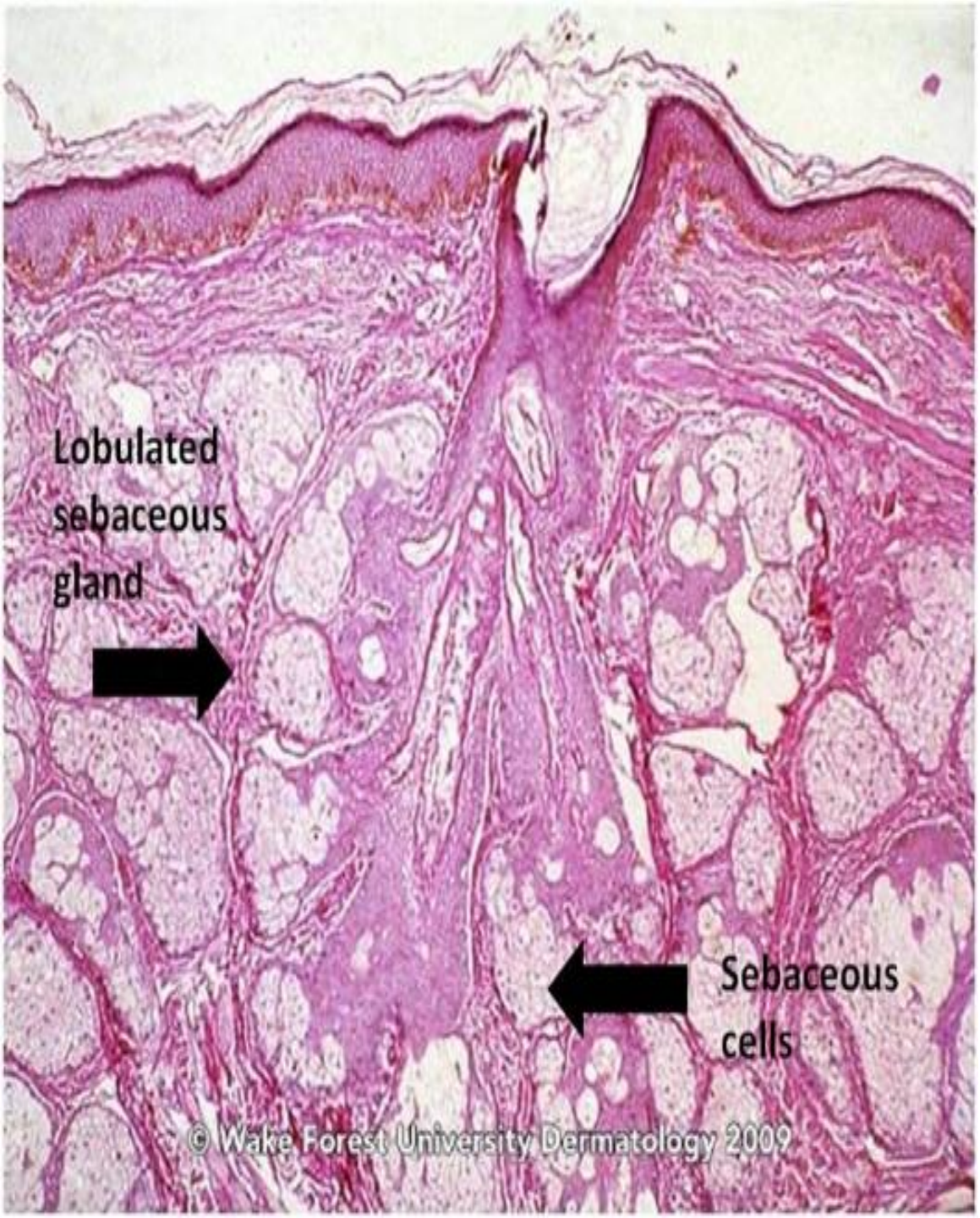
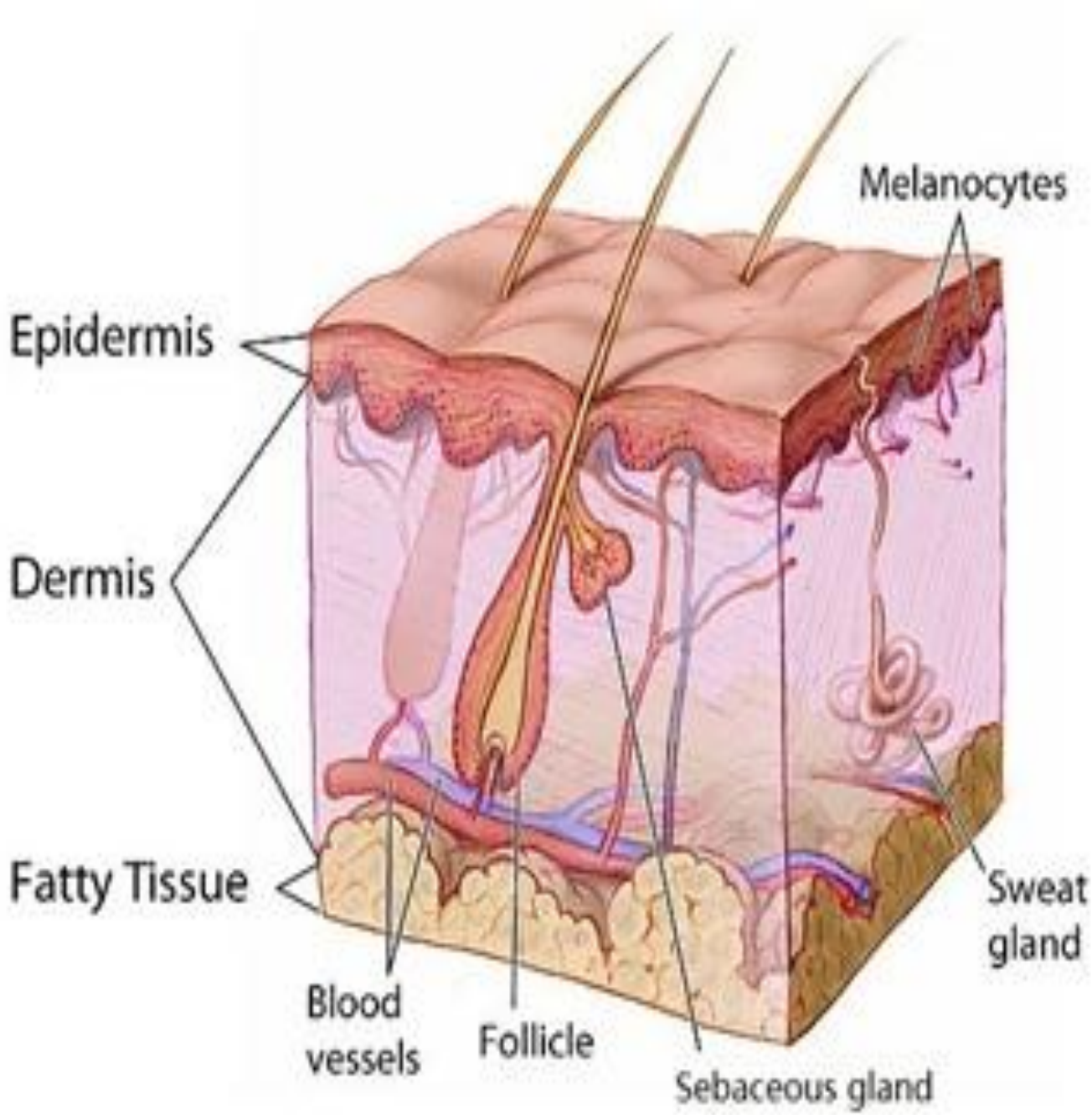
ACNE AND ACNE RELATED DISORDERS


Lobulated sebaceous gland
Sebaceous cells
© Wake Forest University Dermatology 2009


Melanocytes
Epidermis
Dermis
Fatty Tissue
Sweat gland
Blood vessels
Follicle
Sebaceous gland

OBJECTIVE OF THE LECTURE:

- To know the multiple pathogenetic mechanisms causing acne
- To recognize the clinical features of acne.
- To differentiate acne from other acniform eruptions such as rosacea.
- To know the different types of treatment
- To recognize the clinical features of rosacea, it’s variable types, differential diagnosis and treatment.
- To recognize the features of hidradenitis supprativa and treatment.

