Nummular Eczema

Review of the Literature: Survey of 516 Case Records and Follow-Up of 125 Patients

ABRAHAM I. WEIDMAN, M.D., Brooklyn
and
H. HARVEY SAWICKY, M.D., New Rochelle, N. Y.

The designation "nummular eczema," "orbicular eczema," or "discoid eczema" connotes an eruption of distinctive morphologic appearance and course. The etiology, however, remains obscure.

We have had the opportunity to review the case records of 516 ambulatory patients whose dermatoses were diagnosed as nummular eczema and to follow the clinical course of 125 of these patients over the past eight years.

Perhaps the most modern detailed description of this dermatosis is that given by Sulzberger and Wolf.[1] The condition is characterized by the appearance of discrete coin-shaped erythematosus plaques studded with small vesicles and papulovesicles. The lesions enlarge by confluence with satellite elements or by growth of the individual patches. The distribution and location of the lesions are characteristic; the affected areas usually being the extensors of the extremities, especially the dorsa of the hands. Not infrequently the thighs and legs are affected, and sometimes patches of nummular eczema appear on the trunk and face. The subjective manifestations are variable: pruritus and burning vary from almost insignificant to severe. The oozing of the patches is characteristic in that it occurs from small points in contradistinction to the diffuse oozing of other forms of eczema.

The characteristic picture is that of a round or oval patch which attains full development within a relatively short time. Usually a few small papules and papulovesicles appear, which become grouped and begin to ooze while new papulovesicles are added at the periphery until the coin-shaped disc reaches its maximal size. Sometimes the surface is covered with crusts and scales. The skin outside the patch appears normal. While in many cases the lesion remains as such throughout its entire area, in others the center fades with disappearance of all the central vesicles, resembling a patch of tinea. A characteristic round patch of nummular eczema was called by Ormsby "orbicular eczema." Chipman [2] suggests that because of the insignificant differences between the various lesions the terminology should be simplified and that all forms should be considered under one name, whether nummular, orbicular, circumscribed, or discoid eczema. The same author thinks that "orbicular eczema" of Ormsby and "recurrent eczematoid affection" of Pollitzer are identical with "nummular eczema" of Devergie.[3] It appears that this condition is that which British authors often call "intrinsic eczema" or just "eczema."

After the lesions of nummular eczema heal they may recur at the previously affected sites, like a fixed drug eruption or herpes simplex lesion. Pollitzer * mentions the fact that the lesions may remain for a week or two and then fade away. After a few months or a year a similar eruption sometimes recurs in the same areas, though more often in

Submitted for publication July 28, 1955.

From the Department of Dermatology and Syphilology of the New York University Post-Graduate Medical School (Dr. Marion B. Sulzberger, Chairman) and the Skin and Cancer Unit of the University Hospital.

* Pollitzer, S., in discussion on Chipman.[2]

other locations and commonly on the extensors of the extremities.

In this paper we shall attempt to review briefly the views on nummular eczema expressed by various authors, and then add the report of our own observations on this puzzling but relatively common condition.

ETIOLOGY AND PATHOGENESIS

Gross [4] noticed that nummular eczema frequently is associated with dry skin and has features similar to asteatotic eczema. He also raised the question whether "housewives' eczema" is not identical with nummular eczema. His hypothesis was suggested by the high incidence of nummular eczema in women, the occurrence of housewives' eczema mostly in winter, and the morphologic similarities in both conditions. The same author [5] observed that asteatosis or xerosis with fine scaling of the extensor surfaces is not infrequently noticed in patients with nummular eczema.

Klauder [6] found that a single washing with soap increases the pH of the skin, and when it reaches 7 or above it takes up to one and one-half hours to return to normal values (4.5 to 6.5). In connection with this we should like to mention Burckhardt's [7] classic studies on sensitivity and acid and alkali neutralization of the skin which show that decreased resistance of the skin to alkali is an important etiologic factor in certain dermatoses. Burckhardt and many other authors have shown that perspiration (which is a function of the intact epidermis) improved the ability of the skin to neutralize alkalis. This would explain the less frequent occurrence of "soap eczema" in the summer (increased perspiration). This led some authors [4] to conclude that nummular eczema may be a metabolic disturbance of the skin resulting in defective keratinization which in turn would impair the normal activity of the sweat glands.

