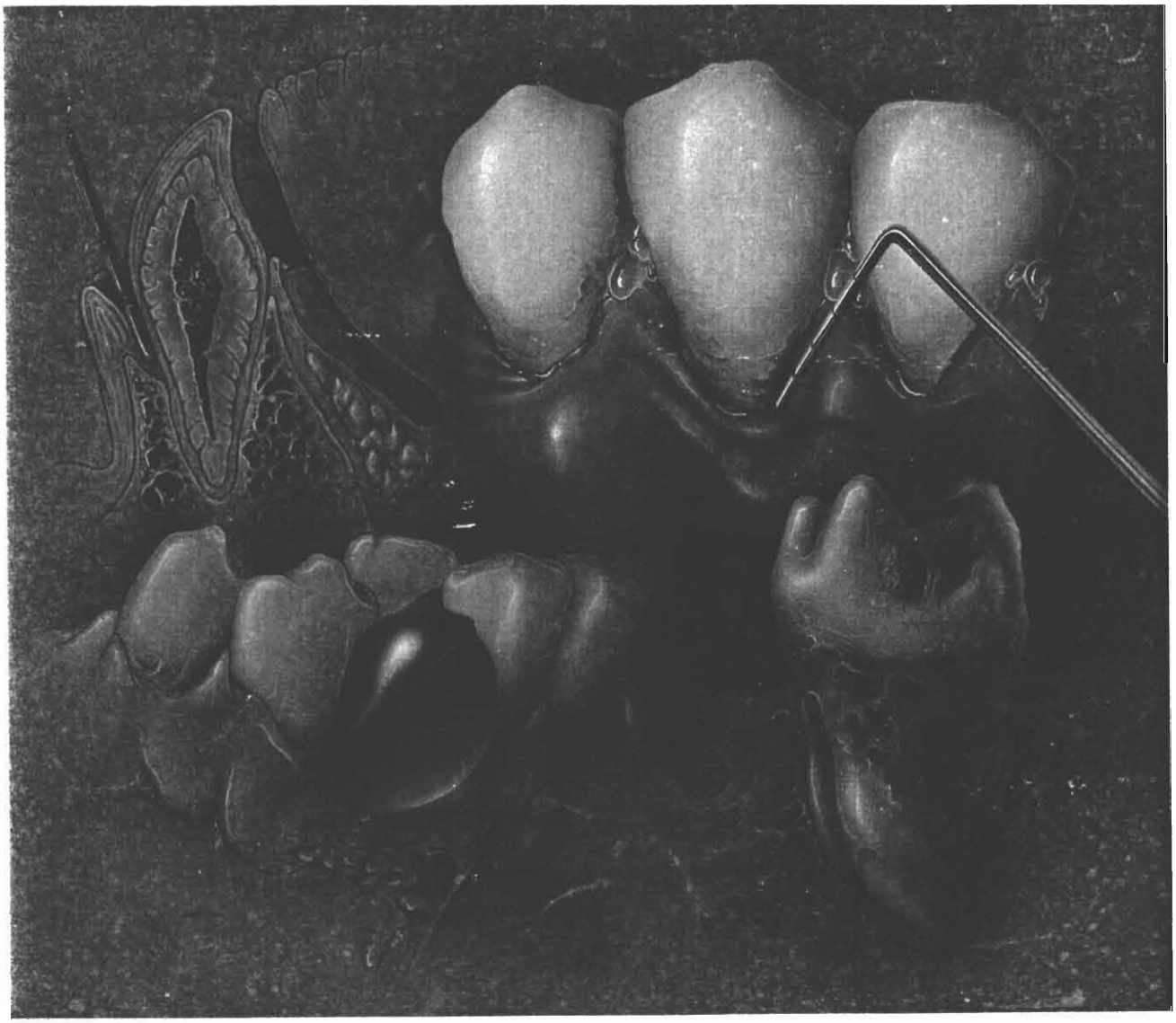
merican Family Physician

D BY THE AMERICAN ACADEMY OF FAMILY PHYSICIANS DECEMBER 1994



American Family Physician

VOLUME 50, NUMBER 8 DECEMBER 1994

Articles

Cover illustration by Floyd Hosmer, Birmingham, Ala.

American Family Physician (ISSN 0002-838X) is published monthly, except February, May, September and November, which are semimonthly, by the Publications Division, American Academy of Family Physicians, 8880 Ward Parkway, Kansas City, Missouri 64114-2797. The journal is included in *Index Medicus* and MEDLARS.

Eight dollars a copy in the U.S.A., $10 in Canada and foreign countries. One-year subscription: physicians and other individuals, $65—U.S.A., $90—foreign countries; institutions, $80—U.S.A., $110—foreign countries; medical students, residents and allied health care professionals, $40—U.S.A., $60—foreign countries, when payment is accompanied by identification of profession. Contact the circulation department, 1-800-274-2237, ext. 3165, for information about combined subscriptions to *American Family Physician* and *Family Practice Management*. (Medical students who are AAFP members receive *AFP* as a benefit of membership for a $10 annual membership fee.) Remit in U.S. dollars, drawn on a U.S. bank. Second Class postage, paid at Kansas City, Missouri, and at additional mailing offices. Printed in the U.S.A.