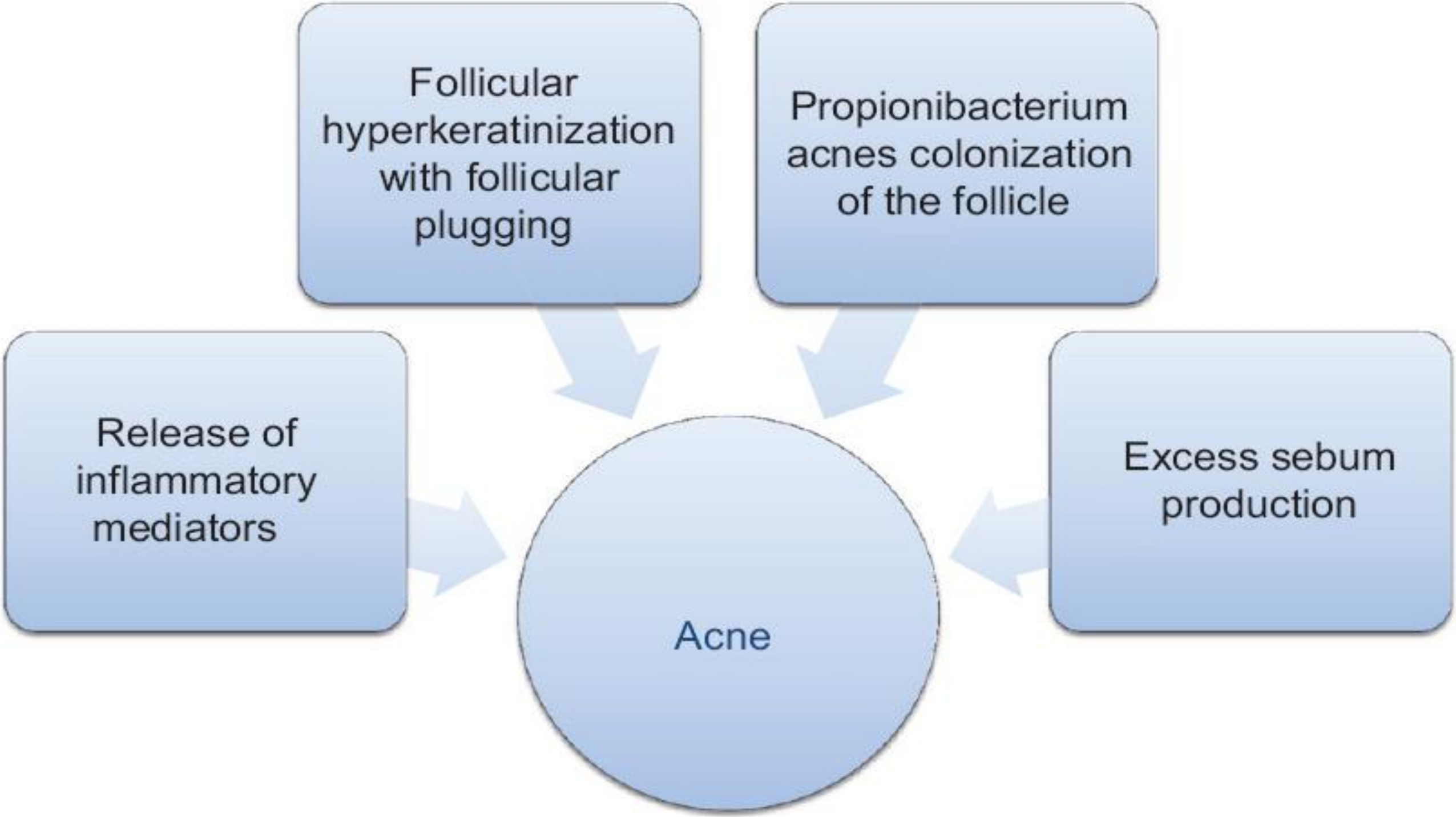
ACNE

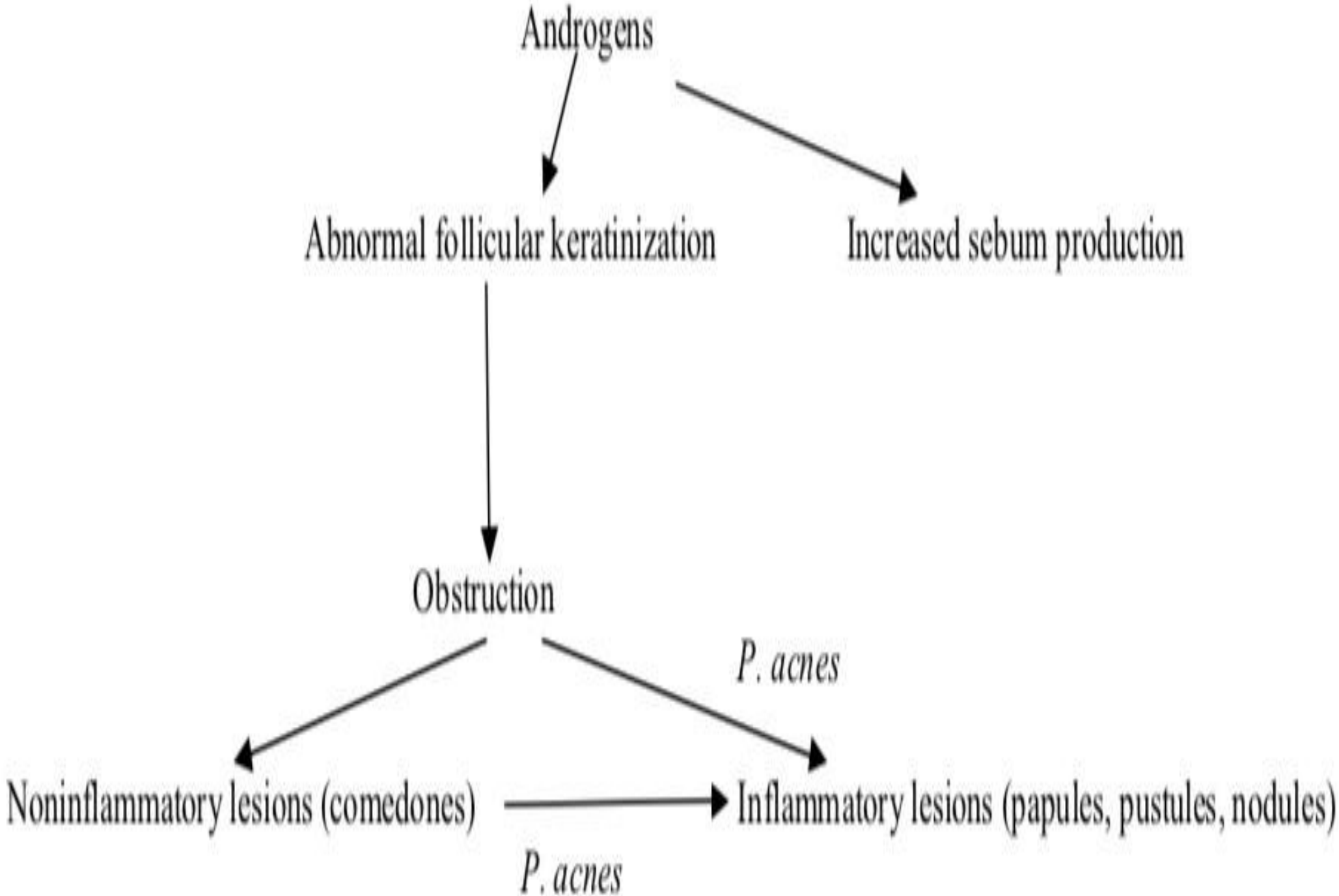
- Is a chronic inflammatory skin disease affecting the pilosebaceous unit.
- Affects around 85% of the population at some point in their lives.
- Occurs mostly during adolescence

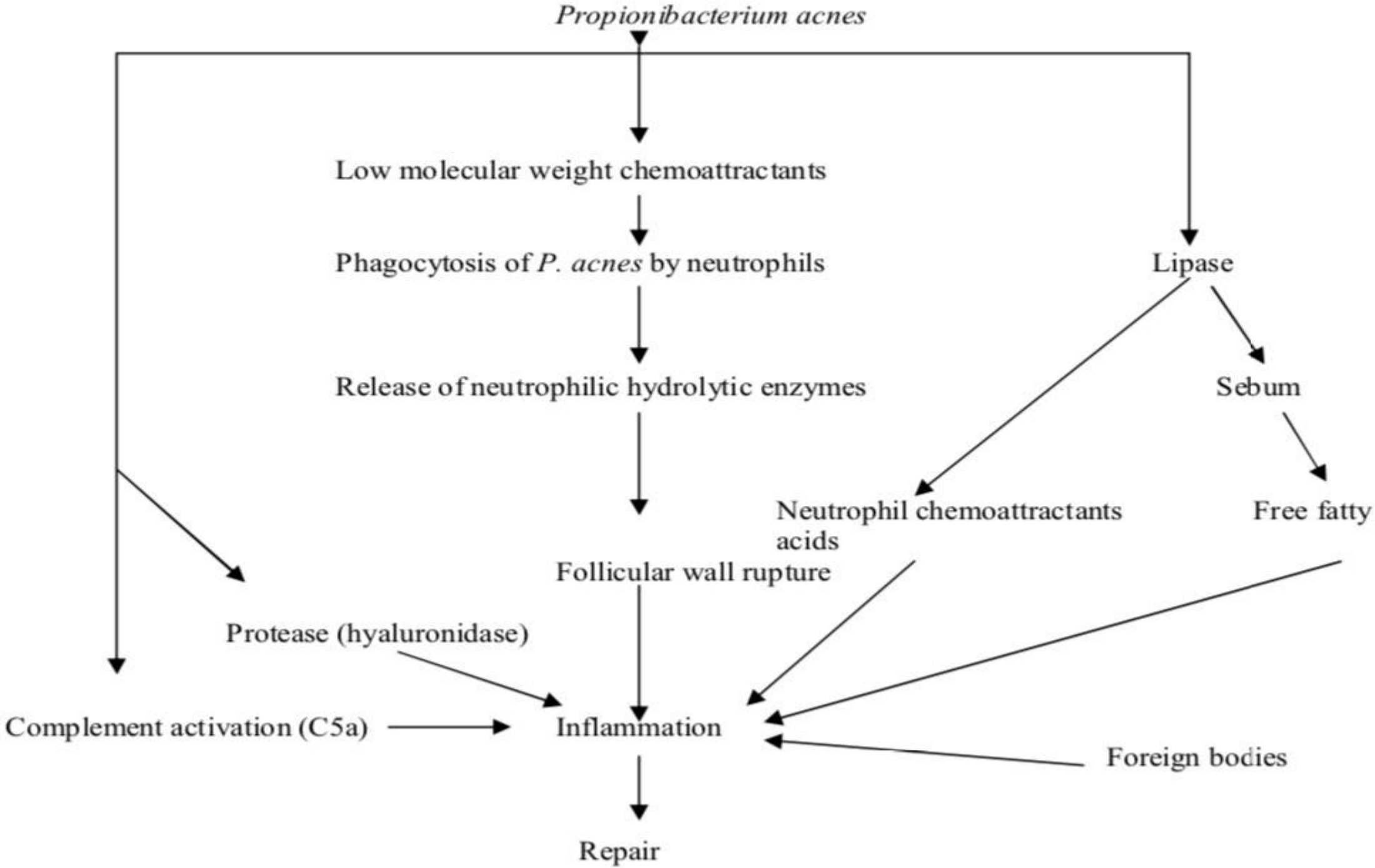
ETIOPATHOGENESIS

Four key pathogenic processes lead to the formation of acne lesions:

