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**Review Article**

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## A Review on Rosacea

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**ABSTRACT**

Rosacea is a common skin condition that causes redness in your face and often produces small, red, pus-filled bumps. The cause of rosacea is unknown, but it could be due to some combination of hereditary and environmental factors. While there's no cure for rosacea, treatments can control and reduce the signs and symptoms. If you experience persistent redness of your face, see your doctor for a diagnosis and proper treatment. Rosacea should be treated at its earliest manifestations to mitigate progression to the stages of edema and irreversible fibrosis. Antibiotics have traditionally been considered the first line of therapy, although their success is considered to be primarily due to anti-inflammatory effects rather than antimicrobial ones.

**Keywords:** Rosacea, redness, antibiotics and antimicrobials.

**ARTICLE INFO**

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**1. Introduction**

Rosacea is a common skin condition that causes redness in your face and often produces small, red, pus-filled bumps. Although rosacea can occur in anyone, it most commonly affects middle-aged women who have fair skin. Left untreated, rosacea tends to worsen over time. Rosacea signs and symptoms may flare up for a period of weeks to months

and then diminish before flaring up again. Rosacea can be mistaken for acne, an allergic reaction or other skin problems. While there's no cure for rosacea, treatments can control and reduce the signs and symptoms. If you experience persistent redness of your face, see your doctor for a diagnosis and proper treatment.

**Signs and symptoms of rosacea:**

- **Facial redness:** Rosacea usually causes a persistent redness in the central portion of your face. Small blood vessels on your nose and cheeks often swell and become visible.
- **Swollen red bumps:** Many people who have rosacea also develop bumps on their face that resemble acne. These bumps sometimes contain pus. Your skin may feel hot and tender.
- **Eye problems:** About half of the people who have rosacea also experience eye dryness, irritation and swollen, reddened eyelids. In some people, rosacea's eye symptoms precede the skin symptoms.
- **Enlarged nose:** Rarely, rosacea can thicken the skin on the nose, causing the nose to appear bulbous (rhinophyma). This occurs more often in men than in women.

The cause of rosacea is unknown, but it could be due to some combination of hereditary and environmental factors. A number of factors can trigger or aggravate rosacea by increasing blood flow to the surface of your skin. Some of these factors include:

- Hot foods or beverages
- Spicy foods
- Alcohol
- Temperature extremes
- Sunlight
- Stress, anger or embarrassment
- Strenuous exercise
- Hot baths or saunas
- Corticosteroids, such as prednisone
- Drugs that dilate blood vessels, including some blood pressure medications

Although anyone can develop rosacea, you may be more likely to develop rosacea if you:

- Are a woman
- Have fair skin
- Are between the ages of 30 and 60
- Have a family history of rosacea

**Complications:**

In severe and rare cases, the oil glands (sebaceous glands) in your nose and sometimes your cheeks become enlarged, resulting in a buildup of tissue on and around your nose—a condition called rhinophyma (ri-no-FI-muh). This complication is much more common in men and develops slowly over a period of years.

**2. Medication**

The Prescription drugs used for rosacea may include:

- **Antibiotics.** The antibiotics used for rosacea also have anti-inflammation effects. They may come in the form of creams, gels or lotions to spread on the affected skin or in pills that you swallow. Antibiotic pills are generally more effective in the short term, but they can also cause more side effects.
- **Acne drugs:** If antibiotics don't work, your doctor might suggest trying isotretinoin (Amnesteem,

Claravis, others). This powerful drug is most commonly used for severe cystic acne, but it also often helps clear up acne-like lesions of rosacea. Don't use this drug during pregnancy as it can cause serious birth defects.

The duration of your treatment depends on the type and severity of your symptoms, but typically you'll notice an improvement within one to two months. Because symptoms may recur if you stop taking medications, long-term regular treatment is often necessary.

**Surgical and other procedures:**

Enlarged blood vessels, some redness and changes due to rhinophyma often become permanent. In these cases, surgical methods, such as laser surgery and electrosurgery, may reduce the visibility of blood vessels, remove tissue buildup around your nose and generally improve your appearance.