POSTMASTER:
Send address changes to American Family Physician 8880 Ward Parkway Kansas City, MO 64114-2797

Acne Rosacea

DIANE M. THIBOUTOT, M.D., Pennsylvania State University College of Medicine, Hershey, Pennsylvania

Rosacea is a multifactorial skin disorder that usually affects middle-aged persons. Little is known about the etiology of rosacea, although the disease most likely represents a vascular anomaly occurring in patients with fair skin. The mainstay of treatment for inflammatory lesions has been oral antibiotics, but topical metronidazole also may be effective. Because recurrences are common after discontinuation of therapy, doses should be tapered as tolerated. Antibiotics are more effective for inflammatory lesions than for erythema and telangiectasia. Isotretinoin may be effective for inflammatory lesions, edema and rhinophyma in some resistant cases, but its use is limited by its side effects and teratogenicity. Ablation of telangiectasia with the tunable dye laser and various surgical approaches to rhinophyma are effective newer treatments but are more expensive and less available than conventional therapy.

Rosacea is a skin disorder that occurs in adults between the ages of 30 and 60 years. Little is known about the etiology of rosacea. Current opinion regarding pathogenesis favors a multifactorial disorder in which the basic defect is vascular hyperresponsiveness. Symptoms include facial flushing, erythema, inflammatory lesions and, occasionally, lymphedema and hypertrophy of the connective and vascular tissue of the nose (rhinophyma). Therapy includes treatment with oral and topical antibiotics and surgery for erythema, telangiectasia and rhinophyma.

Etiology

The etiology of rosacea is believed to be related to a combination of a genetic predisposition and provocative environmental factors. Patients with rosacea tend to have fair hair and skin. They may have a tendency to flush frequently in response to emotional stimuli such as excitement, worry or a hurried feeling, environmental stimuli such as heat or cold, and physiologic stimuli such as indigestion, ingestion of spicy foods or postprandial fullness.[1]

The mite *Demodex folliculorum* inhabits facial hair follicles and has been implicated in the pathology of rosacea. The significance of the presence of *D. folliculorum* is uncertain, however, since the mite is variably present in patients with rosacea and is often found in control subjects.[2-4] Whether *D. folliculorum* is involved in the pathogenesis of rosacea is unknown, but it is possible that an inflammatory reaction to the mite may play a role in this condition.

The presence of bacteria within the hair follicle does not seem to play a role in the pathogenesis of rosacea, unlike the pathogenesis of acne vulgaris. Several investigators[5,6] have failed to demonstrate bacteria in skin samples from patients with rosacea.

Many provocative factors have been shown to exacerbate rosacea by causing an increase in flushing. These factors include exposure to heat, cold or sunlight, and consumption of hot or spicy foods and alcoholic beverages.[7] It has been suggested that the basic problem in patients with rosacea is a functional vascular anomaly with a tendency toward recurrent dilation and flushing, which may result in inflammatory mediator release, extravasation of inflammatory cells and the formation of inflammatory papules and pustules.[8]

Clinical Findings

Rosacea involves a spectrum of clinical findings. Recurrent facial flushing is believed to be one of the major causative factors in rosacea as well as one of its stig-

mas.[7] One study showed that patients with rosacea flushed more frequently than members of a control population.[5] Facial edema often follows a flushing reaction. In some cases, the edema can take the form of persistent facial lymphedema.

Frequent episodes of flushing represent the first of four stages in the pathogenesis of rosacea. The second stage consists of persistent erythema with telangiectasia, which are dilated superficial veins (*Figure 1*). In rosacea, telangiectasia often occurs paranasally and on the cheeks. The third stage of rosacea is the development of inflammatory lesions: papules, pustules and nodules (*Figure 2*). A minority of patients progress to the fourth stage, which is manifested as rhinophyma, a bulbous hypertrophy of the nose resulting from proliferation of sebaceous glands and connective and vascular tissue (*Figure 3*). This stage occurs more commonly in men than in women.[9] In a study of 108 patients with rosacea (*Table 1*),[2] 62 percent of patients with lymphedema and 93 percent of patients with rhinophyma were men.

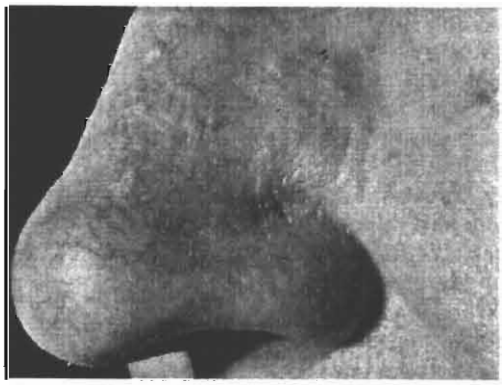


FIGURE 1. Nasal telangiectasia in patient with rosacea.

