Acne and Acne related disorders

By;

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Acne vulgaris

-Acne vulgaris is a chronic disease originating within the pilosebaceous follicles.

-Four interrelated processes are involved:

sebum overproduction, abnormal shedding of follicular epithelium, follicular colonization by Cutibacterium acnes (previously called Propionibacterium acnes), and inflammation

Pathogenesis

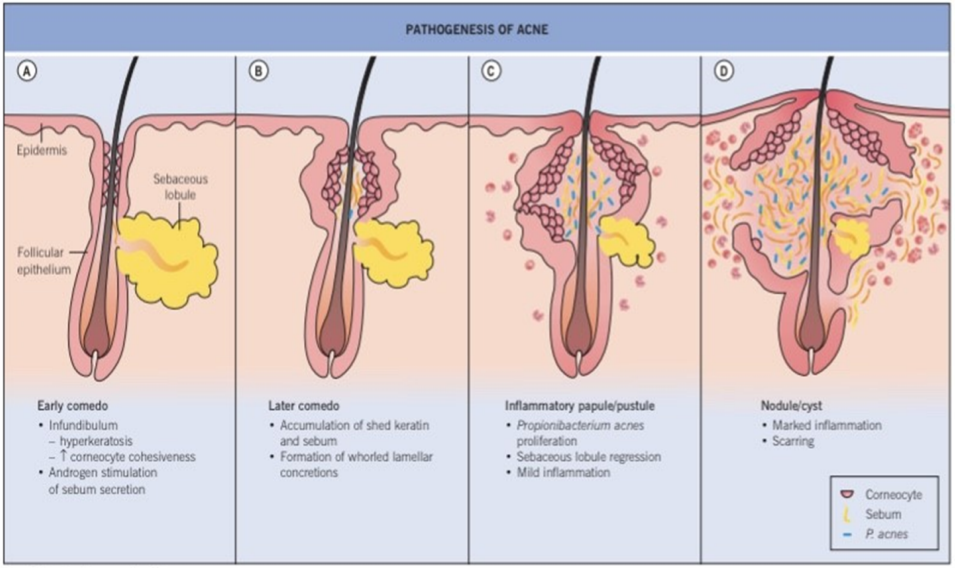
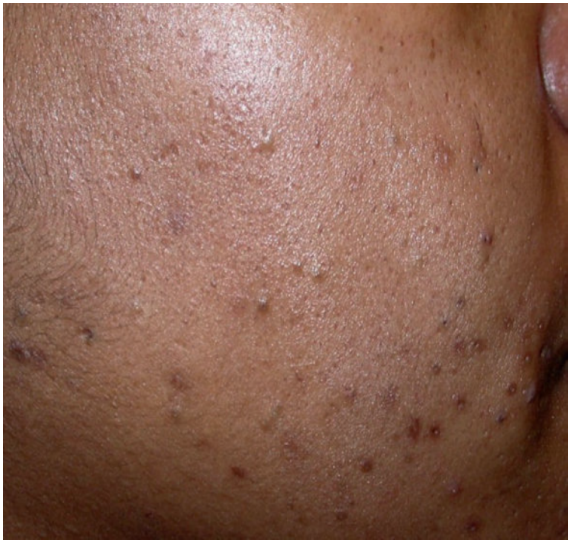
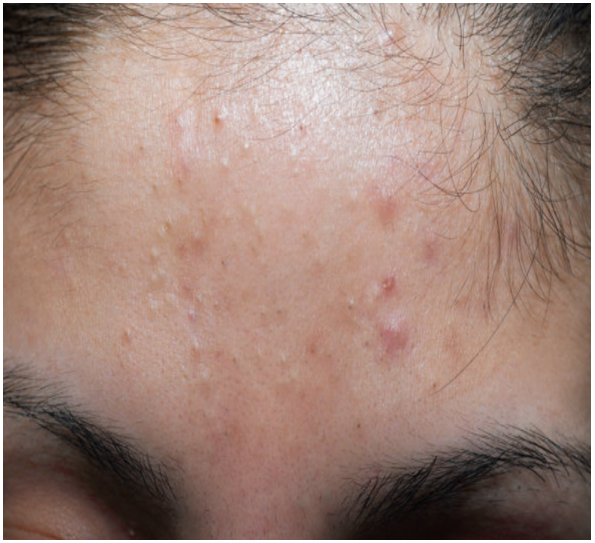


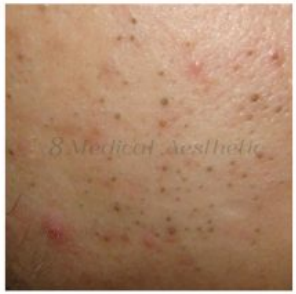
Fig. 36.1 Pathogenesis of acne.

Clinical types (Comedonal acne)
open (blackheads) and closed (whiteheads) comedones

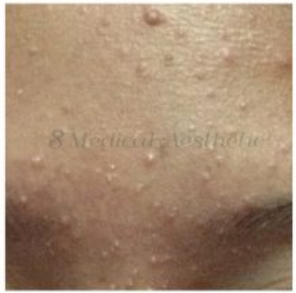




COMEDONAL ACNE

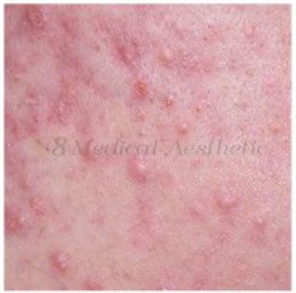


Blackhead (Open comedome)

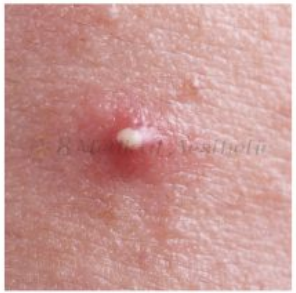


Whitehead (Closed comedome)