**Life style and home remedies:**

One of the most important things you can do if you have rosacea is to minimize your exposure to anything that causes a flare-up. Find out what factors affect you so that you can avoid them. Other suggestions to prevent flare-ups include:

- Wear broad-spectrum sunscreen with an SPF of 30 or higher
- Protect your face in the winter with a scarf or ski mask
- Avoid irritating your facial skin by rubbing or touching it too much
- Wash problem areas with a gentle cleanser (Dove, Cetaphil)
- Avoid facial products that contain alcohol or other skin irritants

If you wear makeup, consider using green-tinted foundation creams and powders because they're designed to counter skin redness.

**Alternative therapies:**

Many alternative therapies including colloidal silver, emu oil, laurel wood, oregano oil and vitamin K have been touted as possible ways to treat rosacea. However, there's no conclusive evidence that any of these alternative therapies are effective. If you're considering dietary supplements or other alternative therapies to treat rosacea, consult your doctor. He or she can help you weigh the pros and cons of specific alternative therapies.

**Coping and support:**

Rosacea can be distressing. You might feel embarrassed or anxious about your symptoms and become withdrawn or self-conscious. You may be frustrated or upset by other people's reactions. Talking to a counselor about these feelings can be helpful. A rosacea support group, either in person or online, can connect you with others facing the same types of problems -which can be especially comforting. As the general population ages and the baby boomers increasingly dominate clinical practice, a frequent complaint is the red face. Of the many causes of the red face, rosacea will be the diagnosis for approximately 13 million Americans. Although not a life-threatening condition, rosacea produces conspicuous facial redness and blemishes that can have a deep impact on a patient's self-

esteem and quality of life. Rhinophyma, the most prominent feature of advanced rosacea, is often mistakenly associated with alcoholism, as caricatured by W.C. Fields, further stigmatizing rosacea patients. A survey by the National Rosacea Society reported that 75% of rosacea patients felt low self-esteem, 70% felt embarrassment, 69% report frustration, 56% felt that they had been "robbed of pleasure or happiness," 60% felt the disorder negatively affected their professional interactions, and 57% believed that it adversely affected their social lives. Much of this suffering is unnecessary, however, because rosacea is a condition that can be easily diagnosed and effectively treated in most patients.

### 3. Diagnosis

Rosacea develops gradually. Many patients, unaware that they suffer from a treatable skin condition, assume that the intermittent facial flushing, papules, and pustules are adult acne, sun or windburn, or normal effects of aging. Correct diagnosis and early treatment of rosacea are important because, if left untreated, rosacea can progress to irreversible disfigurement and vision loss. Rosacea is a vascular disorder of distinct, predictable symptoms that follows a remarkably homogenous clinical course. Rosacea generally involves the cheeks, nose, chin, and forehead, with a predilection for the nose in men. There are four acknowledged general stages of rosacea. Stage I can be described as pre-rosacea. This stage is characterized by frequent blushing, especially in those who have a family history of rosacea. Blushing as a symptom of rosacea can start in childhood, although the typical age of onset for rosacea is 30 to 60 years. There might be increased frequency of facial flushing or complaints of burning, redness, and stinging when using common skin care products or antiacne therapies.

The second stage of rosacea is vascular. At this point in the disease progression, transitory erythemas of midfacial areas, as well as slight telangiectasias, become apparent. In the third stage of rosacea, the facial redness becomes deeper and permanent. Telangiectasias increase, and papules and pustules begin to develop. During this stage, ocular changes, such as conjunctivitis and blepharitis, can develop. Edema can develop in the region above the nasolabial folds. In the fourth stage, there is continued and increased skin and ocular inflammation. Ocular inflammation can progress to keratitis and result in loss of vision. Multiple telangiectasias can be found in the paranasal region. It is at this point that fibroplasia and sebaceous hyperplasia of the skin produces the nasal enlargement known as rhinophyma. Several skin conditions share some clinical features with rosacea. Acne vulgaris causes comedones, papules, pustules, and localized inflammatory nodules but not the generalized erythema, telangiectasias, and other vascular features of rosacea. Seborrheic dermatitis, perioral dermatitis, and the malar rash of lupus can all cause mild erythema, but these conditions will not produce the characteristic flushing, telangiectasias, papules, and pustules of rosacea. Sarcoidosis can closely mimic rosacea by

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producing red papules on the face, but the disease will usually manifest itself in other organs as well. In addition, a biopsy will show sarcoid granulomas.

