



ROSACEA – A CHRONIC INFLAMMATORY SKIN CONDITION

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ABSTRACT

Rosacea is a long-term inflammatory facial skin disorder that affects the pilosebaceous units and blood vessels. Although it can affect skin of any color, rosacea is more common in fair-complexioned individuals of northern and western European descent. Rosacea is typically divided into four main subtypes based on morphological traits: erythematotelangiectatic, papulopustular, phymatous, and ocular. Typically, patients complain of flushing, blushing, and sensitive skin. Topical preparations may aggravate their skin more than other factors. Providing patients with information about rosacea and suitable treatments is crucial to their success in therapy. There are several factors that can trigger rosacea, but the patient might not be aware of them. Azelaic acid, topical metronidazole, and oral tetracyclines specifically, minocycline and doxycycline are among the standard treatments that have FDA approval. Subantimicrobial-dose doxycycline, sulfur products, and topical Clindamycin are additional topical treatments. Therapeutic options for rosacea may include controlled-release minocycline and azithromycin. Each patient should receive a customized course of treatment that takes into consideration their unique needs, preferences, trigger factors, and symptoms.

KEYWORDS: Rosacea, pilosebaceous, flushing, blushing, minocycline, doxycycline, azithromycin.

1. INTRODUCTION

Based on the most common signs and symptoms, rosacea can be classified into four clinical subtypes: A common chronic inflammatory disease, rosacea is characterized by recurrent episodes of erythematotelangiectatic, papulopustular, phymatous, and ocular symptoms. Flushing, erythema, telangiectasia, and papules or pustules on the forehead, chin, cheeks, and nose. There is no mutual exclusion between the subtypes. Multiple subtypes' characteristics can be present in a patient, and the areas of involvement and dominant features can shift over time. Between 50 and 75 percent of rosacea patients experience symptoms related to their eyes, such as dryness, redness, tearing, tingling or burning sensation, feeling like they are in contact with something foreign, light sensitivity, and blurred vision. Apart from the symptoms pertaining to the skin and eyes, rosacea can lead to feelings of anxiety, embarrassment, and depression, which can significantly lower one's quality of life. Despite being primarily skin-related, rosacea has been linked to systemic comorbidities like neurological disorders, inflammatory bowel disease, and cardiovascular disorders. ^[1,2,3,4]

Recently, excellent clinical trials on the management of rosacea have been carried out. ^[5,6]

But since managing rosacea is still difficult, more treatment options should be available. ^[7]

2. HISTORY

Rosacea usually manifests in adults, though it rarely affects kids. When rosacea is present, there are four distinct clinical subtypes that can manifest. The first clinical sign of rosacea is typically the erythematotelangiectatic subtype, which manifests as persistent erythema with sporadic flushing of the cheeks and nose. Patients who have the papulopustular form exhibit facial eruptions of papules and pustules in the affected area.

Due to the similarities in lesion appearance, this subtype is occasionally referred to as "adult acne." One notable feature that sets rosacea apart from genuine acne is the absence of comedones. The phymatous subtype is characterized by sebaceous gland hypertrophy and fibrosis. The condition known as rhinophyma, which usually affects male patients' noses, can also affect the chin, glabella, and cheeks. Phyma is usually a late-stage rosacea symptom, but there have been documented de novo cases in which there have been no previous skin abnormalities. The symptoms of ocular rosacea include blepharitis, hordeola, pruritus, dry eyes, and gritty sensations in the eyes. [3]

3. WHAT IS ROSACEA

Rather than being a pathologically defined disease, ROSACEA is a syndrome. [8]

A National Rosacea Society [NRS] "expert committee" was formed in 2002 to create a standardised classification scheme.

The International Rosacea Foundation states on its website that "Rosacea, pronounced roh-ZAY-sha, is a chronic skin disorder that is relatively common."

Dermatologists diagnose rosacea as the fifth most common condition.

Its typical signs and symptoms include inflammation and patchy flushing around the mouth, nose, forehead, and cheeks.