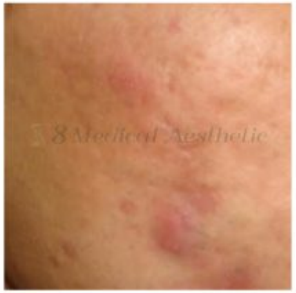
INFLAMMATORY ACNE



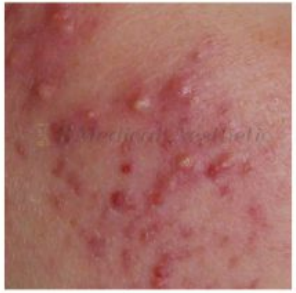
Papules



Pustules

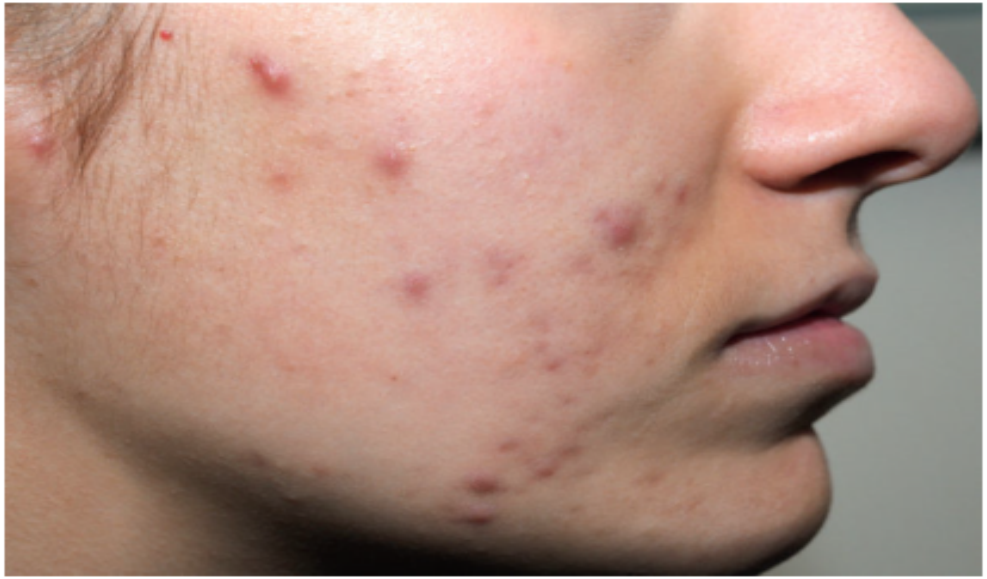


Nodule

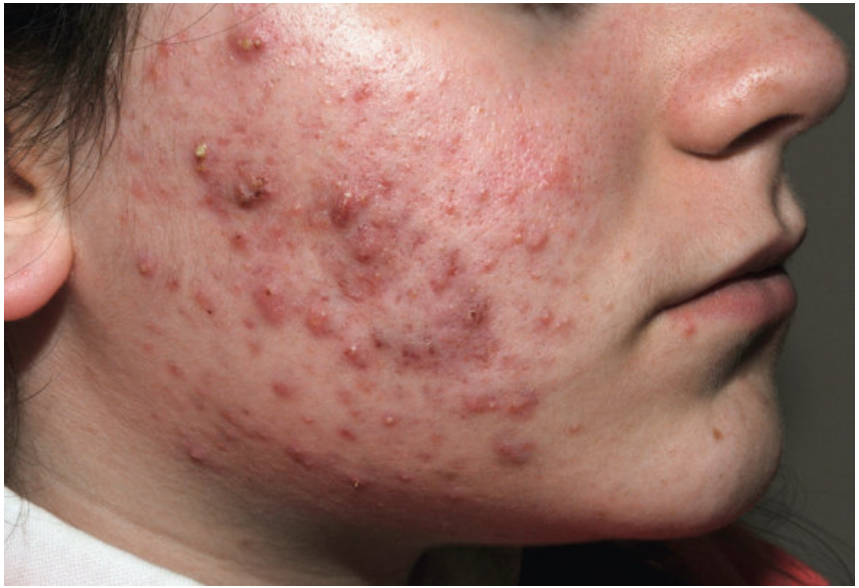


Cysts

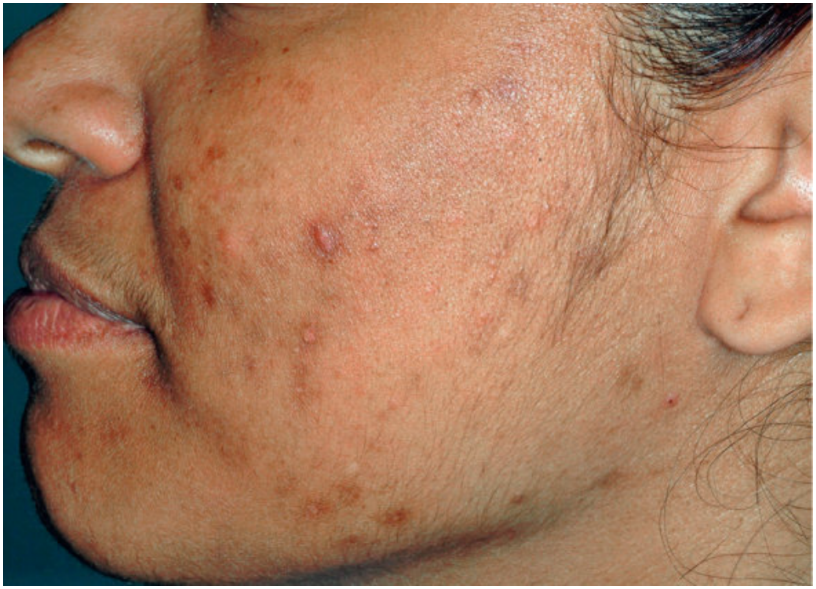
Moderate Acne

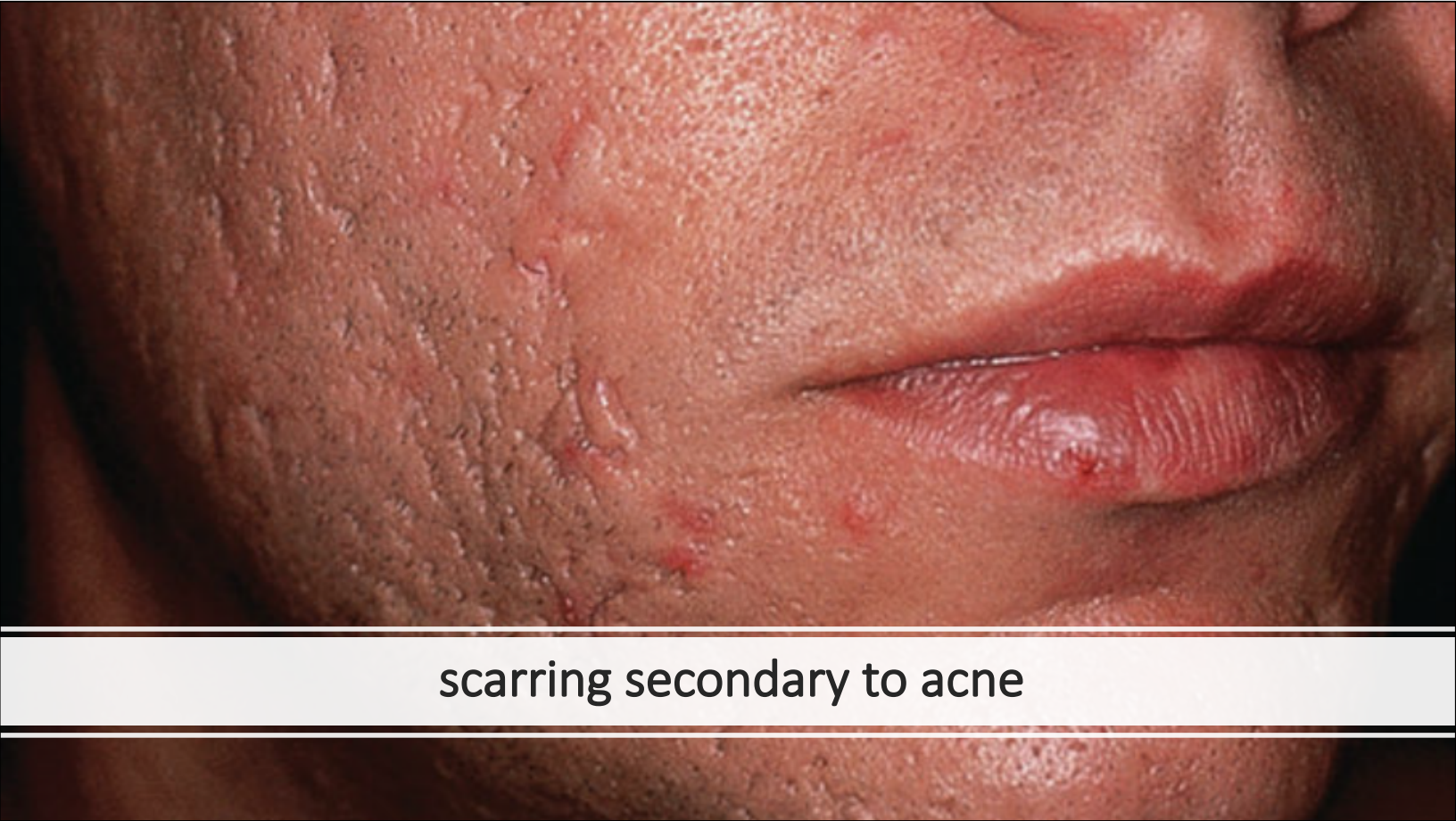


Moderate to severe acne vulgaris. Multiple coalescing papules, pustules, and small nodules



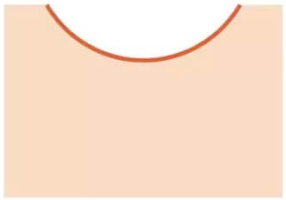
Post-inflammatory hyperpigmentation secondary to acne. Such pigmentary changes are most common in patients with darker skin colors



