

## Halo Dermatitis around Tumours

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**Circular dermatitis around different benign or malignant lesions were examined in 19 patients. The morphological picture was the same whether it occurred around an acquired naevus cell naevus, a congenital naevus cell naevus, a seborrheic keratosis, a stucco-keratosis, a keloid, a benign lentigo, an insect bite, a basal cell carcinoma, or a squamous cell carcinoma. The central lesions were macroscopically unaffected by the surrounding inflammation.**

(Accepted June 16, 1989.)

Acta Derm Venereol (Stockh) 1990; 70: 31–34.

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Circular eczematous reactions around acquired naevus cell naevi have been described (1, 2, 3) and the phenomenon has been named halo eczema (4), halo dermatitis (5), or Meyerson's naevus (5, 6). However, according to our observations the same halo inflammation may occur around many types of lesions, thus probably representing a basic biological phenomenon.

### OBSERVATIONS

#### 1. Halo dermatitis and acquired naevus cell naevus (Fig. 1)

Clinical data on 10 patients are reported in Table I.

The microscopic examination of ten central lesions showed one junctional, one intradermal and eight compound naevus cell naevi. The overlying epidermis showed acanthosis and localized parakeratosis together with intercellular edema and slight spongiosis. In the underlying superficial dermis there were perivascular lymphocytic infiltrates, in some places also invading the epidermis. In one case, eosinophils and macrophages occurred in the inflammatory infiltrates. In the perilesional ring, a similar spongiotic dermatitis, together with lymphocytic dermal infiltrations, was observed (Fig. 2). In one case, erythema multiforme-like changes were observed. After topical treatment with corticosteroids until the reappearance of macroscopically normal non-inflammatory skin, slight remains of the lymphocytic infiltrates were still observed.

#### 2. Halo dermatitis and congenital naevus cell naevus (Fig. 3)

A boy, 6 months of age, had had a 1 cm, light brown congenital naevus cell naevus on his back since birth. For a few weeks an acute papulovesicular eczematous dermatitis in a circular

area 1 1/2 cm outside the naevus was observed. The dermatitis cleared after 2 weeks' application of a potent corticosteroid cream and remained healed after this treatment was concluded. The central naevus persisted unchanged.

#### 3. Halo dermatitis and seborrheic keratosis

A 78-year-old woman with many seborrheic keratoses on her trunk developed a circular eczema around only one of the keratoses on her back. The central lesion had the appearance of a 1 cm, slightly pigmented seborrheic keratosis, and the eczema was dry and scaly in a circle 2 cm peripheral of the lesion. It developed during one week, persisted for another week and cleared in a third week following topical potent corticosteroid treatment and then remained healed. The central lesions did not show any changes macroscopically.

Microscopically, the central lesion was a seborrheic keratosis without inflammatory infiltrate. The area of the perilesional dermatitis showed spongiosis and a sparse perivascular lymphocytic infiltrate around dilated capillaries in the upper dermis.

#### 4. Halo dermatitis and irritated seborrheic keratosis

A 36-year-old woman had had a 'wart' on her right calf for many years. A circular itchy eczema suddenly developed around the central wart. After a further 2 weeks a widespread nummular dermatitis followed, mainly on the extremities. Thus the solitary perilesional dermatitis persisted alone during a period of about 3 weeks as a 'herald patch' before the generalized nummular eczema. No signs of pityriasis rosea were observed. The eczema cleared following topical corticosteroid treatment. The central lesion persisted unchanged by the inflammatory process and was excised after the dermatitis had subsided.

Microscopically, the central lesion was a basal and squamous cell papilloma with superficial dermal lymphocytic infiltrates without spongiosis. The perilesional dermatitis showed focal parakeratosis with no spongiosis and, in the upper dermis, perivascular lymphocytic infiltrates and dilated capillaries with swollen endothelial cells.

#### 5. Halo dermatitis and stucco-keratoses (Fig. 4)

A 67-year-old woman with many stucco-keratoses on her arms suddenly developed an itching eczema, during a period of a few days, circular around most of her keratoses and at the same time an acute eczema of her face, probably a contact dermatitis. All lesions cleared following topical corticosteroid treatment. The central keratoses remained unchanged by the inflammatory process.