More women than men are affected by rosacea, which usually manifests between the ages of 30 and 50. [9]



Fig. 1

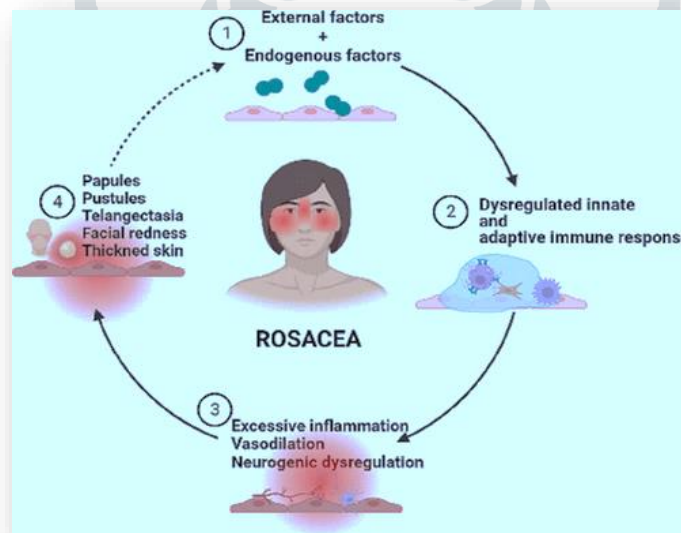


Fig. 2



Fig. 3

Information was gathered from 32 global studies, totaling 26.5 million patients. The percentage of people with rosacea in the individual studies varied from 0.09 percent to 22.41 percent. When the studies were combined, the percentage was 5.46 percent, or 414,960,000 people with rosacea worldwide. ^[10]



Lifecycle (How Rosacea Develops)

How to distinguish between rosacea and acne.

Rosacea does not lead to oily skin, but acne can. Visible blood vessels and eye issues are additional side effects of rosacea.

There is no known cure for either rosacea condition. As a result, therapies for rosacea focus on symptom relief as well as trying to stop new symptoms from developing. ^[11]

4. CAUSES/ ETIOLOGY

It is unknown what causes rosacea. Through examining rosacea, researchers have discovered some crucial hints:

Rosacea tends to run in families: A significant number of individuals with rosacea also have family members with the condition.

The ubiquitous skin-dwelling mite known as demodex may be involved. Since the nose and cheeks are home to this mite, rosacea frequently develops there.

An infection: Another organism that has been linked to rosacea is the *Helicobacter pylori* bacteria. Research indicates that those infected with this virus may get rosacea.

A Protein Not Working Properly: Your skin is protected against infection by the cathelicidin protein. You will have rosacea symptoms if the protein is not functioning properly.

A condition that impacts your nervous system, blood vessels, or immune system.

Furthermore, **ultraviolet (UV) radiation** may contribute to the genesis of rosacea in addition to its known effect as a trigger. ^[12,13,14,15]

5. SYNONYMS

Couperose, facial erythrosis.

In German also called kuperfinne or Rotfinne. ^[16]

6. SIGNS AND SYMPTOMS

Signs:

- **Flushing:** A common rosacea symptom is frequent blushing, also known as flushing. The first symptom is usually facial redness, which may come and go.
- **Persistent Redness:** Identical to a sunburn or blush that does not go away.
- **Bumps and Pimples:** You may frequently get small, red, solid bumps or pus-filled pimples on your skin.
- **Visible blood vessels:** These appear as thin, red lines that are visible through the skin. ^[13]

Symptoms:

- Eye Irritation
- Burning or itchiness
- Dry Visual Appearance
- Thickening of the skin and swelling. ^[13]

7. RISK FACTORS

Rosacea flare-ups can be brought on by a variety of environmental factors and lifestyle choices. Certain exposures involve direct skin contact, while others involve the consumption of food and beverages.

Some common triggers are:

- Alcohol
- Sun Exposure
- Smoking or being around secondhand smoke
- Spicy food
- Stress
- Lotions, creams, or soaps
- Skin infections. ^[17]

8. TREATMENT

In order to effectively treat rosacea, the patient must first be advised to recognize and stay away from triggers like alcohol, spices, UV light, and sudden changes in weather. The general guidelines for skin care for all rosacea patients include using moisturizers on a daily basis, broad-spectrum sunscreen with an SPF of 30 or higher, and pH-balanced skin cleansers rather than soaps. It is best to stay away from products that irritate skin because rosacea frequently results in sensitive, irritable skin. The best cosmetics for concealing persistent erythema are those that contain green pigment.

1. Topical Therapy:

Metronidazole and azelaic acid, two distinct therapies, were both safe and successful in easing the symptoms of rosacea. It usually took three to six weeks for improvements to show. Very few patients with metronidazole reported mild skin irritation, itching, or dryness. Azelaic acid produced mild burning, stinging, or irritation in certain people.

