

Acne vulgaris

Diagnosis and differential diagnoses

Diagnosis

- Acne vulgaris is often clinically apparent and distinguished by the presence of pleomorphic lesions including comedones.
- The presence of comedones is what distinguishes acne vulgaris from other cutaneous disorders.

Differential Diagnosis

- The most common acne mimics are
 1. Rosacea
 2. Perioral dermatitis
 3. Folliculitis.

Diagnostic Methods

- Acne vulgaris is usually diagnosed clinically by the presence of a pleomorphic collection of lesions including papules and pustules.
- The presence of comedones is required for the clinical diagnosis of acne vulgaris.
- In general, the diagnosis of acne vulgaris does not require laboratory testing. However, a thorough evaluation of a patient presenting with acne should include a complete history to rule out a systemic etiology of disease.

- Rapid onset of acne associated with virilization should prompt laboratory testing of hormonal levels and imaging studies to rule out an underlying adrenal or ovarian tumor.
- Elevated serum androgens are found in patients with severe cystic acne and in association with endocrine abnormalities or neoplastic processes.

- The majority of patients with acne have normal levels of serum androgens.
- Additionally, a complete medication list should be obtained to rule out medication-induced acne.
- Physical examination should focus on the type and location of lesions, scarring, keloids, and postinflammatory pigmentary changes.

Treatment of Acne vulgaris

Treatment: Basic Principles

- Systemic and topical **retinoids**, systemic and topical **antimicrobials**, and systemic **hormonal** therapies are the main classes of treatment
- Multiple agents are often used with activity against different pathogenic causes (e.g. topical antibiotic plus retinoid)
- Use topical antibiotics with benzoyl peroxide to prevent the development of antibiotic resistance
- **Acne scarring is difficult to treat, therefore aggressive prevention is important**

Acne Scarring

- Acne should be treated aggressively to avoid permanent scarring and cysts
- Refer patients with difficult to control acne or the presence of scarring to dermatology



Common First-Line Treatments

- Mild comedonal: topical retinoid, +/- topical benzoyl peroxide
- Mild papular/pustular: topical retinoid, topical antibiotics (clindamycin, erythromycin), topical benzoyl peroxide
- Moderate papular/pustular: oral antibiotics with topical retinoid and benzoyl peroxide

Common First-Line Treatments

- Moderate nodular without scarring: oral antibiotic with topical retinoid and topical benzoyl peroxide
- Severe nodular: refer to a dermatologist for oral isotretinoin
- Scarring and keloids: refer to a dermatologist for oral isotretinoin

Topical Retinoids

(tretinoin, all trans retinoic acid)

- Topical retinoids are vitamin A derivatives
- Used for acne vulgaris; photodamaged skin; fine wrinkles, hyperpigmentation
- Patients should be warned of common adverse effects:
 - Dryness, pruritus, erythema, scaling
 - Photosensitivity
- Available as a cream or gel
- Do not apply at the same time as benzoyl peroxide because benzoyl peroxide oxidizes tretinoin

Benzoyl Peroxide

- Benzoyl peroxide is a topical medication with both antibacterial and comedolytic properties
- Available as a prescription and over-the-counter, as well as in combinations with topical antibiotics
- Patients should be warned of common adverse effects:
 - Bleaching of hair, colored fabric, or carpet
 - May irritate skin; discontinue if severe
- Available as a cream, lotion, gel, or wash

Topical Antibiotics

- Used to reduce the number of *P. acnes* and reduce inflammation in inflammatory acne
- Do not use as monotherapy (often used with benzoyl peroxide to prevent the development of antibiotic resistance in the treatment of mild-to-moderate [acne](#) and [rosacea](#))
 - Erythromycin 2% (solution, gel)
 - Clindamycin 1% (lotion, solution, gel, foam)
- Metronidazole 0.75%, 1% (cream, gel) is used in the treatment of rosacea

Topical Acne Treatment: Side Effects

- Topical acne treatments are often irritating and can cause dry skin
 - When using retinoids or benzoyl peroxide, consider beginning on alternate days. Use a moisturizer to reduce their irritancy.
- Topical agents take **2-3 months** to see effect
- Patients will often stop their topical treatment too early from “red, flakey” skin without improvement in their acne
- Patient education is a crucial component to acne treatment

Oral Antibiotics

- Tetracycline, doxycycline, minocycline
- Use for moderate to severe inflammatory acne
- Often combined with benzoyl peroxide to prevent antibiotic resistance
- If the patient has not responded after 3 months of therapy with an oral antibiotic, consider:
 - Increasing the dose,
 - Changing the treatment, or
 - Referring to a dermatologist

Oral Isotretinoin

- Oral isotretinoin, a retinoic acid derivative, is indicated in severe, nodulocystic acne failing other therapies
- Should be prescribed by physicians with experience using this medication
- Typically given in a single 5-6 month course
- Isotretinoin is teratogenic and therefore absolutely contraindicated in pregnancy
 - Female patients must be enrolled in a FDA-mandated prescribing program in order to use this medication
 - Two forms of contraception must be used during isotretinoin therapy and for one month after treatment has ended

Isotretinoin: Side Effects

- Common side effects of isotretinoin include:
 - Xerosis (dry skin)
 - Cheilitis (chapped lips)
 - Elevated liver enzymes
 - Hypertriglyceridemia
- Individuals with severe acne may suffer mood changes and depression and should be monitored
- Severe headache can be a manifestation of the uncommon side effect pseudotumor cerebri

Patient Education

- Patient education and setting expectations are important components of effective acne treatment
 - Lack of adherence is the most common cause of treatment failure
 - With the patient, the physician should develop the therapeutic regimen with the highest likelihood of adherence
 - Acne treatment is only treating new lesions, not the ones already there

Patient Education

- Patients should use only the prescribed medications and avoid potentially drying over-the-counter products, such as astringent, harsh cleansers or antibacterial soaps
 - Recommend daily moisturizer when patients are using solutions and gels because they have more drying effects than creams and ointments
- Overaggressive washing and the use of particulate abrasive scrubs often exacerbates acne and should be avoided
- Cosmetics are often labeled as “non-comedogenic” or “oil-free” if they do not cause or exacerbate acne