According to Sulzberger and Wolf,[1] some of the patients give a history of preceding irritation by direct chemical or physical exposure; in others the eruption starts spontaneously, and in still others the condition is essentially an allergic eczematous response. They also suggest that, although nummular eczema presents many clinical and histologic features of eczema, it may perhaps be related to some other different kind of dermatosis, e. g., to herpes simplex or to an "id" reaction.

C. G. Lane, and associates [8] studied a series of 475 patients with "eczematoid" dermatoses of the hands. It is their opinion that in only a few of the many cutaneous disturbances of the hands called dermatophytosis and id, contact dermatitis, neurodermatitis, nummular eczema, bacterid, etc., was it possible to confirm the diagnosis of dermatophytosis or contact dermatitis. In many other cases there was a multiplicity of inciting factors and several complicating factors, including vasomotor instability, trauma, menstruation, focus of infection, cold weather, alteration of host-bacteria relationship, and superficial bacterial invasion of the skin with or without sensitization.

According to Fowle and Rice,[9] who studied 178 patients with nummular eczema, the causes of this condition are multiple, but the clinical picture depends upon the interaction of three etiologic factors: nutritional (vitamin B deficiency, excessive carbohydrate diet), allergic (sensitivity to endotoxins of staphylococci and streptococci from a focus of infection and to food proteins) and infectious. Among the many factors which tend to aggravate the lesions of nummular eczema (friction, wool, oils, cold weather, etc.) the most prominent part is played by soap and water.

Brocq † attributed the development of the patches to "reflex action" and pointed out the fact that the coin-shaped lesions possibly occur in zones of diminished resistance in a manner comparable to the development of a fixed drug eruption.

Ehrman ‡ considered nummular eczema a transitional phase (eczematous phase) of neurodermatitis circumscripta. The condition starts with pruritus and dermographia: later, coin-shaped patches, erythematous in

† Brocq, cited by Chipman in discussion of his paper.[2]

‡ Ehrman, in Jadassohn.[10]

character, appear in the involved areas. After this, papulovesicles and oozing points appear which later are covered with crusts and scales. Lichen chronicus (Vidal) would then be lichenified nummular eczema.

M. Jessner § discusses nummular eczema from a different viewpoint. He became interested in this condition in 1930 (he refers to these cases as "trichophytoid eczema"), since repeated mycologic studies of the nummular eczema patches gave negative results and patch tests with potassium iodide and bromide often elicited strongly positive reactions, as in patients with dermatitis herpetiformis. Later he extended his studies to cases of chronic, recurrent grouped papulovesicular eruptions affecting mostly the dorsal aspect of the extremities and called them localized forms of Duhring's disease. He feels strongly that eruptions which are made up of grouped papulovesicular lesions and localized to the extensor aspect of the extremities, especially the dorsa of the hands, known as nummular eczema, parasitic eczema, or trichophytoid eczema, exudative neurodermatitis, etc., and which are resistant to the usual therapeutic measures, do not belong to the real eczema group. In favor of his concept is the fact that many of the patients with nummular eczema not only give positive patch-test reactions with halogens (like patients with Duhring's disease) but the eruption also flares up after administration of iodides, and the lesions then may spread to regions that formerly had not been affected. The objections raised against the concept of the sameness of these two conditions include the following: (1) Nummular eczema is not observed to undergo a transformation into dermatitis herpetiformis; (2) the lesions present completely different morphologic and topical characteristics in the two conditions; (3) the histopathologic picture valid for Duhring's disease does not hold true for nummular eczema; (4) some of the drugs such as sulfapyridine, Promacetin, etc., helpful in many cases of dermatitis herpetiformis, are not generally effective in cases of nummular eczema; moreover, according to some authors, patch tests with halogens are often positive not only in dermatitis herpetiformis and nummular eczema but in various other apparently nonrelated dermatoses.

§ Jessner, M.: Dermatitis Herpetiformis Localisata, unpublished lectures.

SEASONAL INFLUENCE

Sulzberger and Baer [11] observed that nummular eczema can start and persist through any season of the year but that its incidence is greater in the winter. This also was the experience of Gross,[4] who thinks that cold weather generally is an important predisposing factor in nummular eczema.