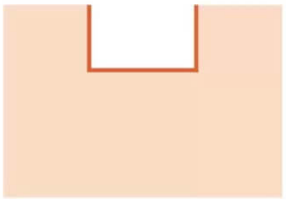


scarring secondary to acne

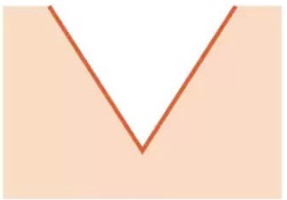
Types of acne scars



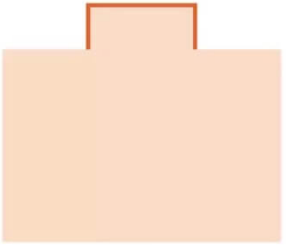
Rolling Scars



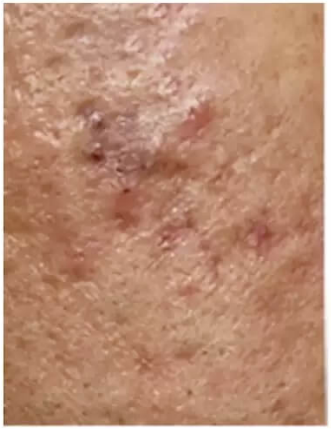
Boxed Scars



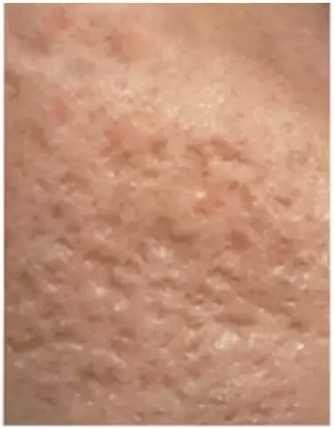
Icepick Scars



Hypertrophic Scars

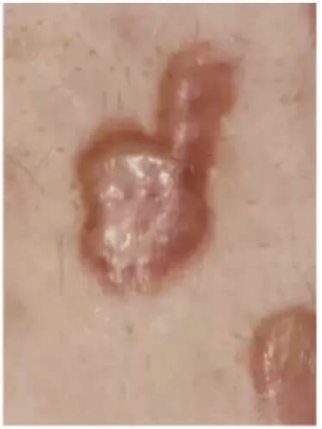


Rolling Scar

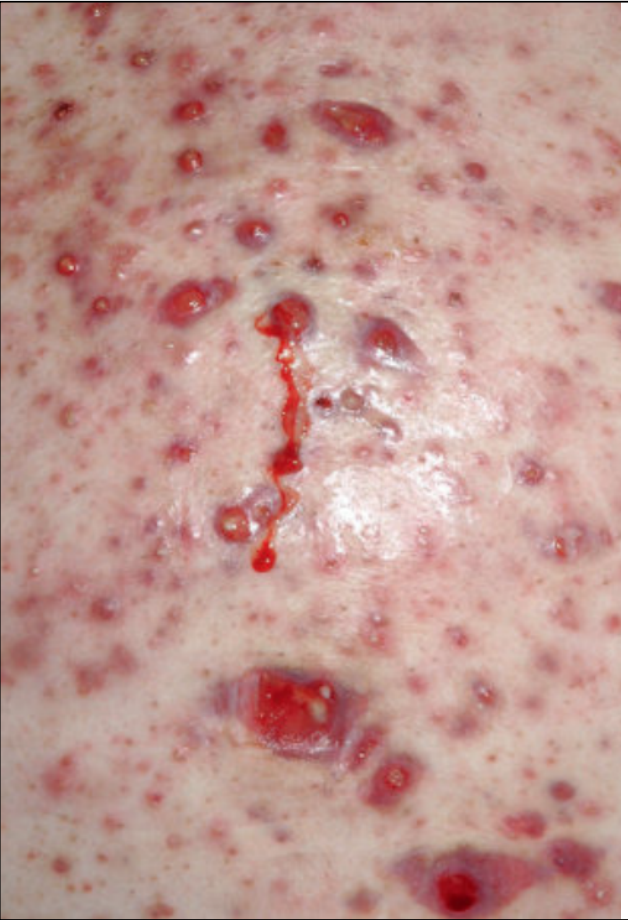


Boxcar Scar

Ice Pick Scar



Keloid (Hyperthropic)



Acne Variants

- **Acne fulminans :**

- Is the most severe form of acne and is characterized by the abrupt development of nodular and suppurative acne lesions in association with systemic manifestations (Fever , arthritis , leukocytosis

)

- Synovitis , acne , pustulosis, hyperostosis, and osteitis (SAPHO) syndrome

- Recommended treatment of acne fulminans : prednisone 0.5–1 mg/kg/day as monotherapy for at least 2–4 weeks, followed by initiation of low-dose isotretinoin (e.g. 0.1 mg/kg/day) after the acute inflammation subsides

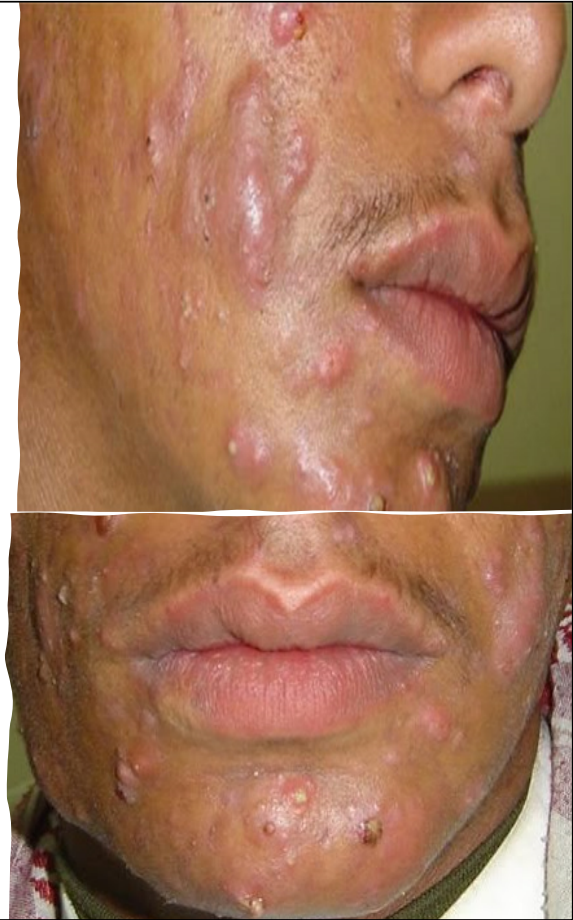
Acne Variants

- **Acne conglobata :**

- Acne conglobata is a severe form of nodulocystic acne that may have an eruptive onset but without systemic manifestations

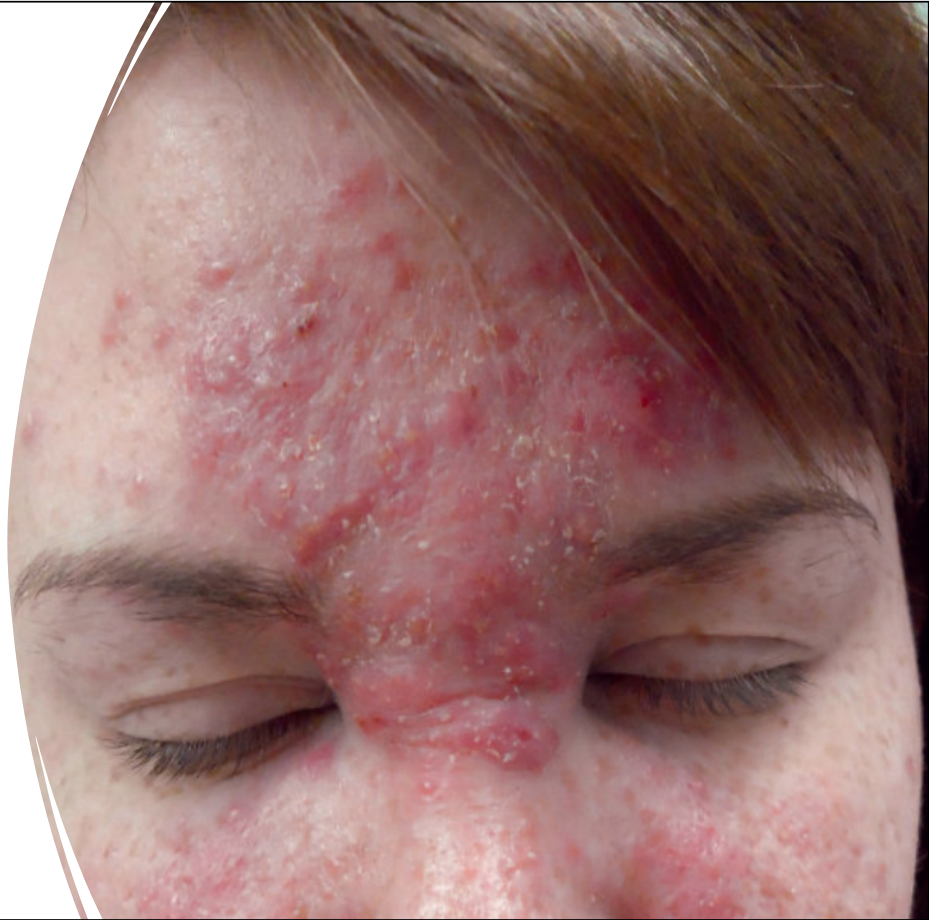
- This recalcitrant acne variant is part of the follicular occlusion tetrad ; dissecting cellulitis of the scalp, hidradenitis suppurativa, and pilonidal sinus

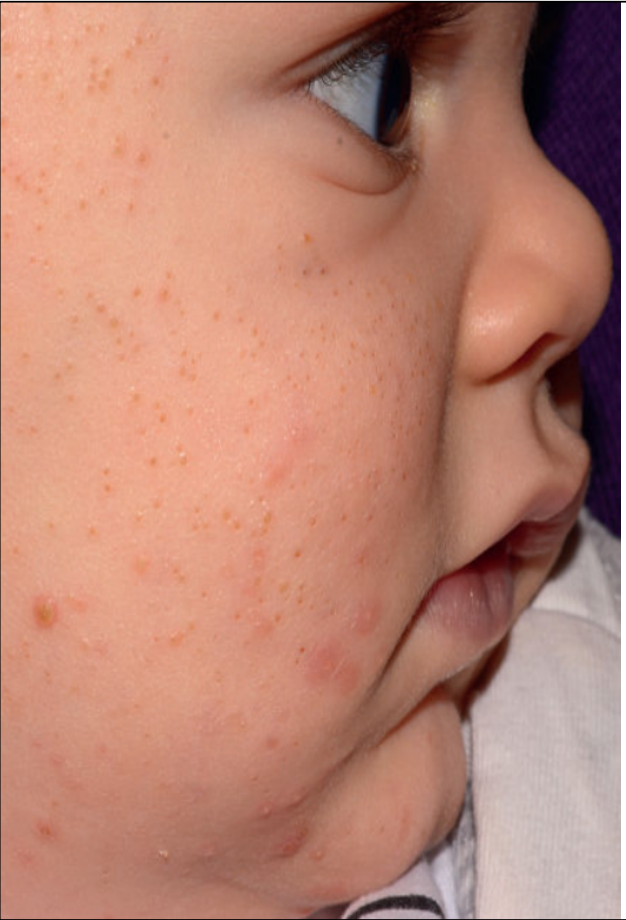
- The association of sterile pyogenic arthritis, pyoderma gangrenosum, and acne conglobata can occur in the context of an autosomal dominant autoinflammatory disorder referred to as PAPA syndrome



Acne Variants

Solid facial edema





Acne Variants

- **Neonatal acne (neonatal cephalic pustulosis) :**

- The pathogenesis of neonatal acne has been the subject of debate.