1. Increased and altered sebum production under androgen control
2. Alteration of follicular keratinization that leads to comedones.
3. Follicular colonization by Propionibacterium acnes
4. Inflammatory mechanisms


Follicular hyperkeratinization with follicular plugging
Propionibacterium acnes colonization of the follicle
Release of inflammatory mediators
Excess sebum production
Acne


Androgens
Abnormal follicular keratinization
Increased sebum production
Obstruction
P. acnes
Noninflammatory lesions (comedones)
Inflammatory lesions (papules, pustules, nodules)
P. acnes


Propionibacterium acnes
Low molecular weight chemoattractants
Phagocytosis of *P. acnes* by neutrophils
Release of neutrophilic hydrolytic enzymes
Follicular wall rupture
Lipase
Sebum
Neutrophil chemoattractants
acids
Free fatty
Protease (hyaluronidase)
Complement activation (C5a)
Inflammation
Foreign bodies
Repair

OTHERS FACTORS WHICH CAN CONTRIBUTE TO THE PATHOGENESIS OF ACNE:

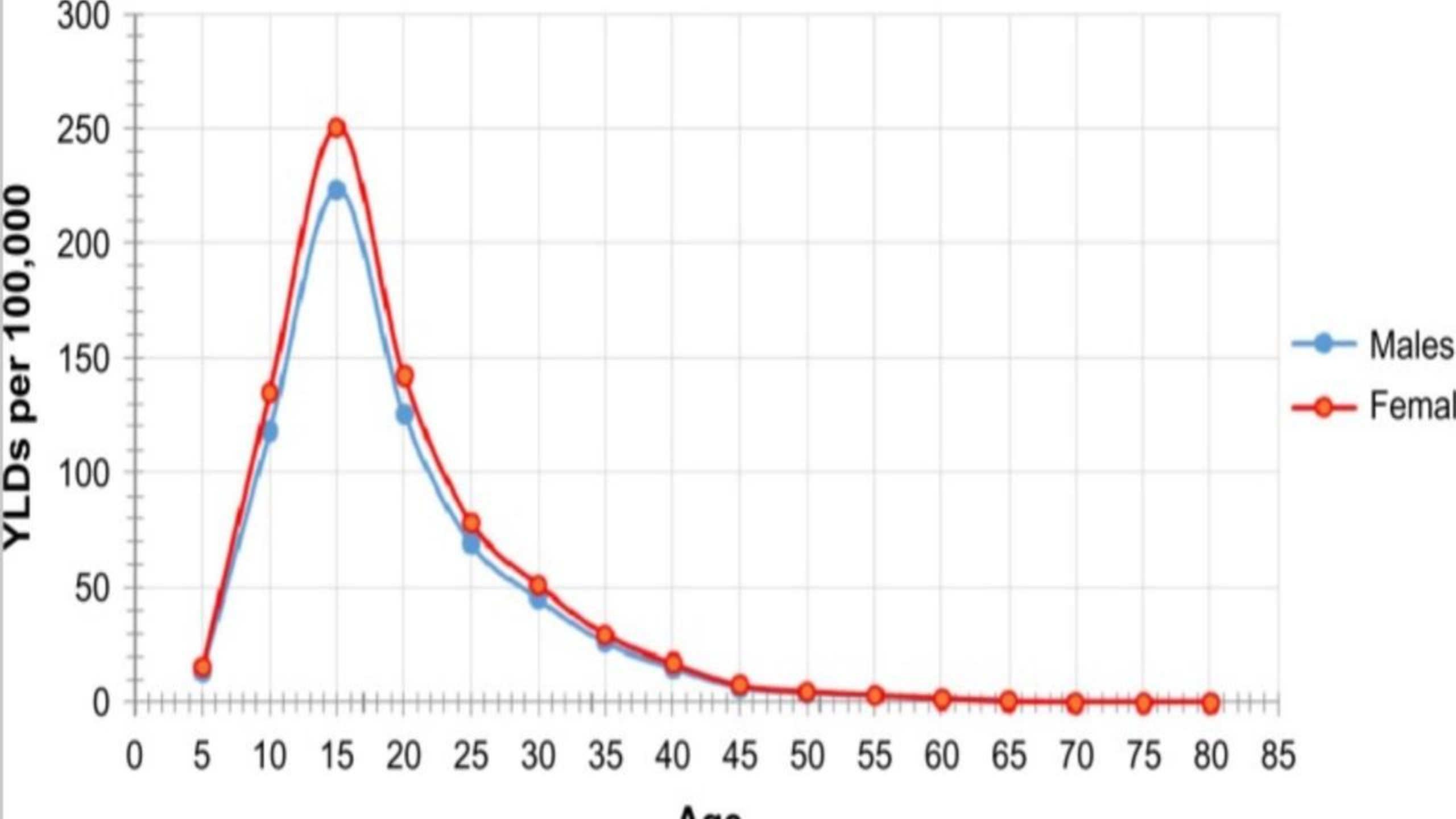
1. Family history of severe acne (early disease onset and a severe clinical course)
2. Diet (hyperglycemic diet)
3. Environmental factors (smoking)
4. Occlusive cosmetics

TYPES OF ACNE ACCORDING TO THE ONSET

ACNE VULGARIS
(ACNE OF THE ADOLESCENT)

Epidemiology :

- Most common type of acne
- 85% prevalence rates in those aged 12-24 years
- Has a peak incidence in 14-17-year-old girls and in 16-19-year-old boys
- Women have a high prevalence and incidence when compared with men, especially after 25 years of age
- Acne often persists into adulthood, with 26% of women and 12% of men reporting acne in their 40s.(late-onset acne)
- About 20% of the affected individuals develop severe acne which results in scarring.
- Asians and Africans tend to develop severe acne


YLDs per 100,000
300
250
200
150
100
50
0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
Age
Males
Femal

CLINICAL FEATURES

-Acne commonly affects:

1- face

2-shoulders

3-upper part of the chest and back

-Has pleomorphic appearance:

1-primary skin lesions

2-secondary skin lesions

primary: non-inflammatory and inflammatory lesions

-clinical features of primary lesions: hyperseborrhea, open and closed comedones, papules, pustules and nodules

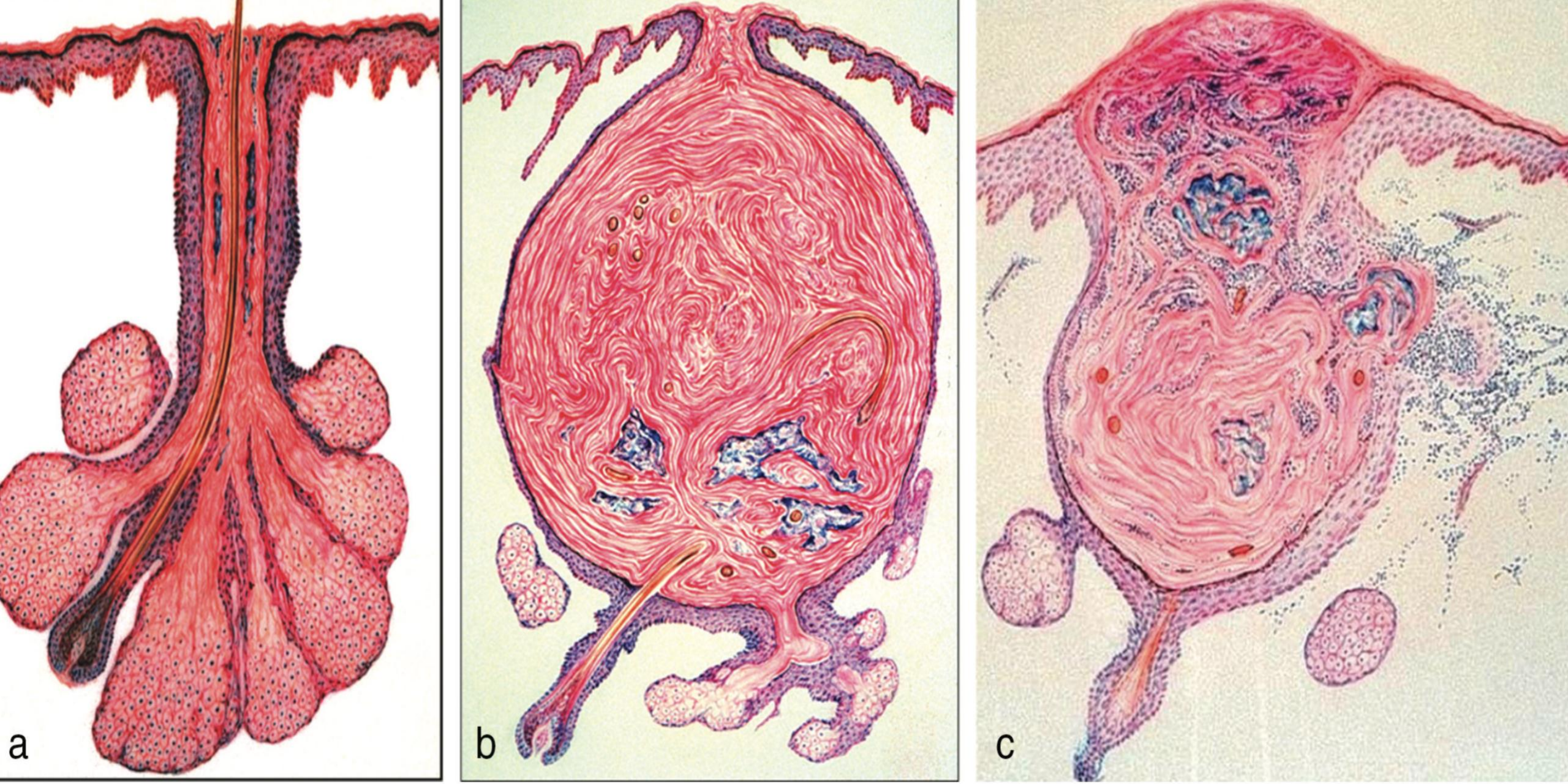
1-Comedones:

-Hyperkeratotic plug made of sebum and keratin in follicular canal.