Microscopically, the central lesion was a squamous cell papilloma with slight inflammatory reaction. The perilesional dermatitis showed exocytosis and, in the upper dermis, a lymphocytic infiltrate partly diffuse, partly patchy, with some melanophages.

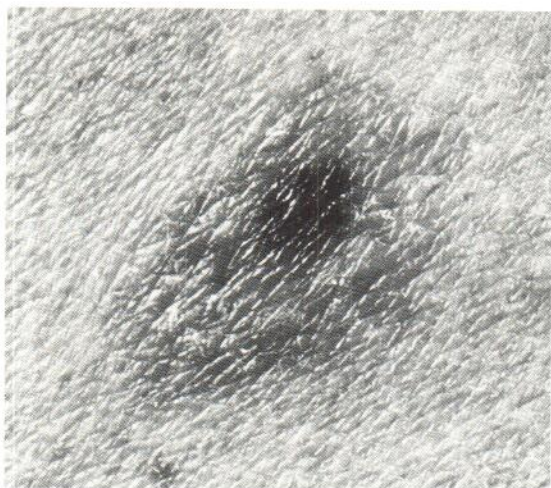


Fig. 1. Halo dermatitis and acquired naevus cell naevus.

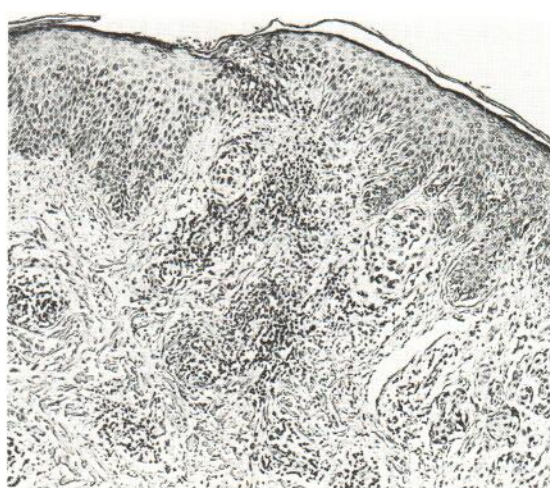


Fig. 2. Halo dermatitis and acquired naevus cell naevus. A superficial dermal lymphocytic infiltrate partly invading the epidermis with focal spongiosis.

Table I. Halo dermatitis and acquired naevus cell naevi

Case	Age	Sex	Number of lesions	Location	Duration of dermatitis at presentation	Outcome of dermatitis/naevus
1	23	F	1	Chest	3 weeks	Dermatitis cleared with corticosteroids. Naevus unchanged.
2	25	M	1	Arm	2 months	Dermatitis cleared with corticosteroids. Naevus unchanged, excised.
3	26	M	1	Back	2 months	Dermatitis cleared with corticosteroids. Transient hypopigmented halo. Naevus unchanged.
4	54	M	1	Back	4 weeks	Dermatitis cleared with corticosteroids. Naevus unchanged, excised.
5	17	F	1	Back	A few days	Dermatitis cleared with corticosteroids. Naevus unchanged.
6	44	F	1	Axilla	3 weeks	Excised.
7	22	F	1	Back	3 weeks	Dermatitis cleared with corticosteroids. Naevus unchanged, excised.
8	24	M	4	Back	2 weeks	Dermatitis controlled with corticosteroids. Naevi unchanged.
9	35	M	1	Leg	3 weeks	Dermatitis and naevus excised.
10	43	F	2	Abdomen	2 weeks	Dermatitis and naevus excised.