-An inflammatory response to Malassezia has been proposed as the etiology by some investigators, leading to a renaming of the disorder as “neonatal cephalic pustulosis”.

- Treatment : topical antifungal (e.g. ketoconazole 2% cream)

Other acne variants

-Acne excoriée

-Acne associated with endocrinologic abnormalities (PCOS , cushing syndrome)

-Drug-induced acne: lithium , hydantoin , isoniazid, glucocorticoids, OCP, iodides , bromides, androgens, high dose vit b complex

-Occupational acne (tar, chloracne, oils)

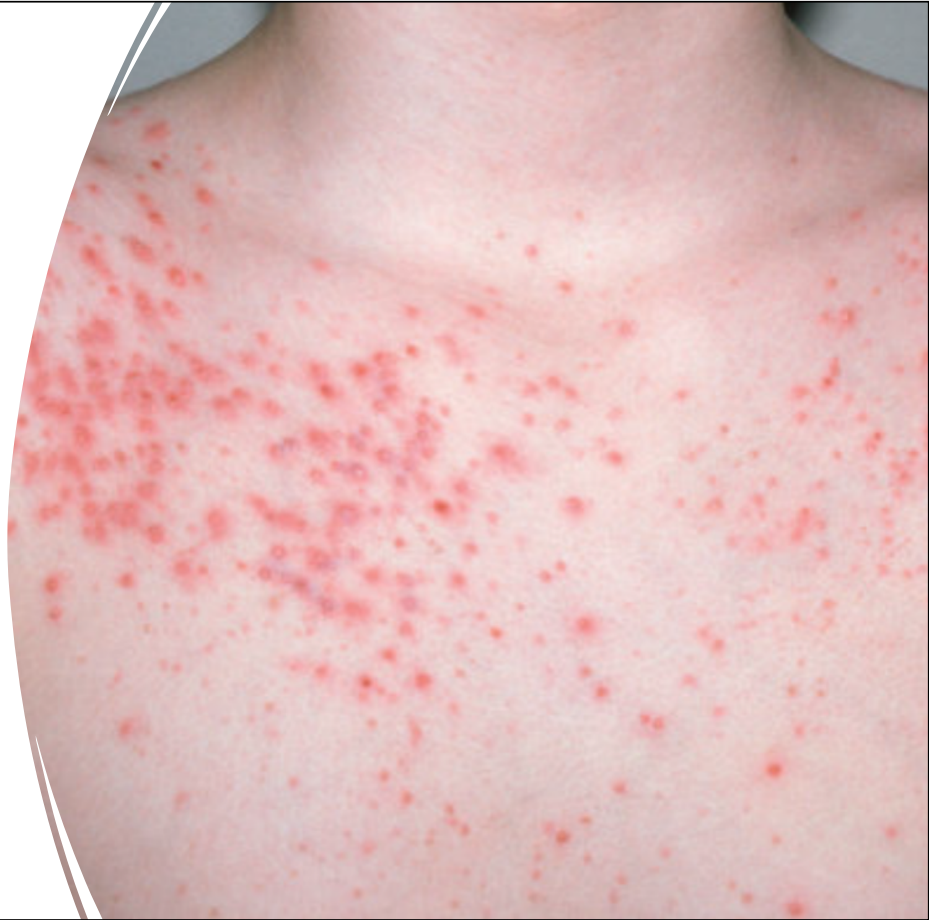
-Acne cosmetica

-Tropical acne

-Radiation acne

Drug induced (Steroid induced) acne

- No comedones
- Monomorphous
- Predilection to chest and back



Treatment

COMMON THERAPIES FOR ACNE VULGARIS	
Topical therapy	**Systemic therapy**
Benzoyl peroxide (1) Antibiotics – Clindamycin (1) – Erythromycin (1) – Sodium sulfacetamide/sulfur (1) Retinoids (1) Salicylic acid (2) Azelaic acid (1) Dapsone (1)	Oral minocycline (1) Oral doxycycline (1) Oral tetracycline (1) Oral erythromycin (1) Oral azithromycin (1) Oral contraceptives (1) Oral spironolactone (1) Oral isotretinoin (1)

Table 36.5 Common therapies for acne vulgaris. Key to evidence-based support: (1) prospective controlled trial; (2) retrospective study or large case series; (3) small case series or individual case reports.

Treatment

TREATMENT OF ACNE VULGARIS					
	Mild		Moderate		Severe
	Comedonal	Papular/pustular	Papular/pustular	Nodular	Conglobata/fulminans
First line	Topical retinoid	Topical retinoid + topical antimicrobial*	Oral antibiotic† + topical retinoid ± BPO	Oral antibiotic† + topical retinoid ± BPO	Oral isotretinoin (may require concurrent oral corticosteroid, esp. for acne fulminans)
Second line	Alternative topical retinoid Azelaic acid Salicylic acid	Alternative topical retinoid + alt. topical antimicrobial Azelaic acid Salicylic acid Topical dapsone	Alternative oral antibiotic‡ + alt. topical retinoid ± BPO/azelaic acid	Oral isotretinoin Alternative oral antibiotic† + alt. topical retinoid ± BPO/azelaic acid	Dapsone High-dose oral antibiotic + topical retinoid + BPO
Options for female patients			Oral contraceptive/ antiandrogen	Oral contraceptive/ antiandrogen	Oral contraceptive/ antiandrogen
Surgical options	Comedo extraction		Comedo extraction	Comedo extraction Intralesional corticosteroid	Intralesional corticosteroid
Refractory to treatment		Exclude Gram-negative folliculitis	Exclude Gram-negative folliculitis		
			Female patient: exclude adrenal or ovarian dysfunction Exclude use of anabolic steroid or other acne-exacerbating medications		
Maintenance			Topical retinoid ± BPO	Topical retinoid ± BPO	Topical retinoid ± BPO

*Antibiotic (e.g. clindamycin, erythromycin or sodium sulfacetamide) and/or BPO.
†Tetracycline derivatives.
‡e.g. azithromycin or trimethoprim–sulfamethoxazole.

Table 36.4 Treatment of acne vulgaris. Lack of response should also lead the clinician to consider non-compliance with treatment or another diagnosis. In general, monotherapy with a topical or oral antibiotic should be avoided. alt, alternative; BPO, benzoyl peroxide. *Adapted from Gollnick H, Cunliffe W, Berson D, et al. J Am Acad Dermatol. 2003;49(1 Suppl):S1–37.*

Tetracyclines

S/E:

-GI upset

-Photosensitivity : more with doxycycline

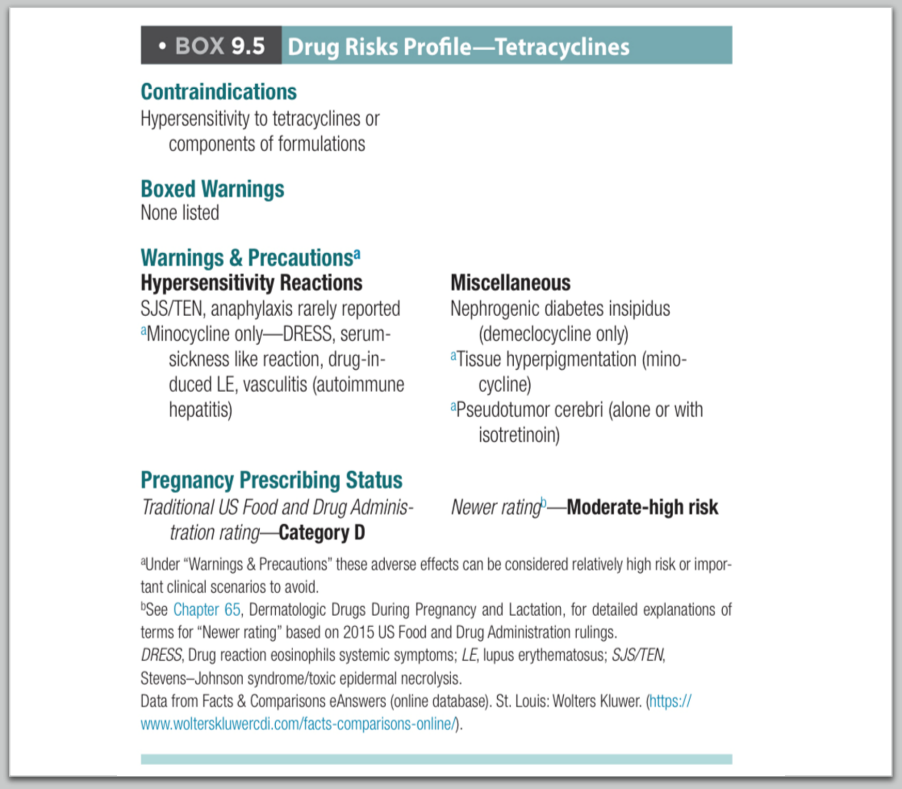
-Dyspigmentation , Skin , teeth, scar site mainly with minocycline