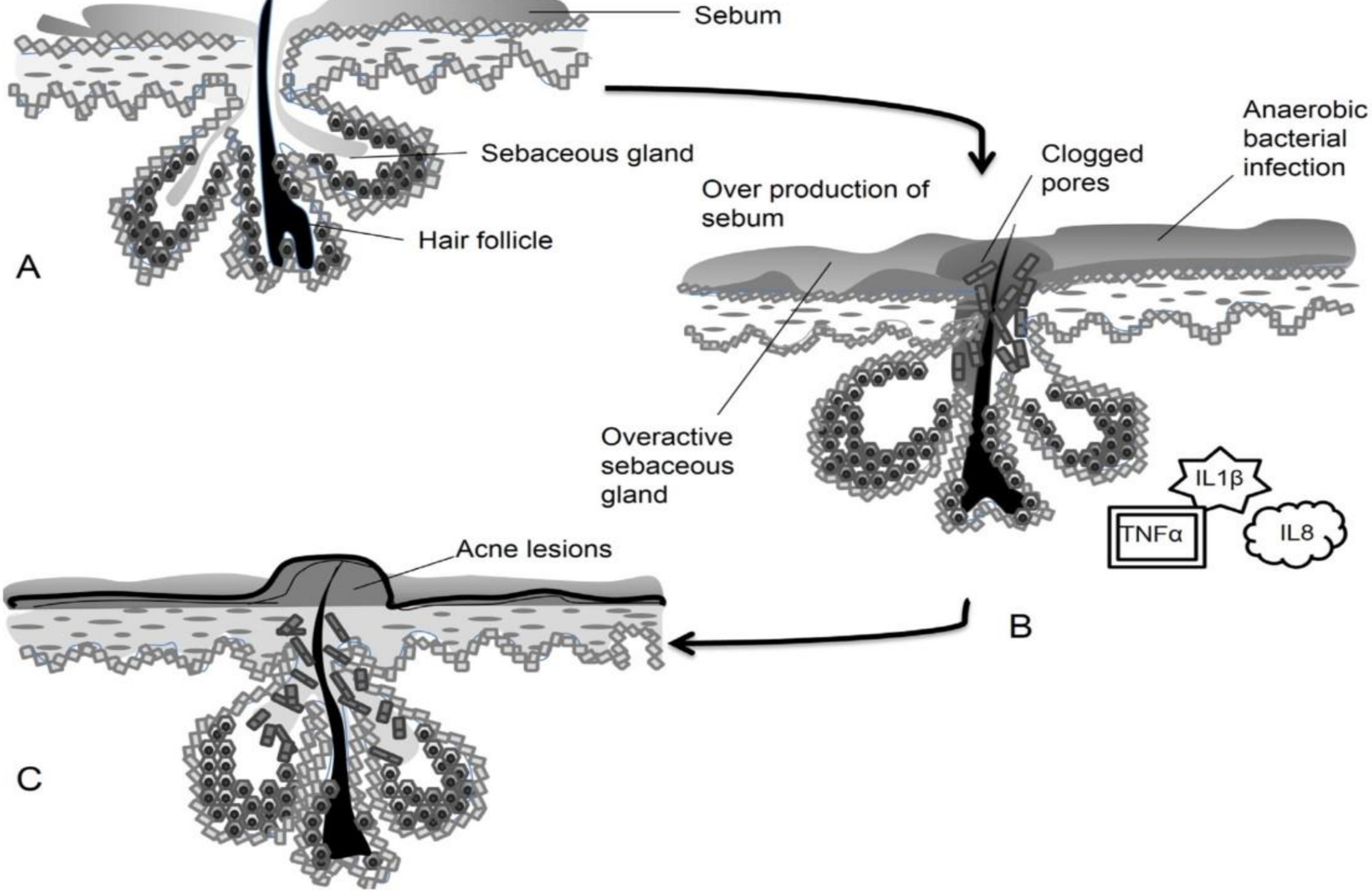
- A-Microcomedone:
- 1-Closed Comedo (Whitehead):Closed follicular orifice, accumulation of sebum and keratin
- 2-Open Comedo (Blackhead):Opened follicular orifice packed with melanin and oxidized lipids
- B-Macrocomedone:

2-Papules and pustules:

3-Nodules:



Normal sebaceous follicle (a), closed comedo (b), and ruptured follicle (c). From [1] with permission.


Sebum
Sebaceous gland
Hair follicle
A
Over production of sebum
Clogged pores
Anaerobic bacterial infection
Overactive sebaceous gland
IL1β
TNFα
IL8
B
Acne lesions
C

SECONDARY ACNE LESIONS:

1-Abscesses

2-Cysts

3-Post-inflammatory hyperpigmentation

4-Excoriations

5-Scars

SCORING SYSTEMS IN ACNE VULGARIS

-Grading versus lesion counting

-simple grading system:

- Grade 1: Comedones, occasional papules.
- Grade 2: Papules, comedones, few pustules.
- Grade 3: Predominant pustules, nodules, abscesses.
- Grade 4: Mainly cysts, abscesses, widespread scarring.

-mild,moderate,severe:

General Classification	AAD[a]	Global Alliance	EDF	AAP
Mild	–	Comedonal or mixed and papular/ pustular	Comedonal or mild to moderate papulopustular	Comedonal or inflammatory/mixed lesions
Moderate	–	Mixed and papular/ pustular or nodular	Mild to moderate papulopustular	Comedonal or inflammatory/mixed lesions
Severe	–	Nodular or conglobate	Severe papulopustular/ moderate nodular or severe nodular/ conglobate	Inflammatory/mixed and/or nodular lesions

ACNE SUBTYPES

A-NEONATAL ACNE

- Onset between 0-6 w of age.
- Most commonly in boys
- Affect up to 20% of newborn
- Presents as comedones and small papulopustules on the cheeks and nasal bridge
- Due to the self- limited and benign nature of neonatal acne and acneiform eruptions, the use of a gentle daily cleanser and water is all that is required therapeutically.
- Topical retinoid with or without benzoyl peroxide


B- INFANTILE ACNE:

- Affects less than 2% of infants
- Anytime between 6 weeks and 12 months
- Male predominance
- Genetic predisposition and heightened sebaceous gland activity in response to normal levels of circulating androgens
- In rare cases, infantile acne can be a sign androgen-secreting (or corticosteroid-secreting) disorder.
- Closed and open comedones, papules, pustules, nodules, and cysts
- Commonly over face
- Have a moderate course at best requiring no treatment, resolving within 6 to 12 months
- Topical retinoid or benzoyl peroxide with topical antibiotic (e.g., erythromycin or clindamycin)
- In sever cases: oral erythromycin. If the patient has a resistant strain of Propionibacterium acne, then we can used sulfamethoxazole-trimethoprim.

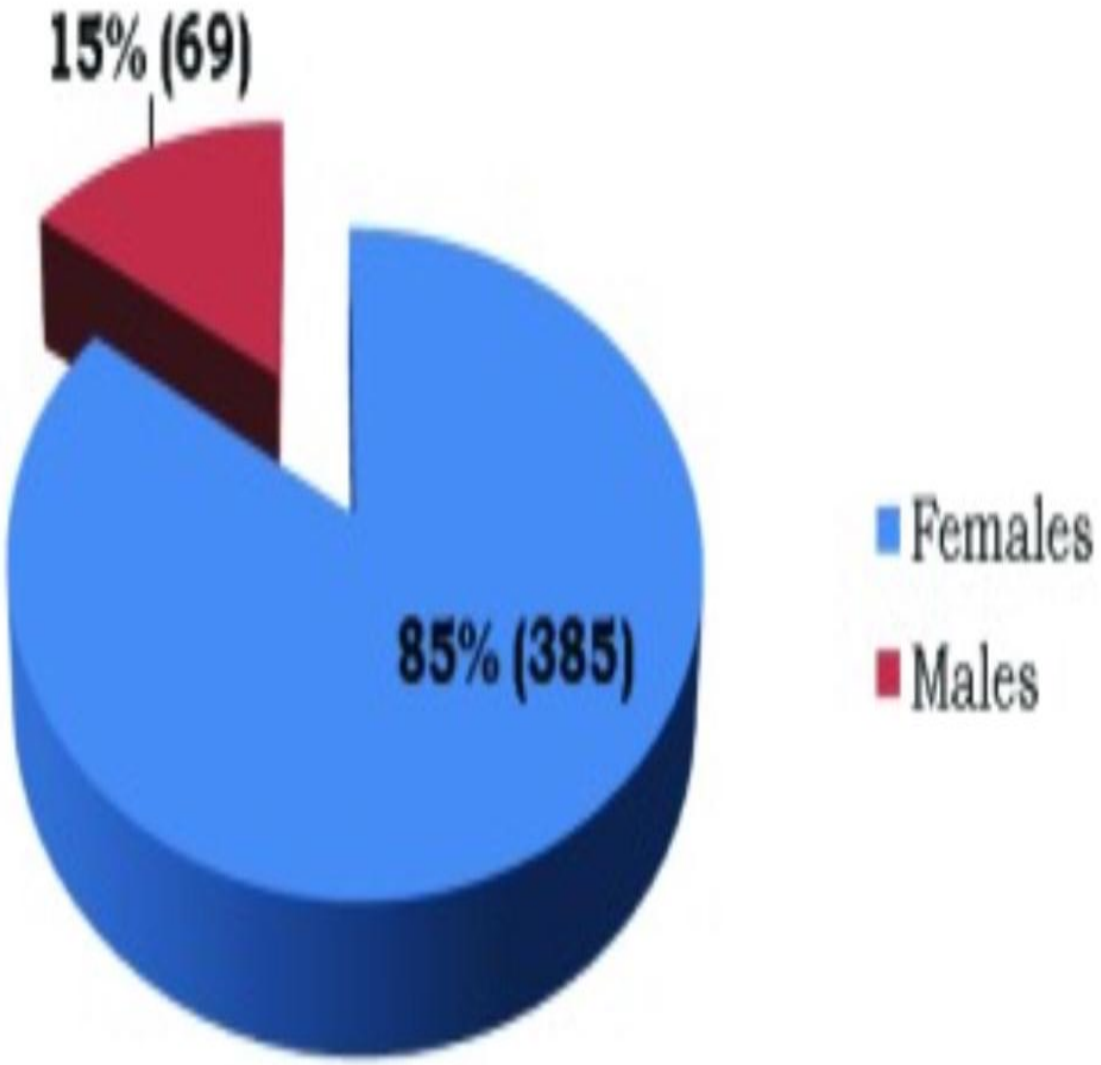
C-CHILDHOOD ACNE:

- Between the ages of 1 and 8 years
- More in boys.
- May be the first sign of puberty.
- Consider possibility of underlying condition such as polycystic ovary syndrome or late onset congenital adrenal hyperplasia
- Clinical features and Treatment is similar to the adolescent algorithms

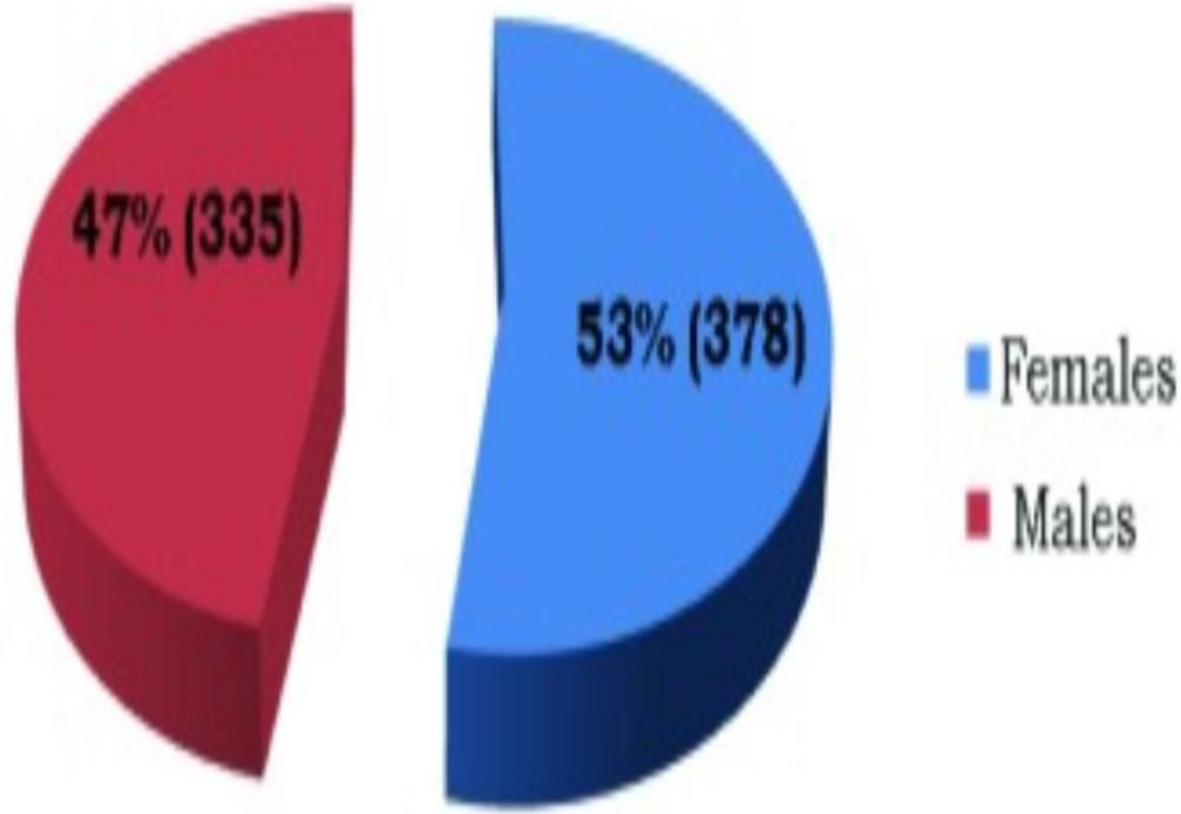
D-ADULT ACNE:

- More in female
- 35.2 percent, 26.3 percent, and 15.3 percent among women:30 to 39 years, 40 to 49 years, and 50 years and older
- Smoking
- IF associated with hirsutism, irregular periods evaluate for hyper secretion of ovarian androgens (e.g. Polycystic ovary syndrome).
- Two subtypes of adult acne are recognized: persistent(70%) and late-onset(30%)

Adult acne



Teenage acne



THE CLASSICAL PRESENTATION OF ADULT ACNE CONSISTS OF INFLAMMATORY PAPULOPUSTULAR LESIONS IN THE LOWER HALF OF THE FACE SPECIALLY JAWLINE

E-ACNE CONGLOBATA:

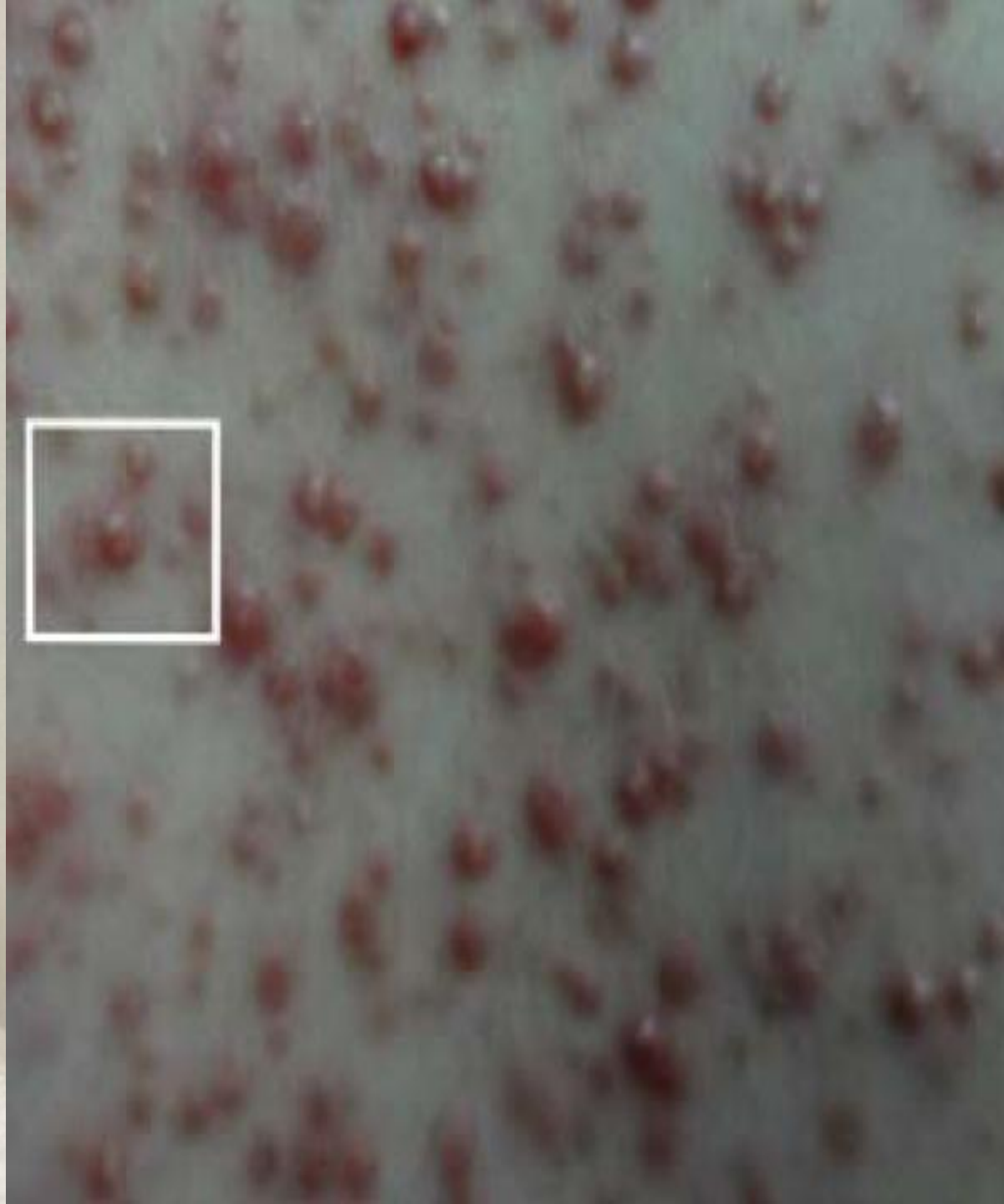
- A rare but severe form of acne
- Men > women
- Second and third decade of life
- Believed that Propionibacterium acnes may play an important role in the disease by changing its reactivity as an antigen. The hypersensitivity to this antigen induces an intense immunological reaction that presents with a chronic inflammatory state.
- Paired or aggregates of blackheads on the trunk, neck, upper arms, and buttocks.
- Highly inflammatory lesions: nodules, abscesses, draining sinuses, over the back and chest .
- Heals with scars (Depressed or Keloidal).
- Isotretinoin for 20 to 28 weeks or in some cases even longer. Some experts even recommend the use of oral prednisone (1 mg/kg/d) for 14 to 28 days.

FIGURE 2: Ulceronecrotic lesions on the back

F-DRUG INDUCED ACNE:

- The characteristic feature: absence of comedons and monomorphic lesions as small pustules and papules .