ATOPY AND NUMMULAR ECZEMA

In Fowle and Rice's [9] series the incidence of hay fever, asthma, migraine, urticaria, and infantile eczema in patients with nummular eczema appeared with slightly less frequency than in patients with contact dermatitis. This speaks against the classification of true nummular eczema as an atopic dermatitis. It should, however, be mentioned here that nummular-eczema-like lesions are not an uncommon atopic manifestation in children.

DIFFERENTIAL DIAGNOSIS

Nummular eczema must be differentiated first of all from contact dermatitis. The latter is rather diffuse and composed of polymorphous lesions, in contrast to the uniform and sharply defined lesions of nummular eczema. The lesions of contact dermatitis also often present a distribution characteristic of the sites of maximal exposure to the causal allergens (Rhus, rubber, metals, cosmetics, etc.).

In dermatophytosis the volar surface of the extremities and the interdigital webs are most commonly affected, and the lesions present a tendency toward healing and peripheral progression. Of course, a positive microscopic finding and culture of fungi are often of decisive weight in the diagnosis of dermatophytosis.

Sulzberger and Garbe's dermatosis [12] presents numerous patches involving both the

extensor and flexor surfaces of the extremities as well as the trunk, penis, and scrotum. It is a condition present mostly in middle-aged men. Some authors believe that the emotional and psychogenic background plays an important role in Sulzberger and Garbe's syndrome.

McLeod [13] stated that mild or abortive forms of dermatitis herpetiformis may resemble nummular eczema. The concept of the similarity of nummular eczema and certain forms of Duhring's disease was discussed by Jessner,‖ who thinks in etiologic and pathogenic terms rather than morphologic.

In the light of the foregoing opinions concerning the various phases of nummular eczema, we wish to outline briefly our own findings obtained from records and personal interviews with the patients treated at the New York Skin and Cancer Unit of University Hospital during the last eight years. In reviewing our material we were immediately impressed with the difficulty of making a diagnosis based solely on morphology and course, and it was not at all surprising to find that the many practicing attending dermatologists who diagnosed these cases differed widely in their concepts of the criteria necessary to classify an entity as nummular eczema.

What are our diagnostic criteria? Is it the round or oval vesicular patch affecting the extensor aspect of the extremities? Is it a positive patch test to halogens which makes the diagnosis? Is it the history of an excess of soap and detergents used by these patients that helps us to make the diagnosis of nummular eczema? How important is the therapeutic response to local and systemic therapy? Since the histologic findings are not diagnostic and other criteria such as clinical course and infectious or allergic origin are under discussion, we decided to review a group of patients presenting this condition clinically diagnosed as "nummular eczema" and study them from various points of view.

‖ Jessner, M.: Dermatitis Herpetiformis Localisata, unpublished lectures.

MATERIAL

Each of the case records of 516 patients whose condition on admission was diagnosed as "nummular eczema" was analyzed. A letter was sent to each patient asking him or her to return to the clinic for reexamination. Approximately one-fifth of the patients responded, and these were reexamined and interviewed as to the various phases and course of their disease. Most of these patients were also patch-tested with potassium iodide and potassium bromide. A brief outline of our findings follows:

Sex: Of 125 patients, 65 were female and 60 male.

Age: Our survey shows that the highest incidence of occurrence of the disease, that is, when the patients sought medical treatment for this condition, was between the ages of 30 and 35 years; the lowest in infants and in persons over 70 years (Chart 1).

Duration: These figures, based essentially on the history, deal with the length of time the patients suffered from the condition from the day of onset until they came to the clinic. In the majority of the cases, the patients consulted several other clinics or private physicians before coming to our clinic. In general, the duration varied from a few days up to 35 years (Chart 2).

Distribution: In this our survey agrees with other workers who have made a study of this dermatosis. The commonest location is the extensor aspect of the upper extremities, then the extensor aspect of the lower extremities, then the trunk and other parts of the body. The figures below which refer to the distribution of the lesions take into account the fact that in many patients lesions were present in more than one site (Table 1).

