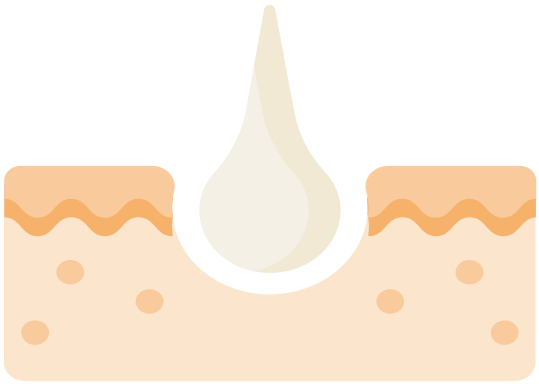

Acne Vulgaris And Acne Related Disorders

Objectives:

1. To know the multiple pathogenetic mechanisms causing acne.
2. To recognize the clinical features of acne.
3. To differentiate acne from other acneiform eruptions such as rosacea.
4. To prevent acne scars and treat acne efficiently.
5. To recognize the clinical features of rosacea, it's variable types, differential diagnosis and treatment.
6. To recognize the features of perioral dermatitis, differential diagnosis and treatment.
7. To recognize the features of hidradenitis suppurativa and treatment.

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Color index:

- Important
- Doctors Notes
- Male's Slides
- Extra

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Editing file

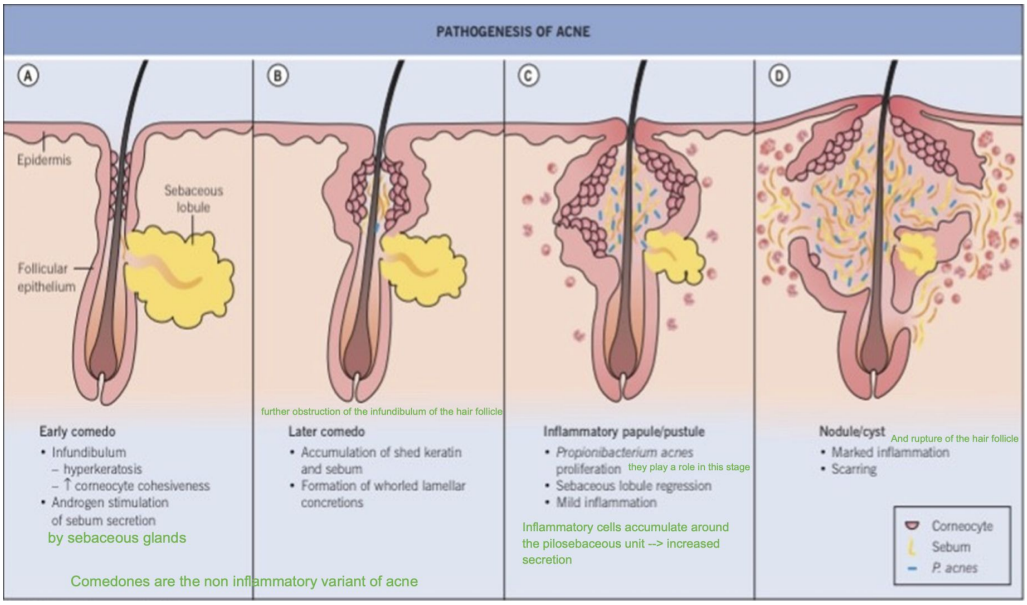
Acne vulgaris and related disorders

A)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)
- ➔ Inflammation



Male notes on pathogenesis of acne

-Ductal cornification occlusion **(micro-comedo),** it is pathognomonic of acne (characteristic). due to altered keratinization (micro-pathogenesis).

-Increased sebum secretion (Seborrhoea). Altered keratinization due to increase cell production (cornification) that lead to occlusion, dilation of sebaceous gland and increase sebum production (non inflammatory acne).

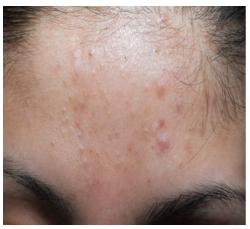
-Ductal colonization with propionibacterium acnes. Manipulation and scratching of comedone lead to bacterial colonizations that lead to inflammation (it is non infectious inflammation).

-Rupture of sebaceous gland and inflammation. Inflammation characterized by redness and pus (inflammatory acne).

Microcomedone:
Hyperkeratotic plug made of sebum and keratin in follicular canal.