Class of agent	Examples
Hormones	
	Corticosteroids and corticotropin
	Androgens and anabolic Steroid medications
	Hormonal contraceptive medications
Neuropsychotherapeutic drugs	
	Tricyclic antidepressant medications
	Lithium
	Antiepileptic drugs
	Aripiprazole
	Selective serotonin reuptake inhibitors
Vitamins	
	Vitamins B1, B6, and B12
Cytostatic drugs	
	Dactinomycin (actinomycin D)
Immunomodulating molecules	
	Cyclosporine
	Sirolimus
Antituberculosis drugs	
	Isoniazid
	Rifampin
	Ethionamide
Halogens	
	Iodine
	Bromine
	Chlorine
Targeted therapies	
	Epidermal growth factor receptor inhibitors
	Multitargeted tyrosine kinase inhibitors
	Vascular endothelial growth factor inhibitor
	Proteasome inhibitor



G-OTHERS RARE ACNE SUBTYPES:

- Acne Fulminans
- Chloracne
- SAPHO(Synovitis, acne, pustulosis, hyperostosis and osteitis)
- Acne excoriée
- Acne Aestivalis

ACNE COMPLICATIONS:

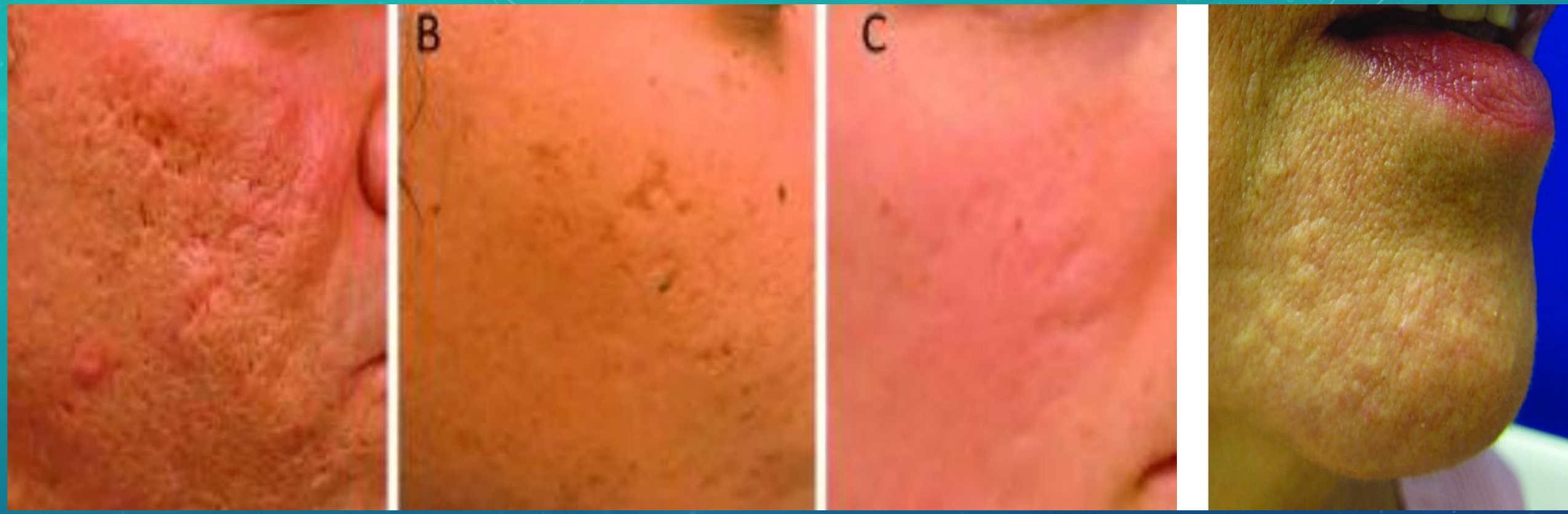
A. Quality of life: significant association between severity of acne and QOL

B. Hyperpigmentation: skin-colored patients

C. Scars: types of acne scars

1-Atrophic acne scars

2-Hypertrophic or keloid scars



THE 4 TYPES OF ATROPHIC ACNE SCARS:
1-ICEPICK SCAR
2-BOX SCAR
3-ROLLING SCAR
4-POPULAR SCAR (COBBLESTONE-LIKE PAPULES)

ACNE MANAGEMENTS

A- Education about: course, diet, smoking,,,,,,,

B- Cleansing:

- Washing Frequency:
- Soaps bars (Benzoyl Peroxide, Salicylic Acids, Alpha Hydroxy Acids)
- Gentle Liquid Cleansers

List of adjuvant topical therapies

ADJUVANT THERAPY	EXAMPLE	FUNCTION/EVIDENCE	RECOMMENDATIONS
Cleansers	• Soap-free, nonacnegenic, nonirritating, nonallergenic, oil-control without drying, and pH-balanced	• To remove sebum, dirt, and microorganisms	• Use of gentle soap-free cleansers is preferred especially when used in conjunction with topical retinoids • Twice-daily cleansing is adequate unless there is increased sebum or dirt
Moisturizers	• Lightweight, provide adequate hydration, noncomedogenic, nonacnegenic, might contain substances effective in acne treatment	• Counteracts the effect of acne treatment on the barrier function of stratum corneum and improves clinical outcome	• Acne-specific moisturizers can be used without inducing comedone formation

C-Topicals:

- Retinoid (trifarotene, Adapalene,tretinoin,tazarotene)
- Benzoyl Peroxide
- Azelaic Acid
- Topical Antibiotics: erythromycin, clindamycin. minovycline and Dapsone Gel, 7.5%

Summary of recommendations for topical therapies

Topical antibiotic monotherapy is highly discouraged. *Level 1+, Grade A*

Combination topical therapy is preferable and more effective than topical antibiotic alone. *Level 1+, Grade A*

Consider alternative antibacterial agents, such as benzoyl peroxide, salicylic acid, or dermocosmetics. *Level 4, Grade D, GPP*

Addition of BPO to adapalene is significantly more effective than adapalene monotherapy or BPO monotherapy. *Level 1+, Grade A*

Topical retinoids are effective first line therapy against both comedonal and inflammatory acne. *Level 1++, Grade A*

Fixed-combination therapy of BPO and adapalene provides significantly greater efficacy for the treatment of acne vulgaris as early as week one relative to monotherapies, with a comparable safety profile to adapalene. *Level 1+, Grade A*

Topical retinoids are recommended for maintenance in acne after successful treatment of acne. *Level 1+, Grade A*

Antibiotics do not prevent the development of microcomedones and should be discouraged as maintenance. *Level 4, Grade D, GPP*

- D-Systemic Treatmens:

1-Oral antibiotics:

- **-Tetracycline group: minocycline,doxycycline, Oxytetracycline, Lymecycline, Sarecycline(1.5 mg/kg)**
- **-Erythromycin,Roxithromycin,azithromycin**
- **-Trimethoprim**
- **-Clindamycin**
- **-Antimicrobial Resistance and Antibiotic Use in Acne Vulgaris**

Summary of recommendations for systemic antibiotics

Doxycycline, tetracycline and erythromycin are recommended as first line oral antibiotics. The absorption of tetracycline is restricted by food and dairy products. Erythromycin can be used to treat acne in pregnancy. *Level 1+, Grade A*

Minocycline is considered as a second-line antibiotic for acne due to evidence of more severe adverse events in comparison to doxycycline. *Level 1+, Grade A*

Cotrimoxazole is recommended only as a third-line antibiotic, when other treatments have failed. *Level 2++, Grade B*

Systemic antimicrobials should not be used together with topical antibiotics or as monotherapy. *Level 4, Grade D, GPP*

2-ISOTRETINOIN:

- Isotretinoin works to normalize all four key pathogenic features of acne vulgaris.
- If patients have very severe acne, scarring acne or significant acne that has not responded to therapy within 3 – 4 months, isotretinoin treatment should be considered.
- Standard dose : 0.5-1mg/kg with a total cumulative dose between 120mg-150mg/kg
- Side effects:
- A recent meta-analysis of 31 controlled studies demonstrated that:
- No evidence of increased depression or suicide rates with acne treatment using isotretinoin
- Not associated with the occurrence of hypertrophic scars or keloids
- lab abnormalities:
- Dryness
- Teratogenic effects
- Headache

Summary of recommendations for systemic isotretinoin

Oral isotretinoin is recommended for the treatment of severe acne that has not responded to conventional therapy. *Level 1++, Grade A*

Referral to a dermatologist is recommended in cases of severe nodulocystic acne or conglobate acne. *Level 4, Grade D, GPP*

An acceptable high-dose isotretinoin therapy of nodulocystic acne is 120 to 150mg/kg cumulative dose. *Level 1+, Grade A*

For non-nodulocystic or moderate acne, a 0.3 to 0.5mg/kg dose for six months might be sufficient. *Level 1+, Grade A*

Low-dose maintenance for adult persistent acne can be considered, but with caution due to potential adverse events. *Level 2+, Grade C*

Pregnancy is an absolute contraindication to systemic isotretinoin. Sexually active female patients should be made aware of the risk of teratogenicity and must be screened for pregnancy. *Level 4, Grade D, GPP*

Contraception should be discussed with the patient. The patient must be routinely reminded to avoid pregnancy. *Level 4, Grade D, GPP*

Screen for symptoms of depression before and during treatment and inform the patient of possible risk of depression and suicidal behaviors. *Level 4, Grade D, GPP*

For long-term therapy, monitoring of laboratory parameters (e.g., serum cholesterol, triglycerides, liver function tests) every six months is recommended. *Level 4, Grade D, GPP*

Maintenance with topical retinoids is recommended for at least several months after treatment cessation with oral isotretinoin. Addition of BPO might be required for

3-Hormonal: (for female)

-Combined oral contraceptives (COCs) are effective in the treatment of both noninflammatory and inflammatory acne
- they are suitable for long-term therapy because they have no potential to induce bacterial resistance and represent an alternative to systemic antibiotics.
- recommended in the following situations: presence of severe seborrhea; worsening in the premenstrual period; presence of endocrine changes; persistent recalcitrant inflammatory acne in which standard treatments have failed.
-cyproterone acetate, spironolactone, drospirenone and flutamide.