Although the exact pathogenesis of rosacea is unknown, the pathologic process is well described. The erythema of rosacea is caused by dilation of the superficial vasculature of the face. It is thought that atrophy of the papillary dermis provides for easier visualization of the dermal capillaries. Edema can develop as a result of the increased blood flow in the superficial vasculature. This edema might contribute to the late-stage fibroplasia and rhinophyma. It has been suggested that *Helicobacter pylori* infection is a cause of rosacea. *H. pylori*, originally implicated as the cause of gastric ulcers, has more recently been associated with urticaria, Henoch-Schöndlein purpura, and Sjögren syndrome. In a 1999 study, however, Bamford et al found there was no benefit in the eradication of *H. pylori* compared with placebo in the treatment of rosacea, although both subjects and controls experienced improvement in the rosacea symptoms. Thus the role of *H. pylori* in rosacea remains uncertain, and the cause of rosacea remains elusive.

The most important first step in the treatment of rosacea is the avoidance of triggers. Triggers are both exposures and situations that can cause a flare-up of the flushing and skin changes in rosacea. Principal among these is sun exposure. Rosacea patients must be advised always to apply a nonirritating facial sun block when outdoors. Stress, through autonomic activation, can also increase the flushing. Alcohol consumption, while not a cause in itself, can aggravate this condition through peripheral vasodilation. Spicy foods can also aggravate the symptoms of rosacea through autonomic stimulation. Finally, care must be taken to use only those facial cleansers, lotions, and cosmetics that are nonirritating, hypoallergenic, and noncomedogenic.

Rosacea should be treated at its earliest manifestations to mitigate progression to the stages of edema and irreversible fibrosis. Antibiotics have traditionally been considered the first line of therapy, although their success is considered to be primarily due to anti-inflammatory effects rather than antimicrobial ones. Topical metronidazole, which is effective for stage I and stage II rosacea and avoids the toxicity of systemic treatment, is considered first-line therapy. Metronidazole is available in a twice-daily application of 0.75% cream or gel and in a newer once-daily 1.0% formulation. No significant difference in efficacy has been found between the once-daily 1.0% medicine and the twice-daily 0.75% medicine. Sulfacetamide lotion can also be used in place of metronidazole. In certain patients, sulfacetamide might be less irritating than metronidazole.

Rosacea responds well to oral antibiotics. Starting treatment with simultaneous oral and topical therapy reduces initial prominent symptoms, prevents relapse when oral therapy is discontinued, and maintains long-term control. Oral therapy is generally continued until inflammatory lesions clear or

for 12 weeks, whichever comes first. Tetracycline is the primary oral antibiotic prescribed for rosacea therapy, at a dosage of 1.0 to 1.5 g/d divided into 2 to 4 daily doses. Minocycline at 100 mg two times a day is an acceptable alternative. Doxycycline is another acceptable alternative, although the monohydrate formulation, in a dosage of 100 mg once daily, is more consistently effective and has fewer gastrointestinal side effects than the hyclate form. Clarithromycin, 250 mg to 500 mg twice daily, has been found to be as effective as doxycycline but with a more benign side effect profile.

Azelaic acid is a naturally occurring, dicarboxylic acid possessing antibacterial activity. It is available as a 20% cream and is generally used as an alternative treatment for acne vulgaris. In 1999 Maddin— compared once-daily applications of azelaic acid with topical metronidazole 0.75% cream for treatment of papulopustular rosacea. Maddin concluded that both medicines were equally effective in reducing the number of inflammatory lesions and the associated signs and symptoms of rosacea. When the study physicians' rating of the overall improvement was considered, however, the azelaic acid was considered to be considerably more effective. The patients involved in the study also preferred the azelaic acid. Topical retinoic acid has been shown to have a beneficial effect on the vascular component of rosacea. The drawbacks of retinoic acid therapy include delayed onset of effectiveness, dry skin, erythema, burning, and stinging. Retinaldehyde is intermediate in the natural metabolism of retinoids, between retinal and retinoic acid, and is generally well tolerated while retaining most of the therapeutic activity of retinoic acid. Daily application of a 0.05% retinaldehyde cream for 6 months was found to yield positive and statistically significant outcomes in 75% of those patients undergoing treatment. Specifically, improvements were found in erythema and telangiectasias, the vascular components of rosacea.