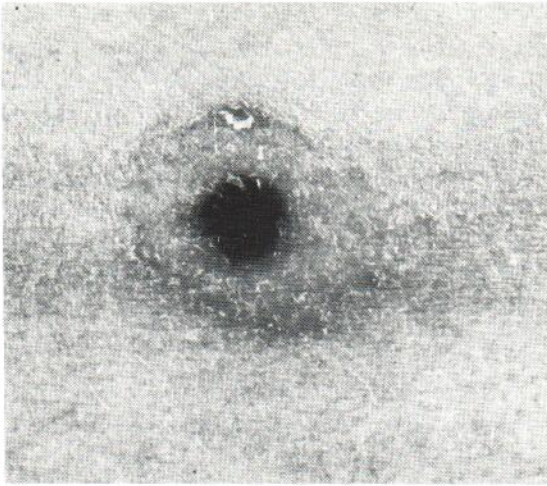


Fig. 3. Halo dermatitis and congenital naevus cell naevus.

#### 6. Halo dermatitis and keloid

A 20-year-old man with a scar resulting from a tuberculosis vaccination (BCG) on his left arm 5 years previously developed a keloid *in loco*. It was excised but recurred and was then treated with 3-monthly injections of triamcinolone acetate suspension without any noticeable effect. During a couple of months, a circular, scaly halo dermatitis occurred around the central keloid. The dermatitis cleared with topical corticosteroid treatment.

Microscopically, the central lesion was a keloid. Six weeks after the last triamcinolone injection, the overlying epidermis showed parakeratosis and the dermis a superficial sparse lymphocytic infiltrate, together with some eosinophils. In the area of the perilesional dermatitis, a focal parakeratosis was noticed, but no spongiosis. In the superficial dermis, edema and lymphocytic infiltrates were observed.

#### 7. Halo dermatitis and lentigo benigna

A 60-year-old woman had had a 5 mm, light brown patch on her left forearm for a couple of years with the macroscopic appearance of a benign lentigo. For 2 weeks, an itchy eczema-



Fig. 4. Halo dermatitis and stucco-keratosis.

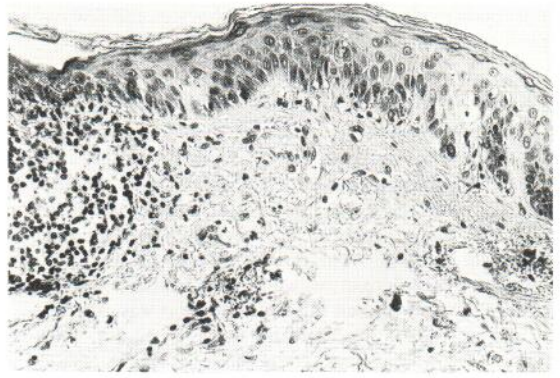


Fig. 5. Halo dermatitis and lentigo simplex. The peripheral lymphocytic infiltrate extends to the border of the lentigo but with very few cells inside this lesion.

tous ring, 1 cm in diameter, developed around the central pigmented lesion. The eczema cleared after 10 days of treatment with topical corticosteroid and the central lesion remained unchanged.

Microscopically, the central lesion was a lentigo simplex with, in some places, underlying lymphocytic infiltrates in the upper dermis. The perilesional area showed a slight spongiosis and a superficial dermal perivascular lymphocytic infiltrate. In some areas the infiltrate stopped abruptly at the border of the lentigo (Fig. 5).

#### 8. Halo dermatitis and insect bite

A 4-year-old girl was bitten by a tick on her right upper arm and a 5 mm persisting papule developed. After one month there was a circular eczematous reaction about 1 cm around the central papule. Peroral penicillin treatment had no effect on the inflammatory reaction. It cleared with topical corticosteroid cream but recurred several times when treatment was terminated. The central papule remained macroscopically unchanged. It was excised after one year, the halo dermatitis then being spontaneously 'cured'.

Microscopically, the central lesion showed slight epidermal hyperplasia, but no spongiosis. In the upper and lower dermis, also invading the subcutis, a prominent lymphocytic and histiocytic infiltration occurred, together with eosinophils, sometimes in a follicular pattern.