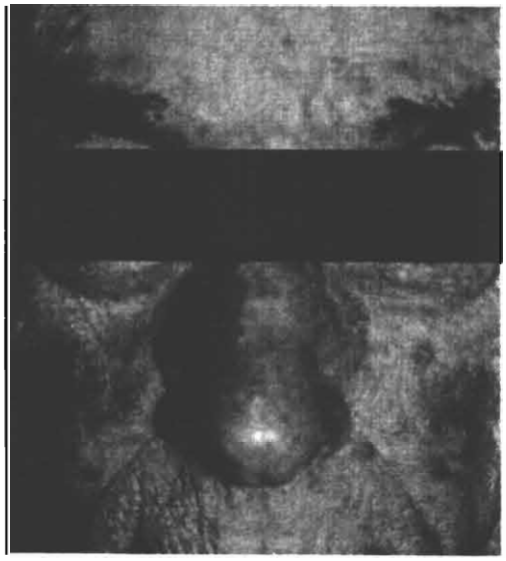


FIGURE 2. Multiple inflammatory papules and pustules on the central part of the face in patient with rosacea.

FIGURE 3. Rhinophyma.

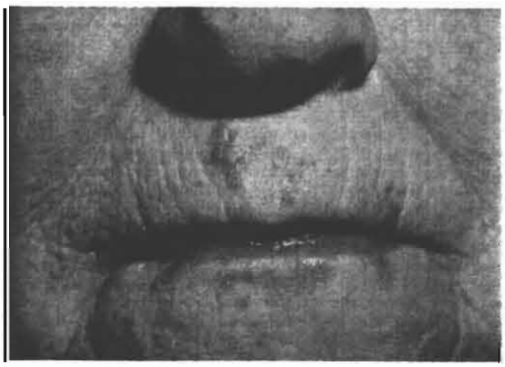


FIGURE 4. Granulomatous rosacea. Note the clinical similarity of the lesions to perioral dermatitis, steroid acne and sarcoid.

TABLE 1

Clinical Findings in Patients with Rosacea

Finding	*Percentage of patients (N = 108)*
Erythema	97
Papules	83
Pustules	67
Telangiectasia	50
Flushing	42
Lymphedema	24
Rhinophyma	14

From Sibenge S, Gawkrodger DJ. Rosacea: a study of clinical patterns, blood flow, and the role of Demodex folliculorum. J Am Acad Dermatol 1992;26:590-3. Used with permission.

A subset of patients with rosacea have facial papules resulting from a granulomatous inflammatory infiltrate in the skin.[3] Clinically, these patients have firm papules with an "apple jelly" color that is also characteristic of granulomatous inflammation found in other conditions, such as cutaneous sarcoid, tuberculosis and leprosy (*Figure 4*).

In addition to the cutaneous problems, rosacea may also cause ocular manifestations, including blepharoconjunctivitis, keratitis and scleritis or episcleritis. The prevalence of ocular involvement in patients with rosacea has been reported to be as low as 3 percent and as high as 58 percent.[10]

Blepharoconjunctivitis is characterized by erythematous eyelid margins that may demonstrate telangiectasia. Conjunctivitis in rosacea can be either a diffuse hyperemic type or a less common nodular variant.[11] The diffuse hyperemic form is characterized by engorged blood vessels of the tarsal and bulbar conjunctivae. In nodular conjunctivitis, small, highly vascularized nodules appear in the interpalpebral area. Keratitis frequently involves the lower portion of the cornea and is associated with pain, photophobia and a sensation of a foreign body in the eye. Corneal involvement commonly presents as punctate epithelial erosions in the inferior half of the cornea.[12]

TABLE 2

Differential Diagnosis of Rosacea

Acne vulgaris
Steroid-induced acne
Perioral dermatitis
Seborrheic dermatitis
Lupus erythematosus
Cutaneous sarcoid

Differential Diagnosis

Rosacea can be diagnosed in middle-aged to elderly patients who present with facial erythema, a history of flushing, telangiectasias, papules, pustules and, occasionally, nodules or rhinophyma, or any combination of these findings. The medical history should be negative for use of topical corticosteroids and symptoms or signs of sarcoidosis.

Skin conditions that share certain features with rosacea are listed in *Table 2*. Rosacea can be distinguished from acne vulgaris by the fact that acne tends to affect younger persons and results in the formation of comedones, which are notably lacking in rosacea. Use of topical corticosteroids on the face can result in an acneiform eruption consisting of papules, pustules and comedones that tend to be in the same stage of development—unlike the lesions in acne vulgaris (*Figure 5*).

Perioral dermatitis often affects young to middle-aged women and is characterized

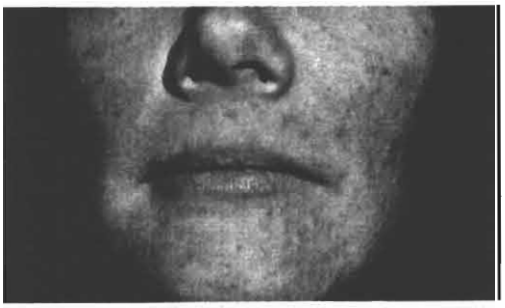


FIGURE 5. Steroid-induced acne.

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.