Seasonal Variation: Our figures bear out the statistics previously published, that the condition is definitely worse in the winter and has a tendency to improve in warm weather. There were, however, patients who stated that they suffered an exacerbation in mild or warm weather (Table 2).

Patch Tests.—Potassium iodide and potassium bromide patch tests were performed on 104 patients. The patch-testing material was prepared in the following manner at the suggestion of Dr. Max Jessner:

The materials are prepared fresh every two weeks. The salts are added very slowly to either white or yellow petrolatum with constant trituration, mixing for a period of 20-30 minutes. The final preparation is a 33% concentration of either salt and is smooth in consistency. Any gritty material

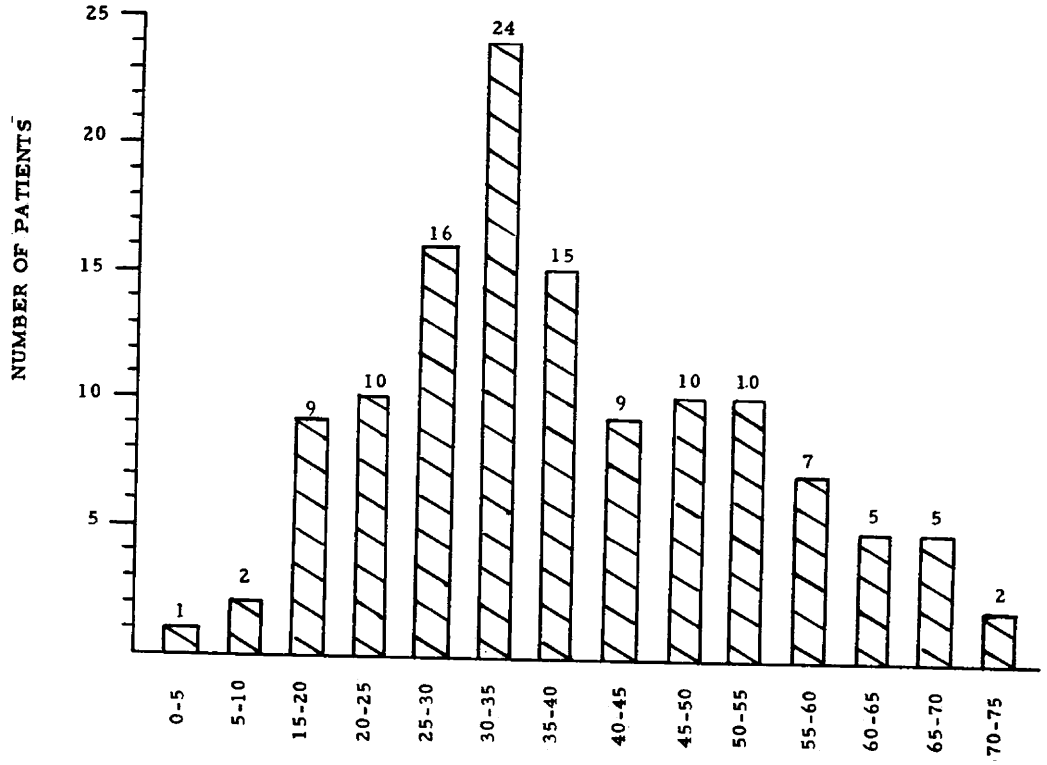

Chart 1.—Age distribution.