#### 9. Halo dermatitis and basal cell carcinoma

A 51-year-old man had had a tumour on the right side of the trunk for a year. One month prior to the patient's visit to the doctor, a circular eczematous 1 cm ring developed around the tumour. The tumour had the clinical appearance of a basal cell carcinoma of nodular type. The eczema cleared after 2 weeks' application of a corticosteroid cream and the central lesion, which was macroscopically unchanged by the inflammation, was excised.

Microscopically, the central lesion was a basal cell carcinoma. The area of the perilesional dermatitis showed acanthosis, parakeratosis and focal spongiosis. Some eosinophils infiltrated the epidermis and subcorneal vesicles with amorphous eosinophilic material were observed. In the upper der-

mis, perivascular infiltrates of lymphocytes and few eosinophils were seen.

#### 10. Halo dermatitis and squamous cell carcinoma

A 54-year-old woman had had a bleeding tumour on her right lower leg for some years. For a couple of months, a perilesional circular dermatitis had developed around the tumour. Initially it was the size of a coin, but later grew to a diameter of 5 cm. There had been no previous use of any topical treatment or plaster. The tumour was macroscopically 'untouched' by the dermatitis, which cleared after topical corticosteroid treatment and the central tumour was excised.

Microscopically, the central lesion was a well-differentiated squamous cell carcinoma. The perilesional area showed slight parakeratosis, acanthosis, but no evident spongiosis. Dilated capillaries and a slight perivascular, lymphocytic infiltrate in the upper dermis were also observed.

## DISCUSSION

The described circular acute perilesional dermatitis had the same morphological picture of an eczema, whether it occurred around an acquired naevus cell naevus, a congenital naevus cell naevus, a seborrheic keratosis, a stucco-keratosis, a keloid, a benign lentigo, an insect bite, a basal cell carcinoma or a squamous cell carcinoma.

The eczema ring was, in most cases, close to the central lesion (Fig. 1), but in a few cases a narrow zone of normal skin was observed between the centre and the dermatitis (Fig. 3). In one case, the dermatitis was followed by a hypo- (but not de-)pigmented halo persisting for several weeks. The halo dermatitis responded rapidly to topical corticosteroid treatment. Only in one case (of an insect bite) did it recur as soon as the treatment was stopped and subsided only after excision of the central lesion.

The central lesion was in all 19 cases macroscopically unaffected by the inflammation. The observation time was, however, in most cases short, either because of successful topical treatment with corticosteroids or because of an early excision.

In some cases reported in the literature, the halo dermatitis around naevi seemed to be part of a widespread nummular dermatitis (4). In the present series, cases of halo dermatitis and a coexisting nummular eczema were excluded to avoid a coincidence of a naevus and a nummular eczema plaque. In 2 patients the solitary halo dermatitis persisted alone for some months but later a nummular eczema developed (I:10 and case 4). In one woman the perilesional

dermatitis coexisted with a contact dermatitis of the face (Case 5) and in one man with hand dermatitis (Case I:8) at a considerable distance from the halo dermatitis phenomenon on the trunk. Pityriasis rosea was not observed in any of our cases (6).

The microscopic picture of the perilesional dermatitis was a spongiotic reaction, together with superficial dermal lymphocytic infiltrates; in 2 cases with eosinophils. This dermatitis could in some cases, to a lesser degree, also involve the central lesion. In other cases the central lesion was microscopically unaffected by the inflammation.

It is possible that the perilesional halo dermatitis is an immunological phenomenon provoked by the central 'tumorous' lesion. In all of our patients the tumour was macroscopically unaffected by the inflammation, which was a slight spongiotic dermatitis at most. It has repeatedly been stated that the perilesional inflammation around naevi does not influence the naevus itself (1-5). This is in contrast to the depigmenting phenomenon in Sutton's halo naevus (4, 5). It has recently also been shown that different subsets of lymphocytes are involved in the 'halo dermatitis' phenomenon and in the 'halo naevus' phenomenon (7).

From the observed broad spectrum of the central benign and malignant lesions it is evident that 'halo dermatitis' will be provoked not only by acquired naevus cell naevi. Various pathological processes may thus have a common dermatitis-provoking factor.

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