-9.
4. Neal PR, Merk PF, Norins AL. Halo scalp ring: a form of localized scalp injury associated with caput succedaneum. Pediatr Dermatol. 1984;2:52-4.
5. Tanzi EL, Hornung RL, Silverberg NB. Halo Scalp Ring: A Case Series and Review of the Literature. Arch Pediatr Adolesc Med. 2002;156:188-90.
6. Douri TH. Two cases of halo scalp ring. Dermatol Online J. 2016;22:13030.
7. Beutner KR. Halo ring scarring of alopecia. Pediatr Dermatol. 1985;3:83.
8. Shin JO, Roh D, Son JH, Shin K, Kim HS, Kim BS, et al. Halo Scalp Ring: An Annular Alopecia Associated with Birth Injury. Ann Dermatol. 2023; 35(1):S146-7.
9. Prendiville JS, Esterly NB. Halo Scalp Ring: A Cause of Scarring Alopecia. Arch Dermatol. 1987;123(8): 992-3.
10. Das S. Permanent baldness following caput succedaneum. J R Coll Gen Pract. 1980;30(216):428-9.

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