Topical vitamin C preparations have recently been studied in the reduction of the erythema of rosacea. Daily use of an over-the-counter cosmetic 5.0% vitamin C (L-ascorbic acid) preparation was used in an observer-blinded and placebo-controlled study. Nine of the 12 participants experienced both objective and subjective improvement in their erythema. It was suggested that free-radical production might play a role in the inflammatory reaction of rosacea, and that the antioxidant effect of L-ascorbic acid might be responsible for its effect. These promising preliminary results still need to be confirmed in larger, long-term studies. Recalcitrant rosacea can respond to oral isotretinoin therapy. In a recent study of 22 patients with mild to moderate rosacea, major reductions in erythema, papules, and telangiectasias were noted by the ninth week of treatment. Isotretinoin reduces the size of sebaceous glands and alters keratinization. Recalcitrant cases of rosacea have been successfully treated with 0.5 mg/kg/d of isotretinoin. Isotretinoin, of course, has serious side-effects, most notably its teratogenic potential. Female patients of childbearing age must be strongly advised to use effective

birth control. Stage IV of rosacea, involving irreversible fibrotic changes, such as rhinophyma, does not respond well to medical therapy. At that point, the patient should be referred for cosmetic surgery, such as cryosurgery and laser therapy.

In the aging US population, rosacea is an increasingly common disorder. Although rosacea causes only limited physical effects, the prominent visibility of these changes often yields intense psychosocial distress. Although the exact cause of rosacea is unknown, its progression, signs, and symptoms can be readily alleviated by the primary care physician.

#### 4. Management

Managing rosacea: “A review of the use of metronidazole alone and in combination with oral antibiotics”.

**Background:** Rosacea is an extremely common chronic dermatosis affecting an estimated 14 million Americans. Rosacea is most commonly managed with topical metronidazole, sometimes in combination with oral antibiotics.

**Purpose:** To review published studies about topical metronidazole therapy for rosacea, both as a monotherapy and in conjunction with oral antibiotics.

**Methods:** Medline searches were conducted for clinical trials using metronidazole, tetracycline, and doxycycline for rosacea.

**Results:** Topical metronidazole has been well studied as a rosacea therapy. Twice-daily dosing of metronidazole 1.0% cream is as effective as 250 mg tetracycline twice daily. Metronidazole 1.0% gel used once daily is as effective as azelaic acid 15% gel dosed twice daily. When dosed at subantimicrobial levels, doxycycline 20 mg taken twice daily is effective in decreasing inflammatory lesions and erythema associated with rosacea. Metronidazole 0.75% lotion is more effective when used in combination with doxycycline 20 mg dosed twice daily.

**Discussion:** Metronidazole in 0.75% strength lotion, cream, and gel and 1.0% metronidazole cream and gel are all efficacious in treating rosacea. Combination treatment with oral antibiotics at both antimicrobial and subantimicrobial doses is an efficacious means of treating rosacea. Maintenance treatment with topical metronidazole decreases relapses and allows for longer intervals between flares. Rosacea is a chronic skin condition that makes your face turn red. It may also cause swelling and skin sores that look like acne.

**Outlook (Prognosis):** Rosacea is a harmless condition, but it may cause you to be self-conscious or embarrassed. It cannot be cured, but may be controlled with treatment.

#### Possible Complications

- Lasting changes in appearance (for example, a red, swollen nose)
- Lower self-esteem

#### Rosacea:

Rosacea is a very common skin disease that affects people over the age of 30. It causes redness on your nose, cheeks, chin, and forehead. Some people get little bumps and pimples on the red parts of their faces. Rosacea can also

cause burning and soreness in your eyes. Some people say that having rosacea keeps them from feeling confident at work or in social situations. If your rosacea bothers you or has gotten worse, talk to your doctor. Getting treatment can help your skin look and feel better. And it may keep your rosacea from getting worse.