-Drug induced Lupus mainly minocycline

-Pseudotumor cerebri

-Use in pregnancy: CI in 2nd & 3rd trimester AE on fetal teeth and bones

-CI in children less than 9 yrs old d.t yellow discoloration of teeth , affects the bone development



• BOX 9.5 Drug Risks Profile—Tetracyclines

Contraindications

Hypersensitivity to tetracyclines or components of formulations

Boxed Warnings

None listed

Warnings & Precautions[a]

Hypersensitivity Reactions

SJS/TEN, anaphylaxis rarely reported

[a]Minocycline only—DRESS, serum-sickness like reaction, drug-induced LE, vasculitis (autoimmune hepatitis)

Miscellaneous

Nephrogenic diabetes insipidus (demeclocycline only)

[a]Tissue hyperpigmentation (minocycline)

[a]Pseudotumor cerebri (alone or with isotretinoin)

Pregnancy Prescribing Status

Traditional US Food and Drug Administration rating—**Category D**

Newer rating[b]—**Moderate-high risk**

[a]Under "Warnings & Precautions" these adverse effects can be considered relatively high risk or important clinical scenarios to avoid.

[b]See Chapter 65, Dermatologic Drugs During Pregnancy and Lactation, for detailed explanations of terms for "Newer rating" based on 2015 US Food and Drug Administration rulings.

DRESS, Drug reaction eosinophils systemic symptoms; *LE*, lupus erythematosus; *SJS/TEN*, Stevens–Johnson syndrome/toxic epidermal necrolysis.

Data from Facts & Comparisons eAnswers (online database). St. Louis: Wolters Kluwer. (https://www.wolterskluwercdi.com/facts-comparisons-online/).

Macrolides

• BOX 9.3 Drug Risks Profile—Macrolides

Contraindications

Erythromycin—dihydroergotamine, ergotamine, pimozide[a]

Azithromycin—(a) hypersensitivity telithromycin, (b) cholestatic jaundice or hepatic dysfunction with prior azithromycin

Clarithromycin—(a) cholestatic jaundice with prior clarithromycin, (b) hx QTc prolongation, torsades, (c) dihydroergotamine, ergotamine, pimozide

Boxed Warnings

None listed

Warnings & Precautions[a]

Cardiovascular

[a]Altered cardiac conduction, QTc prolongation, Hx torsades de pointes (uncorrected hypomagnesemia, hypokalemia)

Clarithromycin possibly a risk in patients with CAD

Hypersensitivity Reactions

Urticaria, angioedema, SJS/TEN, DRESS, vasculitis (HSP)

GI

[a]Elevated LFT/hepatitis (esp. clarithromycin), usually reversible upon discontinuation

[a]Caution azithromycin patients significant liver impairment

[a]CDAD (has been reported to occur 2 months after d/c rx)

Neurologic

May aggravate weakness in patients with myasthenia gravis

Pregnancy Prescribing Status

Traditional US Food and Drug Administration rating—category B (Clarithromycin C)

Newer rating [b]—compatible

[a]Under "Warnings & Precautions" these adverse effects can be considered relatively high risk or important clinical scenarios to avoid.

[b]See Chapter 65, Dermatologic Drugs During Pregnancy and Lactation, for detailed explanations of terms for "Newer rating" based on 2015 US Food and Drug Administration rulings.

CAD, Coronary artery disease; *CDAD*, *clostridium difficile*-associated disease; *DRESS*, drug reaction eosinophils systemic symptoms; *GI*, gastrointestinal; *HSP*, Henoch-Schonlein purpura; *LFT*, liver function tests; *SJS/TEN*, Stevens–Johnson syndrome/toxic epidermal necrolysis.

Data from Facts & Comparisons eAnswers (online database). St. Louis: Wolters Kluwer. (https://www.wolterskluwercdi.com/facts-comparisons-online/).

Isotretinoin

• BOX 22.2 Drug Risks Profile—Isotretinoin

Contraindications

Hypersensitivity to acitretin, other retinoids, components of formulation (retinoid cross-reactivity data limited)

Sensitivity to parabens (Zenatane only)

Pregnant or potentially pregnant women

Boxed Warnings

Women of childbearing potential must follow all elements of iPLEDGE program (see text)

Major risk of retinoic acid embryopathy in early pregnancy (see text)

Warnings & Precautions[a]

Teratogenicity

[a]Avoid blood donation during rx and ≥ 1 month after rx

Metabolic

[a]Lipid effects—↑ triglycerides/cholesterol, ↓ HDL levels

Glucose control may be impaired

Hepatic

Liver effects—as with acitretin, but much less likely

Musculoskeletal

[a]Musculoskeletal—myopathy, arthralgia

[a]Extreme exertion—rhabdomyolysis reported ([a]renal)

[a]Growth effects—DISH, premature epiphyseal closure

Bone mineral density loss (caution concurrent corticosteroids)

Hematologic

[a]Neutropenia, rare agranulocytosis

Neurologic

[a]Pseudotumor cerebri (especially concurrent tetracyclines)

Psychiatric

[a]Depression, suicide, psychosis

Visual & Hearing

[a]Visual effects—↓ night vision, dryness, ↓ tolerance contacts

Tinnitus and impaired hearing reported

Gastrointestinal

[a]Pancreatitis (especially with severe hypertriglyceridemia)

Inflammatory bowel disease (largely disproven)

Cutaneous

Avoid skin resurfacing procedures at least 6 months post rx

Hypersensitivity Reactions

EM, SJS/TEN rarely reported

Pregnancy Prescribing Status

Traditional US Food and Drug Administration rating—**Category X**

Newer rating [b]—**CONTRAINDICATED**

[a]Under "Warnings & Precautions" these adverse effects can be considered relatively high risk or important clinical scenarios to avoid.

[b]See Chapter 65, Dermatologic Drugs During Pregnancy and Lactation, for detailed explanations of terms for "Newer rating" based on 2015 US Food and Drug Administration rulings.

DISH, Diffuse interstitial skeletal hyperostosis; *EM*, erythema multiforme; *HDL*, high density lipoprotein; *SJS/TEN, Stevens-Johnson Syndrome/Toxic epidermal necrolysis.*

Data from Facts & Comparisons eAnswers (online database). St. Louis: Wolters Kluwer. (https://www.wolterskluwercdi.com/facts-comparisons-online/).

Isotretinoin

• BOX 22.7 Relatively Common Minor Adverse Effects Caused by Systemic Retinoids

Cutaneous
Xerosis
Palmoplantar, digital desquamation
'Retinoid dermatitis'
Photosensitivity
Pyogenic granulomas
Stickiness sensation—palms, soles
Staphylococcus aureus infections

Hair
Telogen effluvium
Abnormal hair texture, dryness

Nails
Fragility with nail softening
Paronychia
Onycholysis

Ocular
Dry eyes with visual blurring
Blepharoconjunctivitis
Photophobia

Oral
Cheilitis—especially lower lip
Dry mouth
Sore mouth and tongue

Nasal
Nasal mucosa dryness
Decreased mucus secretion
Epistaxis

Musculoskeletal
Arthralgias
Myalgias
Fatigue, muscle weakness
Tendinitis

Neurologic
Headache
Mild depression

Gastrointestinal
Nausea
Diarrhea
Abdominal pain

• BOX 22.4 Potentially Serious Adverse Effects Caused By Systemic Retinoids

Teratogenicity
Retinoic acid embryopathy
Spontaneous abortions

Ocular
Reduced night vision
Persistent dry eyes
Staphylococcus aureus infections

Bone
Diffuse skeletal hyperostosis
Osteophyte formation
Premature epiphyseal closure

Lipids
Hypercholesterolemia[a]
Hypertriglyceridemia

Gastrointestinal
Inflammatory bowel disease flare
Pancreatitis[b] (because of ↑ triglycerides)

Hepatic
Transaminase elevations
Toxic hepatitis (rarely)

Other Endocrine Effects
Hypothyroidism (central)[b]
Diabetes mellitus (controversial)

Hematologic
Leukopenia[b]
Agranulocytosis[b]

Neurologic
Pseudotumor cerebri
Depression—suicidal ideation

Muscle
Myopathy

[a]Theoretically increased coronary artery disease risk with long-term therapy.
[b]Primarily a risk with bexarotene (Targretin); pancreatitis also rarely reported with isotretinoin.

• BOX 22.5 Guidelines for Pregnancy Monitoring

General Requirements

Must have had two negative urine or serum pregnancy tests with a sensitivity of at least 25 mIU/mL before receiving the initial isotretinoin prescription.

The second pregnancy test should be done during the first 5 days of the menstrual period immediately preceding the beginning of isotretinoin therapy.

For patients with amenorrhea, the second test should be done at least 11 days after the last act of unprotected sexual intercourse (without using two effective forms of contraception).