Table 1. Treatment algorithm for the management of acne vulgaris in adolescents and young adults

	Mild acne	Moderate acne	Severe acne
First-line treatment	BP or topical retinoid -or- Topical combination therapy: BP with retinoid or BP with antibiotic or BP with retinoid and antibiotic	Topical combination therapy: BP with retinoid or BP with antibiotic or BP with retinoid and antibiotic -or- Oral antibiotic with topical retinoid and BP -or- Oral antibiotic with topical retinoid and topical antibiotic	Oral antibiotic + Topical combination therapy: BP + retinoid or BP with antibiotic or BP with retinoid and antibiotic -or- Oral isotretinoin
Alternative treatment	Add retinoid or BP -or- Consider alternate retinoid -or- Consider topical dapsone	Consider alternate combination therapy -or- Consider change in oral antibiotic -or- Add combined COC or oral spironolactone (female patients) -or- Consider oral Isotretinoin	Consider change in oral antibiotic -or- Add combined COC or oral spironolactone (female patients) -or- Consider oral Isotretinoin

Reproduced with permission from American Academy of Dermatology (AAD) guidelines [2▪▪]. BP, benzoyl peroxide; COC, combined oral contraceptive pill.

Summary of recommendations for the management of pediatric patients

Topical treatment with benzoyl peroxide is safe and effective and can be used as monotherapy or in topical combination products for mild acne or in regimens of care for acne of all types and severities. *Level 4, Grade A*

Fixed-dose combination topical therapies might be useful in regimens of care for all types and severities of acne *Level 1−, Grade A for adolescents, Grade B for preadolescents and younger*

Oral isotretinoin is recommended for severe, scarring, and/or refractory acne in adolescents and can be used in younger patients *Level 1+, Grade A for adolescents, Grade B for preadolescents and younger*

A low starting concentration (i.e., 2.5% BPO) is recommended as children are more prone to irritation. It might minimize development of antibiotic-resistant *P. acnes* when used with topical or systemic antibiotics *Level 4, Grade D*

Treatment choices for pregnant and lactating women

TREATMENT		EVIDENCE LEVEL
First-line	1. Antibiotics (erythromycin, clindamycin) 2. Benzoyl peroxide 3. Azelaic acid 4. Salicylic acid	Level 2– to 3, Grades C to D
Second-line	1. Oral macrolides (azithromycin) 2. Cephalexin	Level 3, Grade D
Third-line	1. Chemical peel (glycolic acid) 2. Light-based therapy (intense pulsed light, blue or red light phototherapy) in addition to topical and/or oral therapies	Level 3, Grade D

Summary recommendation for treatment of acne scars.

Fractional resurfacing is recommended to treat acne scars. *Level 1+, Grade B*

For ice pick scars, it might be necessary to excise or punch out the lesion or perform chemical reconstruction. For box car scar, an excision, punch elevation/excision, or subcision can be performed. For rolling scars, subcision can be performed. *Level 2+, Grade C*

ROSACEA
(ACNE ROSACEA)

-Is a common chronic inflammatory skin disease of the central facial skin and is of unknown origin

- Epidemiology:

-Affecting approximately 10% of the population

-More in Fitzpatrick skin type I or II and from northern European or Celtic ancestry

-Females = males

PATHOGENESIS

- The pathogenesis of rosacea is a complex interplay of genetic, immunologic, and neurovascular factors
- Genetic predisposition (38%have a relative).
- Sunlight and heat.
- Constitutional predispostion to flushing & blushing.
- Demodex folliculorum mite.
- H. Pylori infection.

TRIGGERS

- Hot or cold temperatures or Wind.
- Hot drinks, Caffeine, Spicy food, Alcohol.
- Exercise.
- Emotions.
- Topical products that irritate the skin and decrease the barrier.
- Medications that cause flushing and photosensitivity (amiodarone, nicotinamide).

CLINICAL FEATURES

Patient history

-Does the patient describe experiencing a warm sensation over the face, or flushing?

-Does the patient recognize his or her own redness, or erythema?

-Burning or stinging in association with skin care products.

-History of acne diagnosis and failed acne treatments

-Triggers, such as heat, spicy foods, and stress.

-Family history.

-Recognition of signs and symptoms of rosacea

CLINICAL FEATURES

Examination:

classification of rosacea:

A-Erythemato-telangiectatic rosacea:

-Flushing

-Persistent redness of the central face

-Telangiectasias

-Very sensitive skin, and may feel as if their skin stings or burning sensation

B-PAPULOPUSTULAR ROSACEA:

- May occur along with the facial redness and flushing of rosacea subtype
- Papules and/or pustules that come and go, combined with transient or persistent facial redness
- On the central face: burning and stinging; small visible blood vessels (telangiectasia); raised, scaly red patches known as plaques

C-GRANULOMATOUS ROSACEA

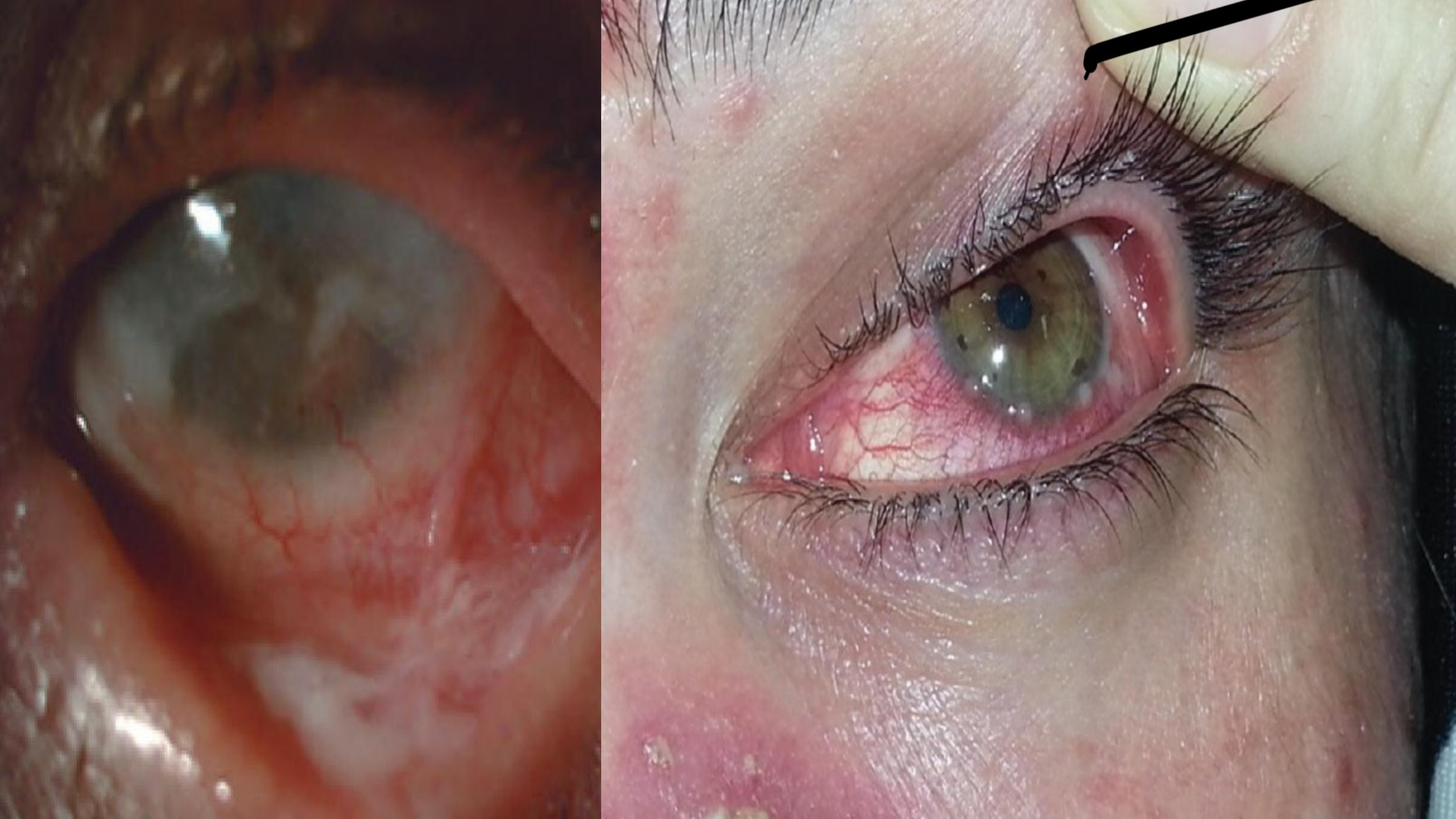
- Rare
- Characterized by erythematous papules and plaques
- Histological examination showed granulomatous dermatitis with the presence of Demodex folliculorum

D-PHYMATOUS ROSACEA

- Phymatous rosacea can affect nose (rhinophyma), chin (gnatophyma), forehead (metophyma), ears (otophyma) and eyelids (blepharophyma).
- shows marked skin thickenings and irregular surface nodularities
- Telangiectasia
- Fibrosis and increased volume of sebaceous glands

E-OCULAR ROSACEA

- Ocular rosacea range from minor irritation to sever inflammatory keratitis.
- Ocular findings include:
- lid margin and conjunctival telangiectasias
- Blepharoconjunctivitis
- Eyelid thickening, eyelid crusts and scales
- Punctate epithelial erosions, corneal infiltrates, corneal ulcers, corneal scars, and vascularization.



