

Rosacea-Like Demodicidosis

SAMUEL AYRES, JR., M.D., Los Angeles

THE CLASSICAL CONCEPT of rosacea or acne rosacea places it in the category of dermatosis of internal or unknown cause. Authors of current textbooks list the following as important etiologic factors.^{5-7,9,10} vaso-motor neurosis, gastrointestinal, hepatic and pelvic disturbances, dietary indiscretions and focal infection.

As early as 1932 Ayres and Anderson³ called attention to a type of rosacea which they felt was caused in large part by extraordinarily heavy infestation by the mite, *Demodex folliculorum*, and it was pointed out that the demodex type of rosacea was a further development or complication of an entity that had been described and named by the present author two years previously under the title "Pityriasis Folliculorum (Demodex)."¹ Since that time a number of publications have appeared on the subject as well as an exhibit at the thirteenth annual meeting of the American Academy of Dermatology and Syphilology in 1954.²

The most recent publication concerning the pathogenic role of *Demodex* in the production of pityriasis folliculorum (Demodex) and acne rosacea was Ayres and Ayres'⁴ summary of 30 years' experience with these two commonly unrecognized entities. Both conditions were referred to as demodicidosis. Inasmuch as the authors' attempts to describe and segregate a particular type of acne rosacea as being caused wholly or in large part by *Demodex* has led to confusion and to the erroneous statement that the authors have claimed that all cases of rosacea are caused by *Demodex*, it was felt that a new term should be coined and that rosacea of the *Demodex* type should henceforth be referred to as "rosacea-like demodicidosis."

In order to clarify this entity it will be necessary to describe the appearance of pityriasis folliculorum (Demodex), rosacea-like demodicidosis and rosacea of internal origin, and also to review the pathogenicity of *Demodex folliculorum* and to describe the method of isolating and identifying this mite.

Demodex folliculorum has long been known as a normal inhabitant of the sebaceous ducts of the face in the adult human and is still regarded by many

• Rosacea-like demodicidosis is an entity resembling acne rosacea which is caused by infestation with an abnormally large number of the mite *Demodex folliculorum*, usually in association with improper cleansing of the face.

This condition responds promptly to external treatment consisting of daily cleaning of the face with soap and water and the application of a compound sulfur ointment over a period of a few weeks.

Occasional instances of a mixed-type of rosacea are encountered in which internal factors are involved.

authorities as being without pathologic significance. It is true that it can occasionally be found in small numbers in material squeezed from sebaceous ducts of the nose and face and is not infrequently encountered in biopsy material removed from the face for unrelated conditions. At the crux of the situation is the fact that its pathogenicity is quantitative rather than qualitative. In small numbers the mite is harmless for it subsists on the sebum normally produced by the sebaceous glands and does not move about. It is only when the mites increase in enormous numbers, plugging the sebaceous openings, that pathologic changes occur.

Factors which appear to be important in producing this increase in the number of mites are the excessive use of cosmetics, especially creams and powders, and failure to cleanse the skin properly with soap and water. This combination leads to a plugging of the sebaceous orifices with fine follicular scales which give the skin a "frosted" or "nutmeg-grater" appearance and produces a feeling of dryness and slight redness with itching. This situation completes a vicious cycle, because often the patient, usually a woman, noting an increased dryness of the face, still further restricts the use of soap and water and applies more and more cream, which still further encourages the growth and multiplication of the mites.

Pityriasis folliculorum (Demodex), therefore, is characterized by an extremely mild and inconspicuous eruption of the face (Figure 1) usually in women, with slight itching, dryness, mild erythema and fine follicular scaling which can be detected only by close examination under magnification and illuminated cross-lighting. There is also usually a history of excessive use of cosmetics and little or no

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Figure 1.—Rosacea-like demodicidosis on face of a woman.



Figure 2.—Rosacea-like demodicidosis on bald scalp of a man.

soap and water. Since men usually use soap and water on the face when shaving, but sometimes neglect the forehead and bald scalp, this condition may occur in these locations in men (Figure 2).

Rosacea-like demodicidosis is usually a further development of the process described above, with the addition of superficial milky vesico-pustules, occasionally deeper lesions, and an increase in erythema. The fine follicular scaling is ordinarily present.