A new medication called ivermectin proved to be slightly more effective than metronidazole and more effective than a placebo. It has been demonstrated that brimonidine, a different recently approved treatment, is effective for reducing redness for up to 12 hours after application.

2.Oral therapies:

Tetracycline, doxycycline at a low dose, or minocycline at a low dose were among the antibiotics that decreased the number of pimples and pustules. It is possible that azithromycin works just as well as 100 mg of doxycycline, but more thorough research is required to confirm this as only one study looked at this treatment.

3. Light-based therapies:

While laser therapy and intense pulsed light therapy were both successful in treating telangiectasia, the studies that looked into these treatments provided scant information. [18]

9. CLASSIFICATION

There are four different rosacea subtypes, [19] and a patient may have more than one subtype: [20]

1. Erythematotelangiectatic rosacea is characterized by persistent redness, or erythema, and a propensity to blush and flush readily. Additionally, there may be severe burning, stinging, and itching as well as tiny, widened blood vessels that are visible close to the skin's surface (telangiectasias). [21]
2. Papulopustular rosacea is characterized by redness that is persistent along with red bumps called papules; some pus-filled pustules may persist for up to four days. This subtype is frequently mistaken for acne.
3. Rhinophyma, a nose enlargement, is most frequently linked to phymatous rosacea. Indications consist of skin thickening, enlarged areas, and irregular surface nodules. In addition, the chin (gnathophyma), forehead (metophyma), cheeks, eyelids (blepharophyma), and ears (otophyma) can be affected by phymatous rosacea. [22]
4. Ocular rosacea can cause dry, itchy, or gritty sensations in addition to redness and inflammation in the affected eyes and eyelids from telangiectasias. Additional signs and symptoms include burning, stinging, itching, and light sensitivity in addition to foreign-body sensations. Approximately 50% of individuals belonging to subtypes 1-3 also experience symptoms related to their eyes. If the cornea is impacted, vision loss and blurry vision may result. [23]

{VARIANT: GRANULOMATOUS NONINFLAMMATORY

Unevenly sized, hard, brown, yellow, or red cutaneous papules or nodules uniform size} [24]

9.1 Erythematotelangiectatic rosacea

The hallmarks of erythematotelangiectatic rosacea include flushing and enduring erythema in the center of the face. Although the skin around the eyes is usually spared, redness can also affect the upper chest, neck, ears, and periphery of the face. Although they are common, Telangiectases are not necessary for the diagnosis. [26,25]

Causes:

Researchers have identified a number of factors that can exacerbate rosacea symptoms, though doctors and researchers are still unsure of the precise causes.

These factors include:

- Emotional stress and anxiety
- Spicy foods
- Hot drinks
- Alcohol
- Severe heat (temperature, hot showers and baths, etc.)
- Severe cold
- Forceful winds
- UV radiation

Not everyone with rosacea will find that all of these things irritate their skin because triggers differ from person to person. [27]

Symptoms:

- Erythema, or facial blushing and redness, typically occurs around the nose and cheeks. On the other hand, the chin, neck, scalp, and forehead can also display facial redness.
- Greater blood vessel visibility.
- Warm, tingling sensations on dry, scaly skin patches. [27]



Fig. 4

9.2 Papulopustular rosacea

Patients with papulopustular rosacea subtype are those whose papules or pustules appear in the center of their faces. When these episodes of inflammation get severe, they can cause long-term facial oedema. [26,25]

Causes:

The precise reason behind papulopustular rosacea remains unclear.

- Genetics
- environmental factors working together could be the cause. [28]

Symptoms:

- Red or pus-filled bumps.
- Skin that has breakouts or feels hot to the touch
- Associated with some kind of texture or bumps (also called plaque). [29]



Fig. 5



Fig. 6

Treatment:

- First-line treatments: dermatologists commonly recommend topical medications.
- Oral antibiotics: Used to control inflammation and lessen the quantity of papules and pustules.
- Isotretinoin: This oral drug addresses the underlying causes of rosacea, such as abnormal oil production. Long-term benefits are possible, but due to possible adverse effects, careful monitoring is needed.
- Treatment with lasers: Visible blood vessels or other irregularities in the skin may be treated with laser therapy and other procedures. By concentrating on the blood vessels, laser treatments can minimize their visibility and enhance the overall appearance of the skin. [28]