MANGMENT

A-General measures

- Chronic relapsing nature
- Avoid recognized triggers
- Change work(sailars)
- Gentle skin care regimen to maintain skin hydration and barrier function
- Gentle, nonalkaline, fragrance-free, emollient cleanser once per day in the evening
- Light, water-based cosmetics (but powders are preferable to creams)
- Photoprotection

Trigger	Therapeutic regimen
Sun exposure, wind, heavy exercise, alcohol consumption, emotional stress, skin care products and cosmetics (formaldehyde), medication, and microorganisms	Avoidance, anti-inflammatory therapy, and antibiotics
Sun exposure, emotional stress, alcohol, exercise, microorganisms/gut microbiome, topicals, and medication	Avoidance, 30+ SPF sunscreen, and brimonidine
Emotional stress, heat/hot weather/hot steam, exercise, alcohol, and spicy food (capsaicin)	Avoidance and brimonidine

B-Topical therapies

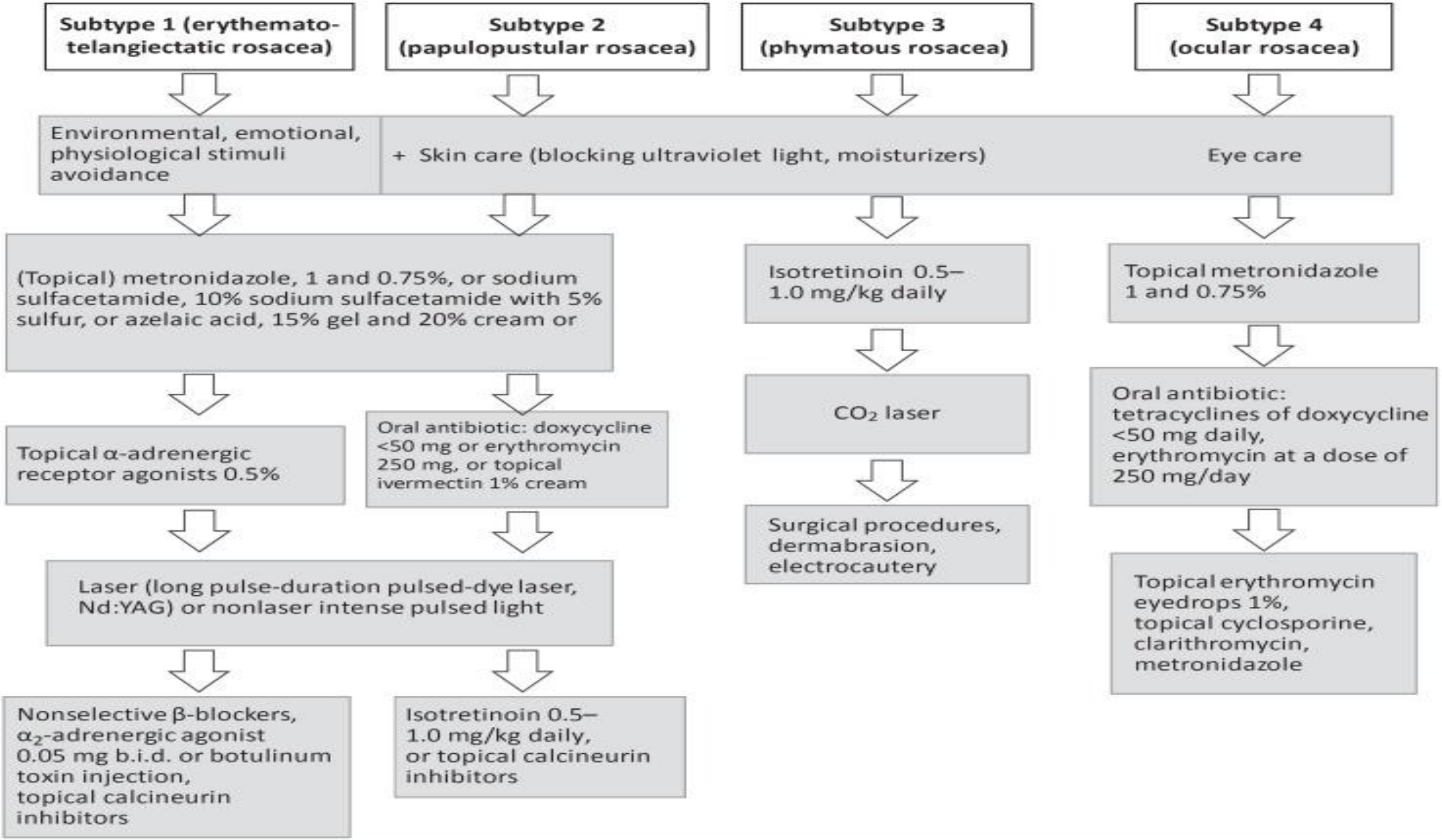
- Metronidazole 0.75% (gel, cream, and lotion; twice-daily application), metronidazole 1% (gel and cream; once-daily application).
- Azelaic acid 15% gel (twice-daily)
- Ivermectin1% cream (once-daily application)
- Brimonidine tartrate 0.33% gel(MIRVASO Gel): (topical treatment of persistent facial erythema associated with rosacea. Brimonidine gel is a selective α2-adrenergic receptor agonist with vasoconstrictive activity)
- Permethrin
- Topical calcineurin inhibitors

C-Systemic therapies

- -Doxycycline:40mg daily
- -Oral isotretinoin therapy:(0.3 mg/kg daily) for how long?

D-Physical modalities

- -Pulsed dye laser (PDL 585–595 nm) for telangiectasia
- -CO2 laser therapy for rhinophyma


Subtype 1 (erythemato-telangiectatic rosacea)
Subtype 2 (papulopustular rosacea)
Subtype 3 (phymatous rosacea)
Subtype 4 (ocular rosacea)
Environmental, emotional, physiological stimuli avoidance
+ Skin care (blocking ultraviolet light, moisturizers)
Eye care
(Topical) metronidazole, 1 and 0.75%, or sodium sulfacetamide, 10% sodium sulfacetamide with 5% sulfur, or azelaic acid, 15% gel and 20% cream or
Isotretinoin 0.5–1.0 mg/kg daily
Topical metronidazole 1 and 0.75%
Topical α-adrenergic receptor agonists 0.5%
Oral antibiotic: doxycycline <50 mg or erythromycin 250 mg, or topical ivermectin 1% cream
CO_2 laser
Oral antibiotic: tetracyclines of doxycycline <50 mg daily, erythromycin at a dose of 250 mg/day
Surgical procedures, dermabrasion, electrocautery
Laser (long pulse-duration pulsed-dye laser, Nd:YAG) or nonlaser intense pulsed light
Topical erythromycin eyedrops 1%, topical cyclosporine, clarithromycin, metronidazole
Nonselective β-blockers, α_2-adrenergic agonist 0.05 mg b.i.d. or botulinum toxin injection, topical calcineurin inhibitors
Isotretinoin 0.5–1.0 mg/kg daily, or topical calcineurin inhibitors

HIDRADENITIS SUPPURATIVA (HS) (ACNE INVERSUS)

Chronic inflammatory follicular occlusive disease predominantly involving the intertriginous areas

EPIDEMIOLOGY

- Prevalence rates for HS range from 0.03 to 4.1
- These numbers are likely underestimated because of under-reporting and misdiagnosis
- Female-predominance with a 3:1
- Onset is commonly between puberty and age 40
- Usually in adolescents (0.57%) and adults (0.47%) than in children

PATHOPHYSIOLOGY OF HS

-Terminal follicular hyperkeratosis, hyperplasia of the follicular epithelium and perifolliculitis.

-Cyst formation, followed by rupture of the hair follicle

-Induces an inflammatory response and subsequent formation of abscess, sinus tracts, fibrosis and scars.

-Worsened by secondary infection

-Mediated by tumor necrosis factor (TNF)-α, IL-23/T-helper (Th) 17 and IL-12/Th1 pathways

-Genetics: One-third of patients with HS report a positive family history,

-Smoking: More than 70 percent of patients with HS are smokers, and a strong association between smoking and HS has been demonstrated

-Obesity: is a risk factor for HS

CLINICAL FEATURES OF HS

- The diagnosis of HS relies on the clinical features
- Typically: recurrent, painful, inflamed nodules, most commonly in the axillae and/or inguinal areas
- To diagnosed HS: requires the following three criteria:

1. Typical morphology (nodules, abscesses, sinus tracts, scars)
2. Characteristic distribution or typography of lesions (intertriginous areas, axillae, inframammary folds, groins, buttocks, perianal and perineal areas)
3. A relapsing, chronic disease course.

STAGING OF HS

Hurley staging of HS

Stage I (mild)	Abscess formation, single or multiple, without sinus tracts and cauterization.
Stage II (moderate)	Recurrent abscesses with tract formation and cicatrization, single or multiple, widely separated lesions.
Stage III (severe)	Diffuse or near-diffuse involvement, or multiple interconnected tracts and abscesses across the entire area.

COMORBIDITY HS

- High prevalence rates of cardiovascular disease risk factors: including metabolic syndrome and atherosclerosis
- Crohn’s disease and pyoderma gangrenosum
- Depression

COMPLICATIONS

- Secondarily infections: Erysipelas and sepsis
- Extensive fibrosis and scarring
- Lymphedema
- Squamous cell carcinoma

TREATMENT

A-General measures:

-Weight reduction

-Smoking

-Management of pruritus

-Friction

-Local antiseptics

B-Topical treatments

-Clindamycin

-Fusidic acid

-Benzoyl peroxide associated to clindamycin

-Intralesional steroid

C-Systemic treatment

-Antibiotics (minocycline , doxycycline and Rifampicin associated to clindamycin

-Isotretinoin or Acitretin

-Biologic treatmen (infliximab, adalimumab)

D-SURGICAL TREATMENT

-Incision and drainage of abscess better avoided

-Excision of sinus tracts and chronic nodules

-Complete excision of the area with or without grafting.

-CO_2 laser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THANK YOU