The principal differences between rosacea-like demodicidosis and acne rosacea of internal origin are the following: acne rosacea involves principally the front of the face, the flushing is more pronounced, the papulo-pustules are deeper and the skin is oily. Rosacea-like demodicidosis involves the sides as well as the front of the face, the skin is dry and follicular scales are usually present, erythema may be slightly less pronounced and the lesions consist of superficial vesico-pustules instead of deeper creamy papulo-pustules. Demodex is readily demonstrated in pus and in follicular scales, and the condition usually responds promptly to external medica-

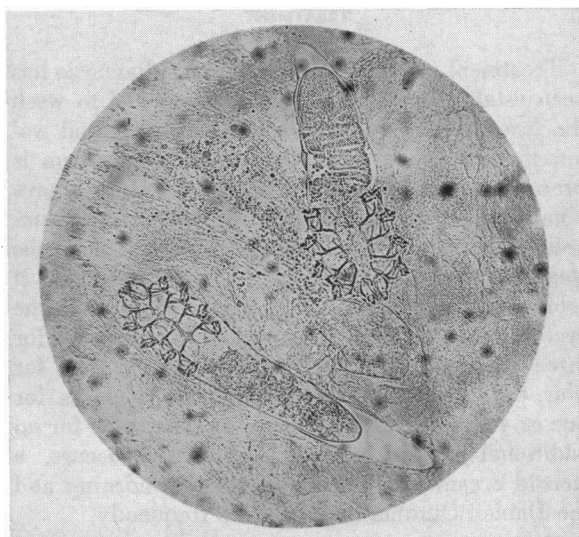


Figure 3.—High power magnification of *Demodex folliculorum* in drop of pus from rosacea-like demodicidosis.

tion. Rosacea-like demodicidosis is more common in women, acne rosacea in men.

Occasionally mixed types are encountered. In cases of so-called rosacea-like tuberculide of Lewandowski, exudate from the lesions should be examined for the presence of Demodex in abnormally large numbers.

Identification of Demodex is not difficult if certain important rules are observed. As was previously noted, the skin should be examined under strong cross-lighting with the aid of binocular magnifiers. Using a narrow pointed scalpel, a small droplet of pus is taken from a superficial vesico-pustule and placed on a glass slide; or, using pointed forceps, a few of the dry, follicular scales are picked out of the follicular orifices and placed on a slide. To this material is then added a drop of 40 per cent potassium hydroxide, and a cover slip is gently pressed down. The specimen is examined under the low power of the microscope without heating, since heat causes the organisms to disintegrate. Ten to 30 mites—sometimes more—may be seen in a single low-power field, frequently packed together like sardines. In addition to the lobster-shaped adults (Figure 3) with four pairs of short legs and elongated abdomen, it is not uncommon to encounter a few arrowhead shaped immature forms.

While these organisms may occasionally be found in material expressed from sebaceous ducts of the face or nose, even in normal skin, they are rarely found in comedones or pustules of acne vulgaris or of acne rosacea due to internal causes. It is the quantity of organisms found rather than their mere presence or absence which is of significance.

TREATMENT

Treatment is fairly simple once the diagnosis has been established. The patient is instructed to wash the face thoroughly every night with soap and water, then to rub in whatever ointment or cream is prescribed and wash it off in the morning. I have obtained best results from Danish Ointment,⁸ a compound polysulfide ointment* formerly used in the treatment of scabies. In spite of its ingredients it seldom causes irritation if it is kept away from the eyelids and the neck. The ointment is applied for three consecutive nights, then is discontinued for four days and is resumed on alternate nights for one or two weeks, then once or twice a week for an additional several weeks. If irritation occurs, a steroid cream may be applied in the morning and the Danish Ointment applied less frequently.

If Danish Ointment cannot be tolerated, fairly good results can be obtained with a 0.5 per cent selenium sulfide (Selsun®) cream, applied sparingly at night and washed off in the morning. Gamma benzene hydrochloride (Kwell®) and Zylate® emulsion† have not proved as satisfactory in the treatment of Demodex infestation as in the treatment of scabies.

Clinical improvement is prompt following the daily cleansing with soap and water and the use of

*Available from the Tilden Company, New Lebanon, N. Y.

†Benzyl benzoate, isopropyl alcohol and inert ingredients.

a compound sulfur ointment as described, with clearing of as much as 75 or 80 per cent in one or two weeks. Paralleling the clinical improvement, there is a gradual disappearance of Demodex from the skin, but it must be borne in mind that complete eradication of the mite is impossible and is not necessary. The clinical cure can usually be maintained by daily washing with soap and water.

2007 Wilshire Boulevard, Los Angeles 57.

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