1.3. Differential diagnostics

Unfortunately, diagnostic errors may occur, so the prescribed treatment will be ineffective. Moreover, the skin condition may worsen, especially if the diagnosis is made hastily and based solely on the clinical picture. Performing **differential diagnostics** as early as possible is necessary to avoid such situations.

The three skin diseases that can be confused with acne are:

- *Malassezia* folliculitis
- Demodicosis
- Rosacea (papulopustular type)

1.3.1. *Malassezia* folliculitis

As the name implies, this disease is caused by the fungus *Malassezia* (*Pityrosporum*), which lives on the surface of our skin. *Malassezia* (*Pityrosporum*) folliculitis can easily be confused with the papulopustular type of acne because its clinical picture is dominated by papules and pustules (**Fig. II-1**).

- It is caused by the *Malassezia* fungus
- Men have the disease more often than women
- Anamnesis often reveals systemic and/or topical use of GCSs, antibiotics (often tetracyclines), and immunosuppressants, prescribed for concomitant diseases (diabetes mellitus, Itsenko–Cushing's syndrome)

Figure II-1. Papulopustular lesions in Malassezia folliculitis (Image by Wikipedia)

When collecting anamnesis, systemic and/or local use of GCSs, antibiotics (especially tetracyclines), immunosuppressants, diabetes mellitus, and Itsenko–Cushing's syndrome are often revealed. But this is not the main criterion for the diagnosis.

Table II-1 presents the differences between acne and *Malassezia* folliculitis, which relate to the localization and nature of the lesions and the disease development. There are quite a few, increasing the chances of a correct differential diagnosis. In complicated cases, you can always turn to laboratory tests to help identify the causative agent.

Some concomitant forms, such as acne complicated by *Malassezia* folliculitis, may occur against the background of prolonged use of tetracycline group antibiotics and topical antibiotics.

Accession to fungal infection is an undesirable side effect of antibiotic therapy. This is another argument in favor or prescribing antibiotics only in extreme cases rather than as a preventive measure.

Table II-1. *Malassezia* folliculitis vs. acne

***MALASSEZIA* FOLLICULITIS**	**ACNE**
Chest, back, less often face	Often face only
Periphery of face and chin	Middle part of the face
Monomorphic lesions (papules, pustules)	Polymorphic lesions, comedones
Itching, burning sensation	No subjective sensations
Rapid improvement due to antifungal therapy	No effect from antifungal therapy
No effect from antibacterial therapy	Antibacterial therapy is effective
Frequently repeated antibiotic therapy in anamnesis	Antibiotic therapy in anamnesis is not obligatory
Deterioration in summer months	No
Deterioration in warm, humid environments, during and after physical activity	No

1.3.2. Demodicosis

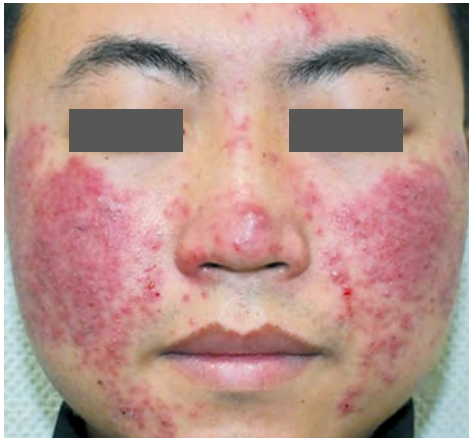
Demodicosis is another dermatosis that can be confused with acne. It is caused by a mite of the genus Demodex, which lives in the ducts of the sebaceous glands and feeds on sebum. Mites are active at night, at high temperatures (30–40 °C) and humidity, so itching bothers patients mostly at night, and exacerbations occur in the summer, especially among frequent visitors to the bath and sauna, as well as workers in hot shops and kitchens.

There are two types of demodicosis (**Fig. II-2**). *Demodex* folliculitis is characterized by erythematous spots, papules with scales, and pustules on the face and scalp. Dry, flaky, rough skin is noted. The lesion may be unilateral. In the papulopustular type of demodicosis, the lesions tend to be symmetrical and are located mainly around the eyes and mouth.