Each month of therapy, the patient must have a negative result from a urine or serum pregnancy test.

Must commit to two forms of contraception (at least one primary) for at least 1 month before initiation of isotretinoin therapy, during isotretinoin therapy, and for 1 month after discontinuing isotretinoin therapy.

Additional Guidelines

Effective forms of contraception include both primary and secondary forms of contraception.

Primary forms of contraception include: tubal ligation, partner's vasectomy, intrauterine devices, birth control pills, and injectable/implantable/insertable hormonal birth control products.

Secondary forms of contraception include diaphragms, latex condoms, and cervical caps; each must be used with a spermicide.

Patients do not need to commit to two forms of contraception if they are abstinent or have undergone hysterectomy

Rosacea

-A chronic skin rash involving the central face

-Starts between the age of 30 and 60 years.

-It is a common skin condition in those with fair skin

Pathogenesis

-There are several theories regarding the cause of rosacea, including genetic, environmental, vascular, and inflammatory factors. Skin damage due to chronic exposure to UV light plays a role

-Hair follicle mites (Demodex folliculorum) are sometimes observed within rosacea papules

-Steroid induced rosacea

-An increased incidence of rosacea has been reported in those who carry Helicobacter pylori

Triggering factors :

-UVR

-Extreme heat or cold

-Spices

-Hot beverages

-Alcohol

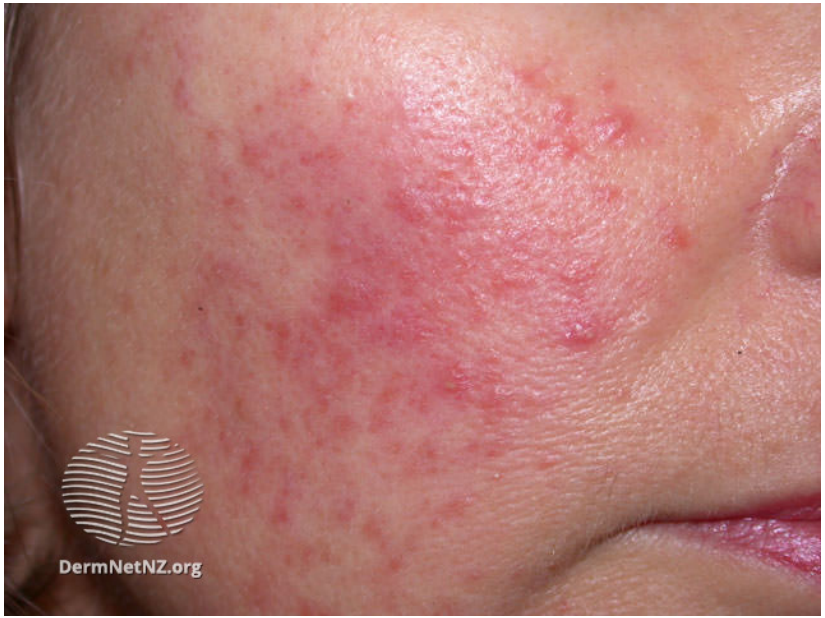
Clinical picture :

-Stage 1: persistent erythema and telangectasia

-Stage 2: persistent erythema and telangectasia , papules and pustules

-Stage 3: Solid edema and rhinophyma

-Ocular Rosacea : blepharitis , conjunctivitis , episcleritis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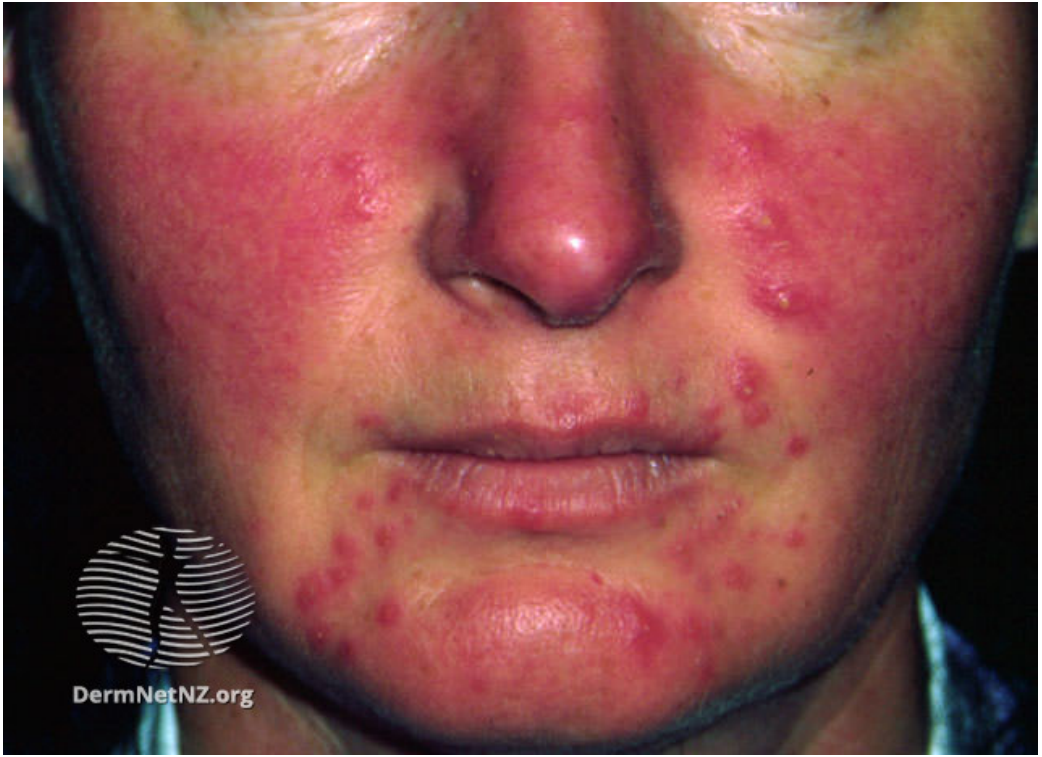
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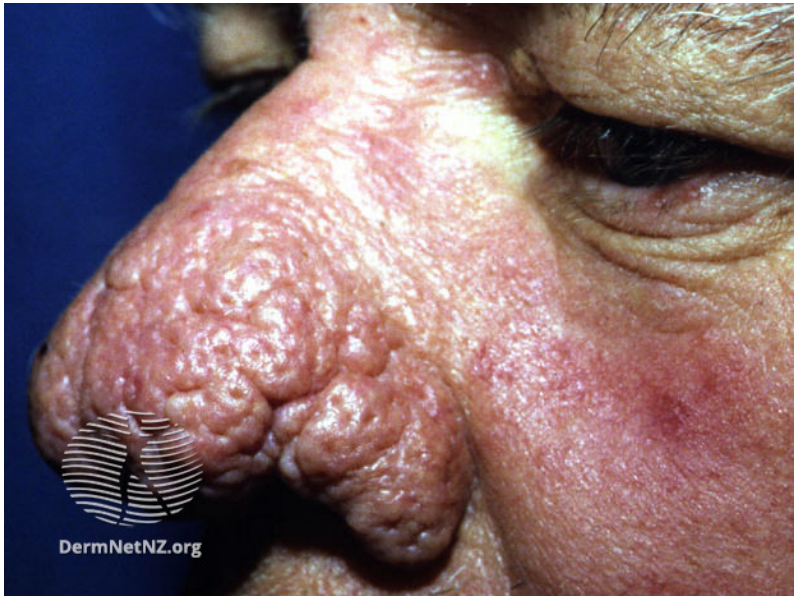
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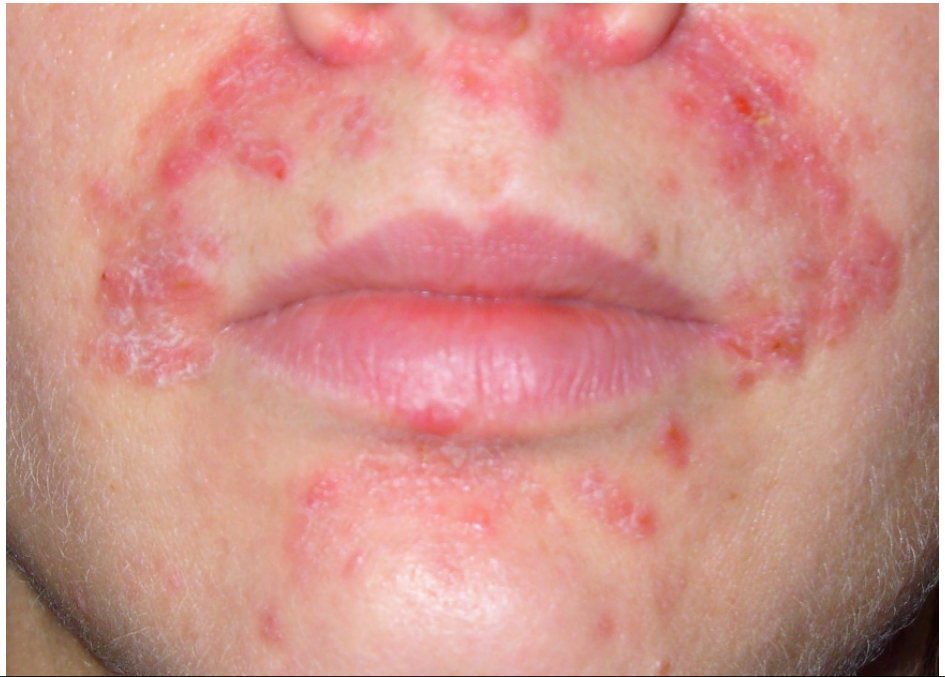
Perioral dermatitis



Treatment

General measure

-Reduce exposure to triggers (UV , Heat , steroid , hot spicy food, alcohol)

Treatment

-Topical Rx:
  Abx : Metronidazole , Erythromycin , Clindamycin
  Anti-mite : Ivermectin
  Alpha-2 agonist : brimonidine, oxymetazoline hcl
  Azelaic acid
  Calcineurin inhibitors (eg, tacrolimus and pimecrolimus)

-Oral Abx: Tetracyclines , Macrolides

-Oral Ivermectin

-Oral Isotretinoin

-Vascular Lasers

Hidradenitis suppurativa (HS)

-Also called acne inversa, is a chronic inflammatory skin condition that affects apocrine gland-bearing skin in the axillae, groin, and under the breasts.