9.3 Phymatous rosacea

In the 2002 classification, phymatous rosacea was categorized as a particular subtype of rosacea. [30] Rhinophyma, the term for phymatous rosacea, mostly affects the nose. [31,32] Depending on whether the rosacea is inflamed or not, the most recent treatment update from the global ROSacea Consensus (ROSCO) panel

should be applied. ^[33] It was advised to use physical modalities for noninflamed phyma and oral doxycycline for inflamed phyma. ^[34] It was suggested to use a porcine extracellular matrix in a retrospective study involving 28 patients. ^[35]

Causes:

- Sun exposure
- Skin care products
- Some drugs
- Spicy foods
- Alcohol consumption, emotional stress
- Microbes, such as Demodex mites. ^[36]

Symptoms:

- Redness of skin
- Rough, dry skin
- Blood vessels that are broken
- Clearly large pores
- Irregular, bumpy skin. ^[36]



Fig. 7

If phymatous rosacea is not treated, it may result in rhinophyma, which can enlarge, bump up, and bulbous the nose. ^[36]

Slowly thickening of the skin around the nose is called rhinophyma. The nose appears misshapen as the nasal skin gradually thickens and develops nodules, or lumps. The pores are more noticeable and the oil glands are larger. ^[37]

Treatment:

- Phymatous rosacea has no known cure.
- Oxymetazoline and brimonidine applied topically to reduce skin redness.
- Topical minocycline, azelaic acid, ivermectin, and metronidazole to help lessen papules and pustules.
- Moreover, effective in reducing papules and pustules are oral isotretinoin and doxycycline.

{This subtype is more prevalent in males than in females}



Fig. 8

A combination of CO2 laser and surgery was used to treat in this image. [36]

9.4 Ocular rosacea

Features of ocular rosacea include burning or stinging sensations, foreign body sensations, and a bloodshot or watery appearance of the eyes. According to estimates, ocular involvement can happen with or without a cutaneous rosacea diagnosis, and it affects 6–50% of patients with the condition. [38]

Both adult males and females are equally affected by ocular rosacea. It typically begins after the age of thirty and is rare in children. [39]

Causes:

Similar to skin rosacea, the precise cause of ocular rosacea is unknown. It might be caused by one or more of the following:

- Genetics
- Environmental aspects
- Involvement of bacteria
- Blocked glands on the lids of the eyes
- Mites on eyelashes. [39]

Symptoms:

Cornea, conjunctiva, and eyelids are the primary areas affected by ocular rosacea.

- Itchiness
- Soreness and burning
- An increase in tears
- Photophobia, or sensitivity to light
- Sensation of a foreign body
- Dry eyes
- Papules inflamed
- Cuts on the cornea
- Eye redness. [39]

*MILD**MODERATE**SEVERE*

Fig. 9

Treatment:

- Apply warm compresses to your eyes before and after taking a bath.
- Artificial tears or lipid-containing eye drops.
- Doxycycline (a tablet of antibiotics).
- Using pH-balanced cleaning products (rather than just soap) to wash your eyes.
- Applying sunscreen (always use 30 or greater SPF). ^[39]

KEY RESULTS

The majority of the therapies seemed to be successful in treating rosacea. People's evaluations of their treatments were reported in nearly half of the studies. Just eleven people evaluated their quality of life having changed. The majority of studies assessed changes in the quantity and redness of pimples and pustules. "Granulomatous rosacea," a rare variant, was not among them. ^[18]

10. PREVENTION

Patients with rosacea are frequently advised to make dietary adjustments, for example, as certain foods may exacerbate the symptoms of the condition.

One of the most frequent causes of flushing is sun exposure, which also triggers rosacea symptoms. Tobacco and alcohol are the other two things that can make rosacea symptoms worse. ^[40,41,42]

CONCLUSION

Rosacea is a long-term inflammatory skin disease. Eye symptoms, thicker skin, and flushing of the face are among the symptoms.

In patients with mild-to-moderate rosacea, a combination of topical and oral therapy may yield satisfactory results.

Patients who have a significant erythematous component along with inflammatory papules or pustules may benefit from topical therapy.

For rosacea that is not improving with topical treatments, oral antibiotics may be helpful. For inflamed pustules and papules without noticeable erythema, oral therapy is the recommended course of action.

Despite the fact that there is not a cure at this time, people can treat the symptoms with medication. Additionally helpful are home remedies.

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