***Demodex* folliculitis:**

- Erythematous spots, follicular papules with scales on the surface, pustules on the face and scalp
- Dry, flaky, rough skin
- The lesion may be unilateral

(Image by Casas M.N. et al., 2020)



Demodicosis (papulopustular type):

- Lesions are predominantly perioral and periorbital
- Dense erythematous areas, often symmetrical

(Image by Ran Yuping et al., Wikipedia)

Figure II-2. Lesions in demodicosis

Late onset of the disease (after the age of 30), lack of association with hormonal influences, and characteristic subjective sensations will help to suspect demodicosis (**Table II-2**).

Table II-2. Demodicosis vs. acne

DEMODICOSIS	ACNE (PAPULOPUSTULAR TYPE)
Onset in adulthood (30–60 years old)	Onset in adolescence
Worsening with age	Improvement with age
No association with hormonal effects	Connection to sex hormones
No comedones	Open and closed comedones
Only the face is affected	Lesions on the chest and back
Lesions around the mouth and eyes	No tendency to occur around the mouth and eyes
Frequent lesions on scalp	No lesions on scalp
May have unilateral presentation (*Demodex* folliculitis)	Always symmetrically distributed
Itching, sensation of touching fuzz, usually at night	No subjective sensations
Worsening in summer and heat	Usually improves in summer
No scarring	Often post-acne scars
Often blepharitis, conjunctival hyperemia	No ocular involvement

1.3.3. Rosacea

Another condition often confused with acne is rosacea (papulopustular type), in which inflammatory papules and pustules appear on the skin (**Fig. II-3**). Microcirculatory disorders cause rosacea. It is unrelated to the sebaceous glands and can occur at any level of sebum production. Persistent dilation of the capillaries in the skin results in congestion in the skin tissue. Various cells in the affected area begin to malfunction. With time, the structure of the skin changes: the barrier of the *stratum corneum* is violated and becomes more permeable to foreign agents, the activity of immune cells increases, inflammatory

- Rosacea is caused by an imbalance in the microcirculation of the skin
- Characterized by (1) erythema (flares at the beginning of the disease and persistent redness after that) and (2) telangiectasias
- Responds to vasodilatory triggers: insolation, extreme temperatures, spicy and hot food, alcohol, stress and excitement, local irritants, and vasodilating medications

Figure II-3. Papulopustular type of rosacea (Zhou M. et al., 2016)

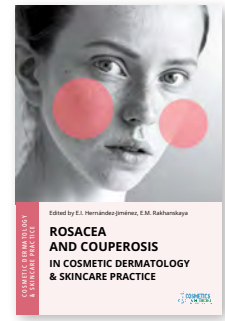
processes begin, persistent intercellular edema develops, and puffiness occurs.

Careful anamnesis and physical examination will help rule out rosacea because the emergence and initial manifestations of this dermatosis are not characteristic of acne (**Table II-3**).

Table II-3. Rosacea *vs.* acne

ROSACEA (PAPULOPUSTULAR TYPE)	ACNE
Onset during adulthood (30–60 years)	Onset during puberty
Worsening with age	Improvement with age
No connection to hormonal effects	Connection to sex hormones
No comedones	Open and closed comedones
Only the face is affected	Lesions on the chest and back
Erythema flare	No erythema flare
Erythema centrofacialis, telangiectasias	No erythema or telangiectasia
Exacerbation with insolation	Improvement with insolation
No scarring	Frequent post-acne scarring
Often blepharitis, conjunctival hyperemia	No ocular involvement

Detailed information about skincare products and treatment for rosacea-affected skin is available in the *Rosacea and Couprerosis in Cosmetic Dermatology & Skincare Practice* book.



Résumé

We did a visual examination, took a medical history, and ensured that this was "our patient" and that we could help. To do this, we have many different tools at our disposal — cosmetics, skincare devices, injectables, and nutraceuticals.

What to choose? Understanding the etiology and pathogenesis of acne will help us answer this question.