-It is characterized by persistent or recurrent boil-like nodules and abscesses that culminate in a purulent discharge, sinuses, and scarring.

-Hidradenitis suppurativa often starts at puberty, is most active between the ages of 20 and 40 years, and in women can resolve at menopause.

-It is three times more common in females than in males.

-HS can have a significant psychological impact, and many patients suffer from anxiety, depression.

Risk Factors

-Family history of HS; 30–40% report at least one other family member affected

-Obesity and insulin resistance (metabolic syndrome)

-Cigarette smoking

-African ethnicity

-Follicular occlusion syndrome tetrad : acne conglobata, dissecting cellulitis of scalp, pilonidal sinus and HS

-Inflammatory bowel disease, particularly Crohn disease

-Other skin disorders: psoriasis, acne, hirsutism

-Comorbidities: hypertension, diabetes mellitus, dyslipidaemia, thyroid disorders, arthropathies, polycystic ovary syndrome, adverse cardiovascular outcomes

-Drugs: lithium

-Syndromes:

PAPA syndrome

PASH syndrome (pyoderma gangrenosum, acne, suppurative hidradenitis)

PAPASH syndrome (pyogenic arthritis, pyoderma gangrenosum, acne, suppurative hidradenitis

Causes

HS is an autoinflammatory syndrome. The exact pathogenesis is not yet understood. Factors involved in the development of acne inversa include:

-Follicular occlusion

-An abnormal cutaneous or follicular microbiome

-Release of pro-inflammatory cytokines

-Inflammation causing rupture of the follicular wall, destroying sebaceous and apocrine glands and ducts.

Clinical picture

Acne inversa can affect single or multiple areas in the axillae, neck, inframammary fold, and inner upper thighs. Anogenital involvement most commonly affects the groin, mons pubis, vulva, scrotum, perineum, buttocks, and perianal folds.

Clinical features

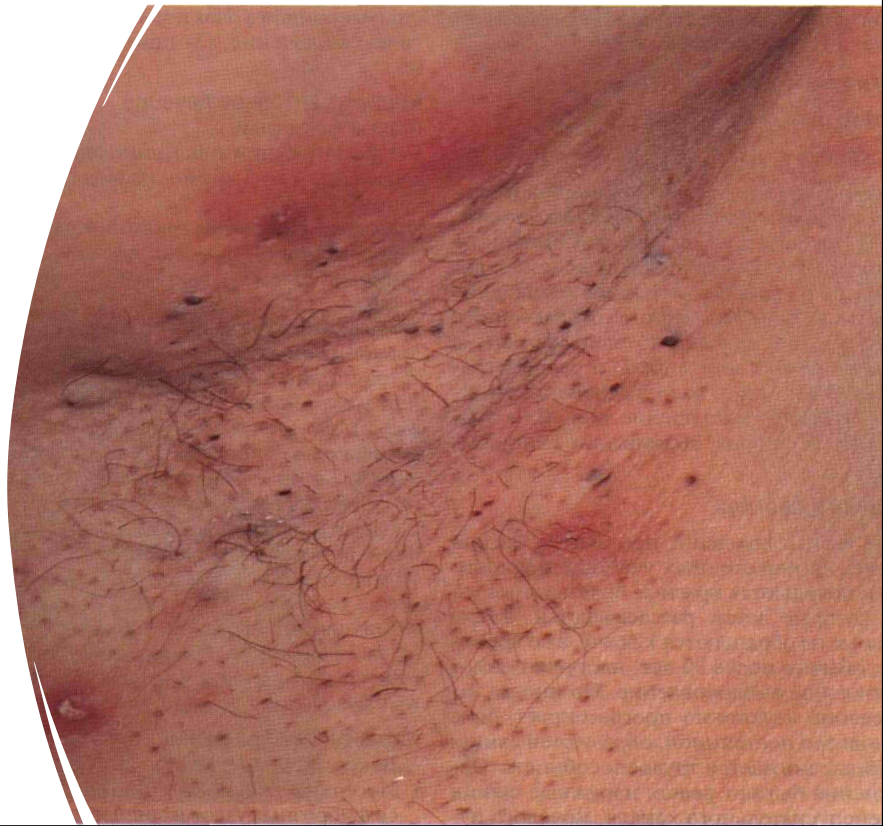
It is characterized clinically by:

-Open double-headed comedones

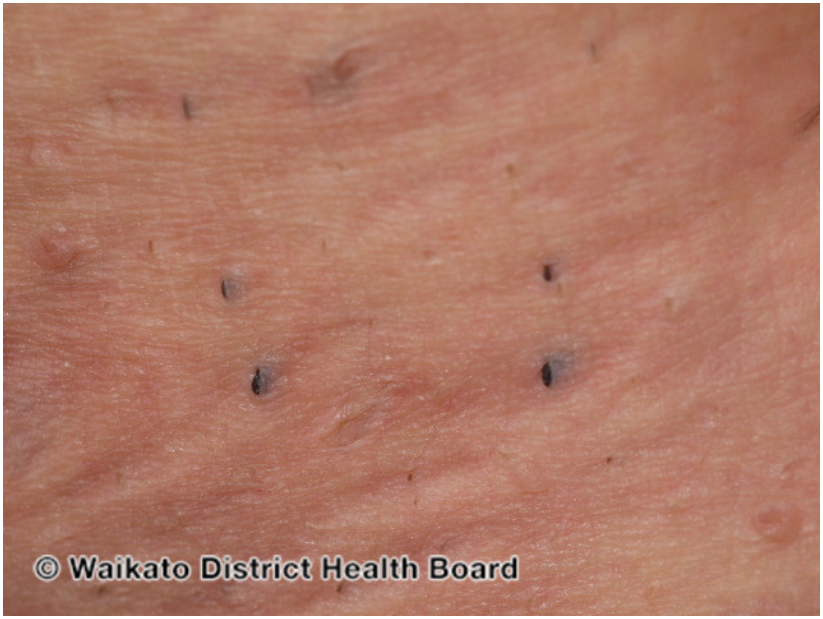
-Painful firm papules and nodules ,Pustules, fluctuant pseudocysts, and abscesses

-Draining sinuses linking inflammatory lesions

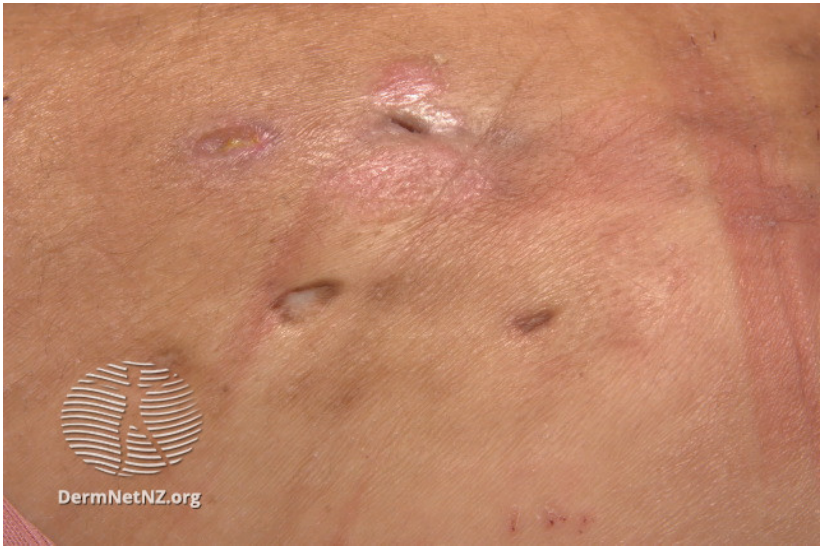
-Hypertrophic and atrophic scars.