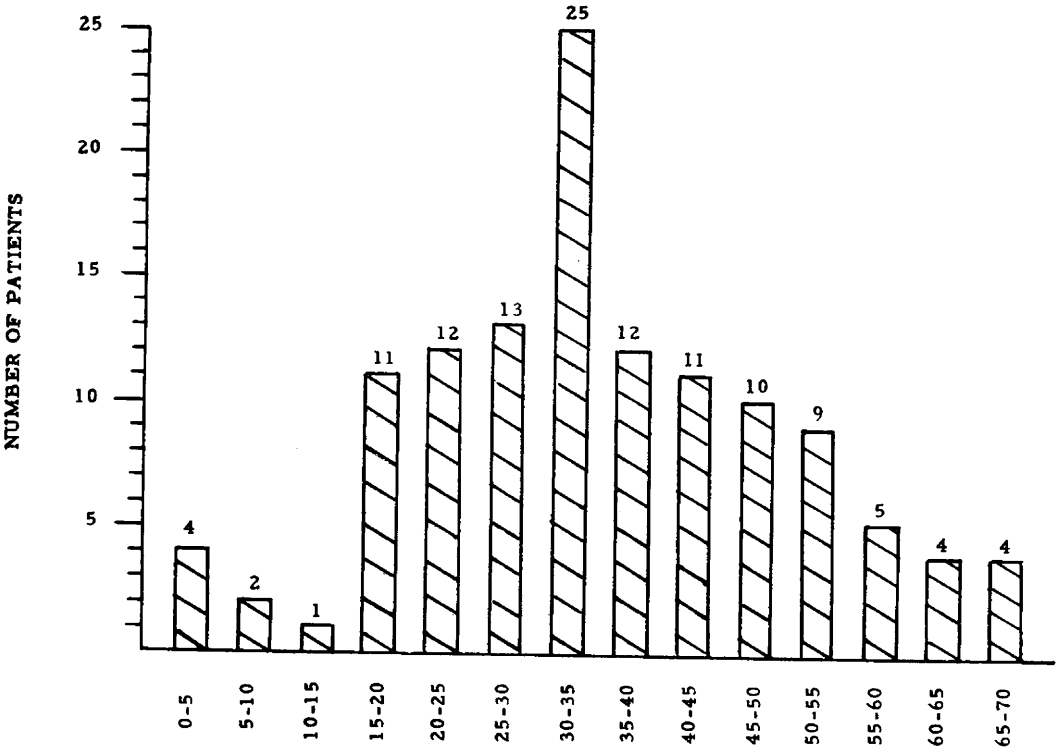

Chart 2.—Age at onset.

TABLE 1.—*Distribution of Lesions*

Dorsa of hands, including fingers	79
Arms and forearms	45
Legs and thighs	29
Trunk	5
Face	5
Palms	2
Ears	2
Shoulders	1
Chin	1

TABLE 2.—*Seasonal Variation*

Condition worse in winter	72
Condition worse in summer	14
Condition worse in spring	3
Condition worse in fall	2
No seasonal variation	30
Skin worse after each pregnancy	1
Skin worse after "nervous upset"	3

is discarded. The patch tests were applied in the usual manner and left in place for 48 hours.

The results were as shown in Table 3.

It has been reported that positive patch test reactions to potassium iodide and potassium bromide can be elicited in various other dermatoses. In order to establish this on our own clinical material and with our own technique of testing, 100 of our patients with various dermatoses were subjected to patch tests with the same halogen preparations as used in dermatitis herpetiformis and nummular eczema. The results by us summarized in Table 4 show clearly that, although patients with dermatoses other than nummular eczema have shown a somewhat lower percentage of positive patch tests to halogens than patients with nummular eczema, still the results of the patch tests are far from being of decisive diagnostic value in nummular eczema. For example, 78 of 104 were positive to potassium iodide in nummular eczemas as compared with 47 of 100 positive in the other dermatoses tested.

Atopic History.—Since there exist several opinions which tend to connect nummular eczema with atopy, we took a careful history, also regarding this point. Of the 125 patients interviewed, 14 gave a history of asthma, hay fever, and/or atopic eczema, while 20 patients stated that atopic diseases were present among close relatives. These findings do not tend to establish nummular eczema as an atopic dermatitis; for in atopic dermatitis over 70% of the patients have personal and/or familial evidence of atopy.

Occupation.—Our statistics differed little if any from the opinions of Gross [4] and others, namely, that nummular eczema is very common in housewives (Table 5).