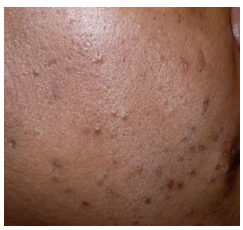
Closed comedone (white head)

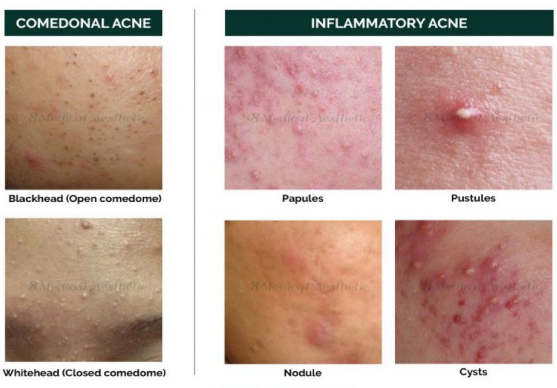
- Closed follicular orifice, accumulation of sebum and keratin.



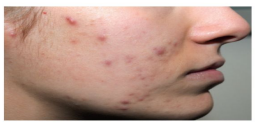
Open comedone (Black head)

- Open follicular orifice with melanin and oxidized lipid due to exposure to O_2 that lead to karatin oxidation.

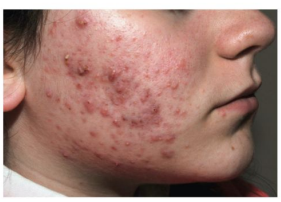




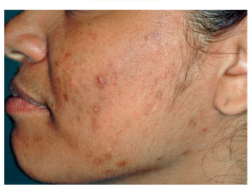
Moderate Acne

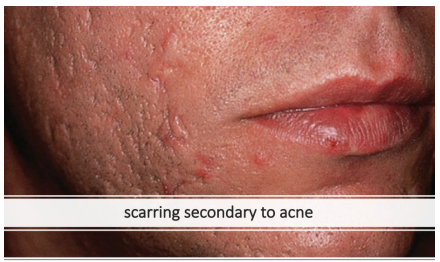


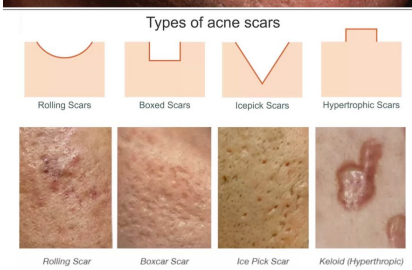
Moderate to severe acne vulgaris. Multiple coalescing papules, pustules, and small nodules



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



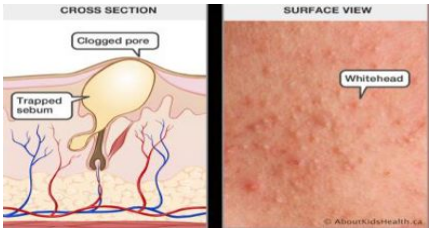


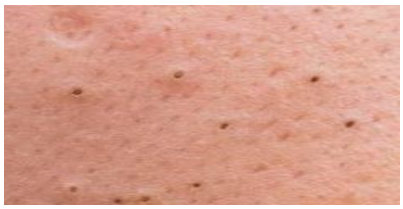


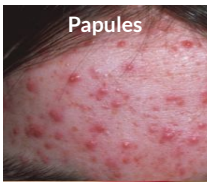
Acne vulgaris

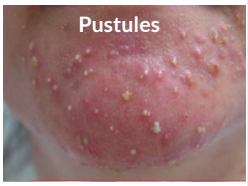
Clinical features

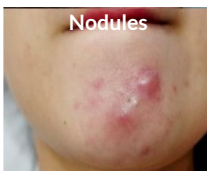
- **Acne lesions are divided into:**
  1- Inflammatory lesion (papules, pustules, nodules, cyst).
  2 - non inflammatory lesion (open, closed comedones).
- **The comedones are the pathognomonic lesion.**
- **seborrhea.**
- **post inflammatory hyperpigmentation.**
- **Scaring (Atrophic and hypertrophic)**
- Lesion predominate in sebaceous rich gland including **face,chest, upper arm and upper back.**
- When follicles rupture into surrounding tissues they result in inflammatory lesion (we treat acne early to avoid these things):
  1-papules. 2-pustules. 3-nodules. 4- cyst.
- The severity of acne ranges from mild, moderate, severe according to the predominant lesion.
- **Comedon predominance is considered to be mild,** while extensive papulopustules and nodules or **cysts are considered severe.**
- Acne has psychosocial impact which is involved in determining the severity.