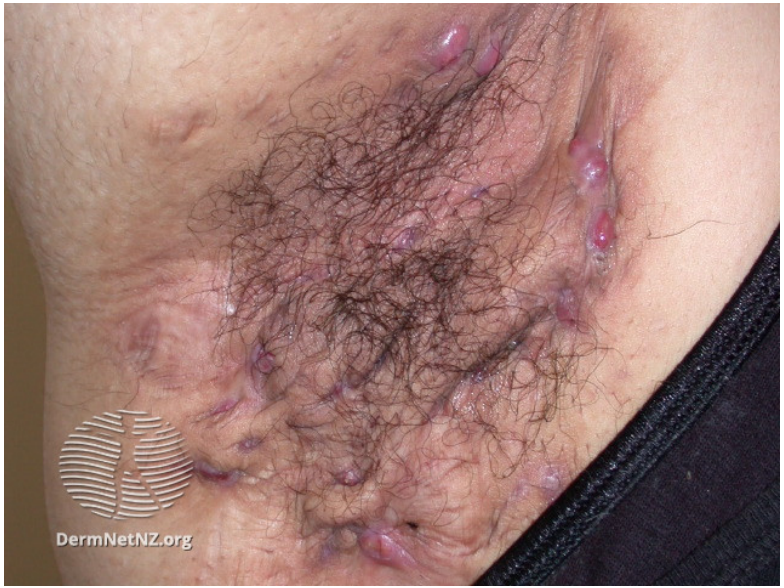


Double headed comedones



Draining sinuses and scars

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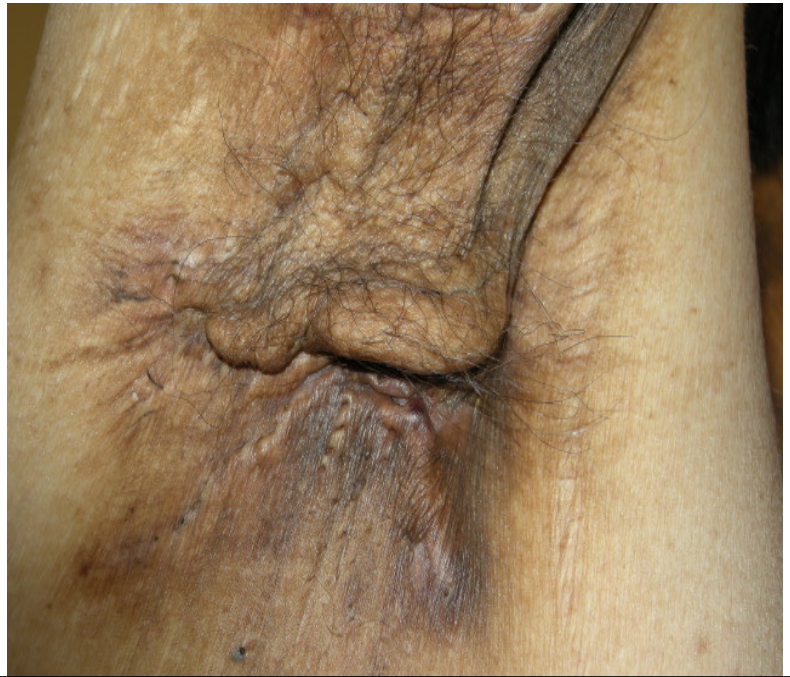


Diagnosis :

The diagnosis of acne inversa requires all three components of the triad to be met:

-Characteristic lesions

-Typical distribution

-Presence and recurrence of lesions.

Assessment of disease severity :

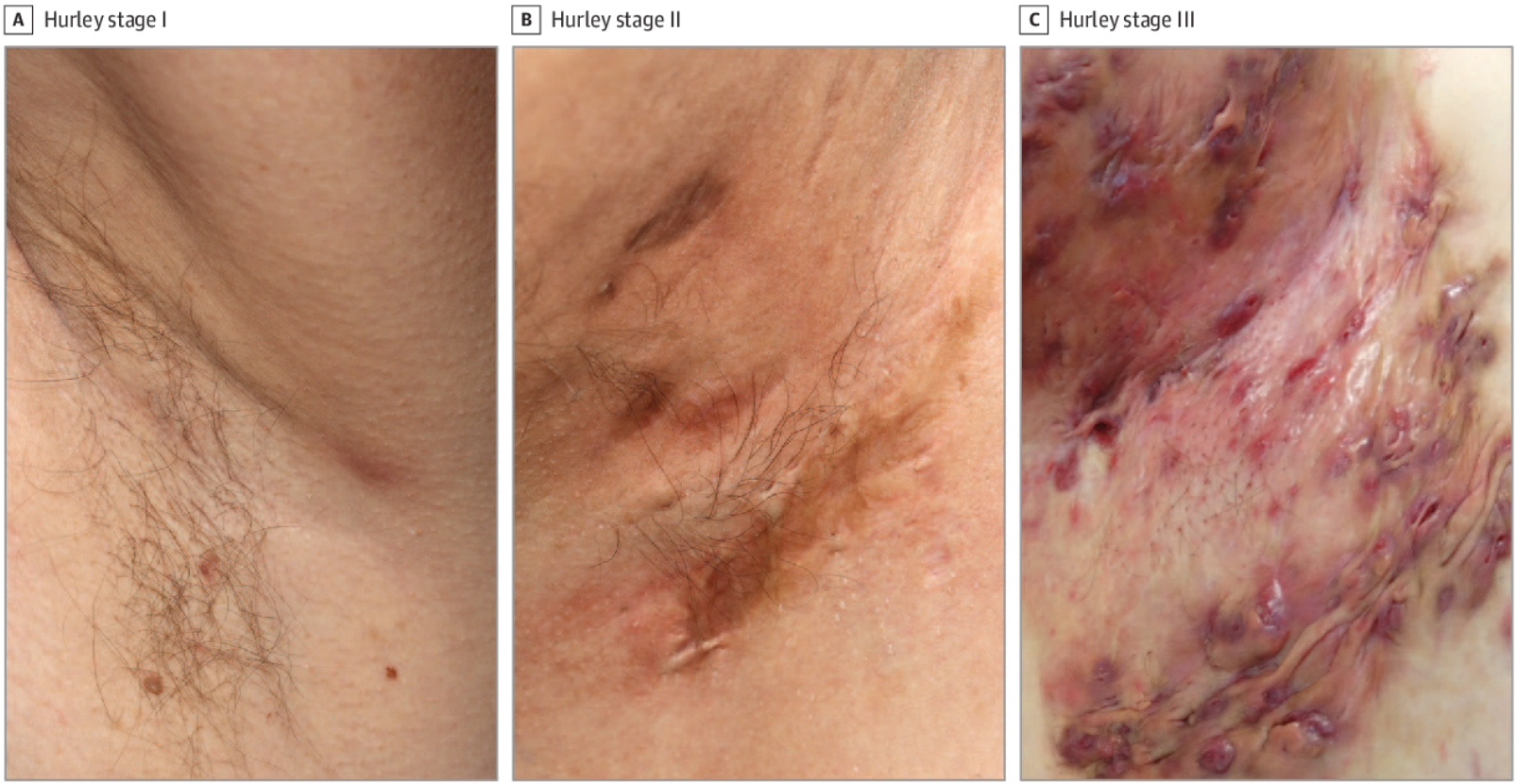
The Hurley system, the most widely used assessment tool, describes three clinical stages.

Stage I: solitary or multiple isolated abscess formation without sinus tracts or scarring.

Stage II: Recurrent abscesses, single or multiple widely spaced lesions, with sinus tract formation.

Stage III: Diffuse involvement of an area with multiple interconnected sinus tracts and abscesses.

Figure 1. Typical Hidradenitis Suppuration (Hurley Stage I, II, and III)



Complication :

-Secondary infection

-Psychological effects and negative impact on quality of life

-Lymphoedema of genitalia

-Squamous cell carcinoma

-Anemia of chronic disease

Treatment

General measures:

General measures for treating patients with hidradenitis suppurativa include:

Weight loss

Smoking cessation

Loose fitting clothing

Absorbent dressings

Analgesics

Management of anxiety and depression

Treatment

Topical treatments :

Antibacterial wash

Topical clindamycin

Other topical antibiotics: fusidic acid, dapsone, metronidazole.

Intralesional steroid

Treatment

Systemic treatments:

-Antibiotics : Tertracyclines , clindamycin , Rifampin ,Short oral course for acute staphylococcal abscess

-Tetracyclines can be given as a single agent

-Prolonged courses of at least three months of combination antibiotics: clindamycin plus rifampicin; tetracyclines plus rifampicin

Treatment

Other systemic treatments

-Hormonal therapies: estrogens, anti-androgen therapy

-Biologics: Anti-TNF-alpha adalimumis , Infliximab

-Other systemic medical treatments used off-label: metformin, acitretin, dapsone, colchicine, and zinc gluconate

Treatment

Surgical and other procedural measures

-Incision and drainage of acute abscesses

-Local excision of persistent nodules, abscesses, and sinuses

-Deroofing and curettage of persistent abscesses and sinuses

-Radical excisional surgery of an entire affected area

-Laser ablation (CO_2) of nodules, abscesses, and sinuses

-Laser/light hair removal.

Time for Q & A