Soap and Detergents.—Only 17 of 125 patients stated that they use soap and water

TABLE 3.—*Patch Tests*

Potassium Iodide		Potassium Bromide	
Positive reaction (1 to 3+)	78	Positive reaction (1 to 3+)	75
Doubtful	6	Doubtful	5
Negative	20	Negative	24

TABLE 4.—*Results of Patch Tests with Halogens in Various Dermatoses*

	Doubtful		Positive		Negative	
	KI	KBr	KI	KBr	KI	KBr
1. Contact dermatitis (38) (to various external agents)	4	9	17	13	18	15
2. Dermatophytosis (6)	..	..	3	2	3	4
3. Psoriasis (13)	1	4	8	2	4	7
4. Acne (3)	1	..	..	..	2	3
5. Urticaria (3)	..	..	2	1	1	2
6. Pyoderma and furunculosis (3)	..	..	1	1	2	2
7. Lichen chronicus Vidal (5)	1	2	1	2	3	1
8. Duhring's disease (4)	..	..	4	8	..	1
9. Atopic dermatitis (3)	..	..	1	..	2	2
10. Alopecia areata (6)	..	2	5	..	2	3
11. Other dermatoses (16)	3	2	5	2	8	12
Total	10	19	47	26	45	53

TABLE 5.—*Occupation*

Housewives	68	Porters	3
Manual workers	40	Garbage collectors	1
Domestics	5	Seamstresses	2
Drivers	4	Engineers	2
Countermen	4	Furriers	3
Clerical workers, typists, salesmen, students	40	Electricians	2
Bakers	3	Barbers	1
Printers	2	Shoemakers	3
		Musicians	1

excessively. Almost all mentioned the fact that even the normal use of soap and detergents definitely aggravated the existing eruption.

Treatment.—Various modalities of local treatment were used. The topical medications used most frequently were: tars, iodochlorhydroxyquin (Vioform), zinc oxide paste with aluminum acetate solution (Burow-Lassar's ointment), aluminum acetate solution in an emulsion (Burow's emulsion), shake lotions, other pastes, etc. The response to therapy was evaluated from the patients' charts and statements and from their histories (Table 6).

Most recently several patients have reported excellent results from hydrocortisone locally, alone or in combination with local antibiotics. These few recent reports have not yet been included in our Table 6.

SUMMARY AND INFERENCE

A brief summary of the literature and of obtaining concepts on nummular eczema is presented and discussed.

Five hundred and sixteen case records with this diagnosis were reviewed and 124 patients with this dermatosis were studied. The following paragraphs are based upon the aggregate of the findings in an eight-year follow-up of these patients.

Nummular eczema is most frequently encountered in the younger and middle-aged groups, about equally divided between the sexes.

The dorsa of the hands and fingers and the extensor aspects of the forearms are most commonly involved; the legs and thighs less so, and the trunk and face infrequently.

The large majority of patients experience exacerbations in the colder months of the year and are better in summer.

Seventy-five per cent of the cases tested were positive to potassium iodide, and seventy-two per cent to potassium bromide (patch tests). On the other hand, patients with dermatoses other than nummular eczema showed a positive potassium iodide and potassium bromide patch test in 47% and 26% respectively. It is felt that this difference of response to the halogen tests, while interesting, is insufficient to be useful as a decisive criterion in diagnosing nummular eczema.

Eleven per cent of the 125 patients followed gave a history of hay fever, asthma, or atopic eczema and fifteen percent stated that one or another of these conditions existed in their immediate families. These percentages are considered to be insufficient to establish nummular eczema as a form of atopic dermatitis.

TABLE 6.—*Efficacy of Therapy*

Best Response to:			
Iodochlorhydroxyquin (Vioform—cream and/or ointment)	20	Aluminum acetate solution in an emulsion (Burow's emulsion)	3
Tars (pastes and ointments)	21	Antibiotic ointments	2
Zinc oxide paste with aluminum acetate solution (Burow's-Lassar's paste)	9	Zinc oxide paste (Lassar's paste)	1
Shake lotions	5	Arsenic systemically	1
Ammoniated mercury	2	Sulfapyridine systemically	4
Boric acid ointment	1	Cortisone systemically	3

Although the largest number of cases were observed among housewives and manual and factory workers, one cannot conclude that the dermatosis is commonest in these individuals, since executives and professional people rarely attend our clinic for diagnosis or treatment.

Therapeutically, the most satisfactory topical remedies were iodochlorhydroxyquin or the tars. (Recent experience, however, suggests that the topical hydrocortisone preparations in combination with antibiotics may prove to be among the most effective remedies.)

It is suggested that nummular eczema may not be a disease entity at all, but rather a symptom complex caused by multiple etiologic factors, many of which remain obscure.

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