**Causes:** Experts are not sure what causes rosacea. They know that something irritates the skin, but rosacea doesn't seem to be an infection caused by bacteria. It tends to affect people who have fair skin or blush easily, and it seems to run in families. The pattern of redness on a person's face makes it easy for a doctor to diagnose rosacea. And most of the time medical tests are not needed or used. Rosacea is not caused by alcohol abuse, as people thought in the past. But in people who have rosacea, drinking alcohol may cause symptoms to get worse (flare). Rosacea often flares when something causes the blood vessels in the face to expand, which causes redness. Things that cause a flare-up are called triggers. Common triggers are exercise, sun and wind exposure, hot weather, stress, spicy foods, alcohol, and hot baths. Swings in temperature from hot to cold or cold to hot can also cause a flare-up of rosacea.

**Symptoms:** People with rosacea may have:

- A flushed, red face with sensitive, dry skin that may burn or sting.
- Small bumps and pimples or acne-like breakouts.
- Skin that gets coarser and thicker, with a bumpy texture.
- Dry, red, irritated eyes.

In rare cases, rosacea that is not treated may cause permanent effects, such as thickening of the skin on your face or loss of vision. It may cause knobby bumps on the nose, called rhinophyma (say "ry-no-FY-muh"). Over time, it can give the nose a swollen, waxy look. But most cases of rosacea don't progress this far.

## 5. Treatment

Doctors can prescribe medicines and other treatments for rosacea. There is no cure, but with treatment, most people can control their symptoms and keep the disease from getting worse. Redness and breakouts can be treated with Pills, such as low-dose antibiotics like doxycycline. Skin creams that contain medicine, such as azelaic acid, brimonidine, or metronidazole. Redness from tiny blood vessels can be treated with lasers and another light treatment called intense pulsed light (IPL). Dry, sensitive skin can be protected with products for sensitive skin, such as moisturizers and sunscreen. Dry, red, and irritated eyes can be treated with artificial tears or prescription eye-drops that contain a medicine such as cyclosporine. Thickened or bumpy skin on the nose or face can be treated with cosmetic surgery.

**Prevention:** There are some things you can do to reduce symptoms and keep rosacea from getting worse.

- **Get any bothersome symptoms under control.** A dermatologist can prescribe treatments to reduce redness and any breakouts.
- **Find your triggers.** One of the most important things is to learn what triggers your flare-ups, and

then avoid them. It can help to keep a diary of what you were eating, drinking, and doing on days that the rosacea appeared. Take the diary to your next doctor visit, and discuss what you can do to help control the disease.

- **Protect your face.** Stay out of the sun between 10 am and 4 pm. When you are outdoors, protect your face by wearing a wide-brimmed hat or visor. Use a sunscreen that is rated SPF 30 or higher every day. If your skin is dry, find a moisturizer with sunscreen.
- **Be gentle with your skin.** Use skin care products for sensitive skin, and avoid any products that scratch or irritate your skin. Try not to rub or scrub your skin.
- **Take care of your eyes.** Gently wash your eyelids with a product made for the eyes. Apply a warm, wet cloth several times a day. Use artificial tears if your eyes feel dry. Or talk to your doctor about medicine you can put into your eyes

**Complications:** In severe and rare cases, the oil glands (sebaceous glands) in nose and sometimes your cheeks become enlarged, resulting in a buildup of tissue on and around your nose—a condition called rhinophyma (ri-no-FI-muh). This complication is much more common in men and develops slowly over a period of years.

## 6. Conclusion

The social structure is changing in the developing countries. Industrial globalization, cultural mix and extensive migration, changing social norms, and economy-driven social attitudes have altered the differences between the developing and the developed world. Seizures are paroxysmal manifestations of the electrical properties of the cerebral cortex. The pathophysiology of focal-onset seizures differs from the mechanisms underlying generalized-onset seizures. The goal of treatment in patients with epileptic seizures is to achieve a seizure-free status without adverse effects. This goal is accomplished in more than 60% of patients who require treatment with anti epileptic drugs. Monotherapy is desirable because it decreases the likelihood of adverse effects and avoids drug interactions.

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