

MITE BURROWS IN CRUSTS FROM YOUNG INFANTS

Arve Madsen

From the Department of Dermatology, Ullevaal Hospital, University of Oslo, Oslo, Norway

Abstract. Based on a small number of personal observations, and also supported by literature (1) the author suggests that the ovigerous mite on the head of young infants do not dig burrows in the epidermis, but rather in crusts and scale-crusts which probably are a result of the mite's digging. In this way the author explains why infants are an exception from the hypothetic rule that the mite burrows are found primarily in skin with few or no hair follicles.

A peculiarity in scabies is the fact that the skin of the head is never affected, except in infants. Were it not for this exception, one could imagine that sarcoptes avoid the face and scalp because the density of the hair follicles is so great that the ovigerous mite cannot dig long burrows without being barred by hair follicles. It is also possible that the mite instinctively avoids burrowing into skin with 800-1000 hair follicles per square centimeter.

In a previous publication (2) dealing with the above-mentioned hypothesis, it was not possible to give a plausible explanation of the presence of scabies lesions and sarcoptes on the head of infants. The following five cases seem to explain the phenomenon.

CASE REPORT

Case 1. A 3-month-old female seen at the Department of Dermatology, Ullevaal Hospital in 1965. The infant had been suffering from an itching eruption for 1 month. Many larvae and several eggs of sarcoptes were found in scale-crusts from the left temple and in crusts easily removed from the left side of the scalp.

Case 2. A 2-month-old female seen at the Department of Dermatology, Ullevaal Hospital in 1966. The skin eruption had lasted 1 month. No visible burrows on the palms and soles. The infant presented lesions on the major part of the body surface, and also on the face and neck. Three scale-crusts were easily removed from the upper part of the back. In these crusts one female mite

and 45 eggs were found; 25 of these were closely aligned in an S-formed row.

Case 3. A 3-month-old male seen at the Department of Dermatology, Ullevaal Hospital in 1967. Extensive eruption which started more than 6 weeks ago. Sarcoptes were demonstrated on the hand. Examined *after a bath* at the reception in the department. Five rather adherent scale-crusts were removed from the scalp. Only 2 sarcoptes eggs were seen in one of these crusts.

Case 4. A 4-month-old male seen at the Out-Patient Dermatology Department, Ullevaal Hospital in 1969. He had been referred to the polyclinic for "chicken pox", which had lasted for 1 month. Several dispersed vesicles were seen on the trunk and extremities, and a small bulla was found at the medial border of the right foot. The right palm and sole presented burrows from which many eggs were isolated. A few papules were seen on the face and three crusts on the scalp. Twelve eggs in a row were found in one of the crusts after clearing in potassium hydroxide preparation; in the second were found 6 larvae and 5 eggs. The third yielded only 3 eggs.

Case 5. A 8-week-old female seen at the Department of Dermatology, Ullevaal Hospital in 1970. Four weeks prior to admission the infant developed an itching eruption which started at the nape of the neck and spread to the back and the rest of the body. The affection had been treated with various ointments. The infant presented a general skin affection also on the palms and soles, but no distinct burrows were found. A total of at least 1 female mite, 1 larva and 51 eggs were demonstrated in scale-crusts removed from the scalp (one), from the upper part of the back (four) and from the upper part of the arms (three).

COMMENTS

Unfortunately, the material is limited: only 5 cases of scabies in young infants in a period of 5 years. Ovigerous mites, larvae or eggs were demonstrated in scale-crusts from the face or scalp of 3 of the infants. The fourth infant presented similar scale-crusts on the upper part of the back, and the fifth infant on the same site, on the arm and in the scalp. The 5 infants were

from 2 to 4 months old. The scale-crusts presented no resemblance with the squamous surface of the oval papules seen on the penis and scrotum in scabies of older patients. The crusts consisted of coagulated exudation and cornified epithelium, the former predominating. They were easily removed without the use of curette or scalpel. It was difficult to make the thick crusts translucent with potassium hydroxide. In some cases it took up to several hours to make the eggs and mites visible.

The face and scalp of infants are doubtless easily contaminated with sarcoptes from the mother. It may be supposed that the ovigerous mite, when it is transmitted to the head region of an infant, provokes an oozing of plasma after digging into the skin, and that the mite digs a burrow into the coagulated plasma or crust thus formed and lays its eggs here. Actually, we do not know how the crusts and scale-crusts are formed. Similar crusts containing mites, larvae or eggs have not been observed in older infants and children or adults in the department. The reason for their presence on the head of the youngest infants is possibly that these small patients are not capable of removing the crusts unaided. They do not succeed in trying to scratch their head or face due to their lack of coordination. Older infants and children would certainly scratch off all crusts in a similar situation.

Text-books do not mention whether the mite burrows in infants are found in the epidermis of the face and scalp or if they are present only in crusts or scale-crusts. By closer examination of the literature it appears that J. Heilmann (1) had already observed the atypical nature of the burrows on the head and face of infants in 1922. He writes about "the scabby transformation [*borkige Veränderung*]" of the mite burrows on the head and face. "One could frequently find a loss of crust material at the aperture of the burrow (the place of entry for the mite), whereas the other end, the closed end, generally presented fresh crust material and an inflammatory reaction in its surroundings." Heilmann gives an explanation of the scab formation differing from that of the present author. He says: "This scabby transformation of the mite burrows on the head and face must certainly be attributed to the scratching of the infant's nails."

If the female mite on the face and scalp of

infants always digs her burrow in crusts which are a result of her digging, and not in the epidermis, then the hypothesis presented previously, namely, that the ovigerous mite digs primarily in skin with few or no hair follicles, is valid. This is a simple explanation of the sites of election of the burrows in scabies. It obviously makes no difference if the epidermis is thin (as on the penis) or thick (as on the hand).

In addition to follicle density there are two further factors of some importance. The first being, to what extent the skin is exposed to contamination (for example, more so on the hands than on the feet in adults), and secondly, the risk of physical damage to the mites during the time they need for digging into the horny layer (for example, lesser between the fingers than on the fingertips).

REFERENCES

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Arve Madsen, M.D.
Department of Dermatology
Ullevaal Hospital
University of Oslo
Oslo
Norway