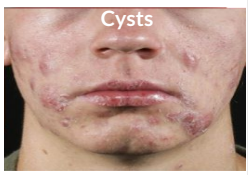






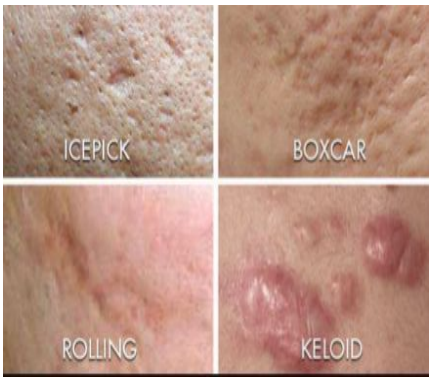






Types of scar

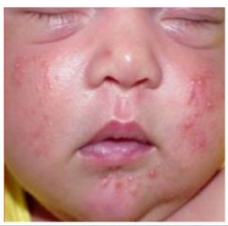
- **Ice pick scar.**
- **Boxcar scar.**
- **Rolling.**
- **Keloid.**



Acute subtypes

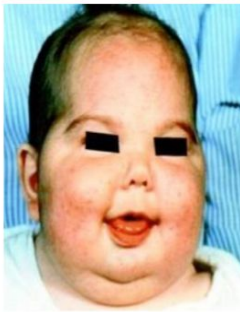
Neonatal acne

- Onset between 0-6 w of age.
- Characterized by closed comedones.
- Resolve spontaneously within 1-3 months.
- No relation with later development of acne.



Infantile acne

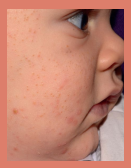
- Onset between 3-6 m.
- Characterized by inflammatory lesions.
- Can be associated with precocious androgen secretion to **brain (hamartoma and astrocytoma).**
- Think of hormonal issues that could continue with him throughout his life, must be treated.
- **Endocrinology examination (LH)** and **bone age** is important.
- There is increased risk of development of severe acne later in life.



Acne related disorders

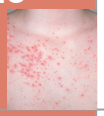
Acute subtypes

Neonatal acne



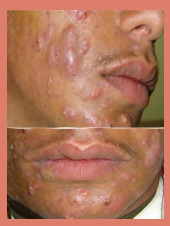
- Mostly non inflammatory (comedonal) acne that occurs in the first 2-3 months of life
- The pathogenesis of neonatal acne has been the subject of debate.
- An inflammatory response to Malassezia has been proposed as the etiology by some investigators, leading to a renaming of the disorder as "neonatal cephalic pustulosis".
- **Treatment:** topical antifungal (e.g. ketoconazole 2% cream)

Drug induced acne



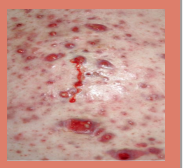
- lithium, hydantoin, isoniazid, glucocorticoids, OCP, iodides, bromides, androgens, high dose vit b complex
- The characteristic feature of **steroids acne is the absence of comedones** and **monomorphic lesions** as small pustules and papules all looking alike.
- Predilection to chest and back

Acne conglobata



- Acne conglobata is a severe form of nodulocystic and scarring acne that may have an eruptive onset but without systemic manifestations (no fever, leucocytosis)
- 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

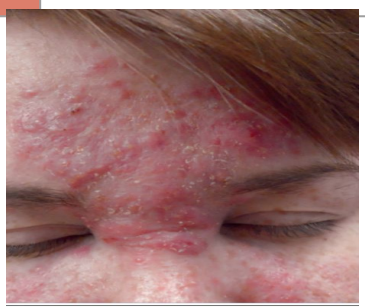
Acne Fulminans



- 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)
- Might be associated with 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

Other acne variants

- Acne excoriée: we see them in patients with anxiety disorders or OCD - they frequently pick their acne → pigmentation & scarring
- Acne associated with endocrinologic abnormalities (PCOS, cushing syndrome)
- Occupational acne (tar, chloracne, oils)
- Acne cosmetica
- Topical acne
- Radiation acne



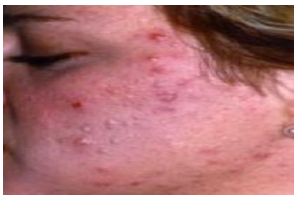
Acne might cause Solid facial edema

Acne vulgaris

Acute subtypes (cont')

Teenage acne

- More in boys.
- Mainly comedonal.
- May be the first sign of puberty.

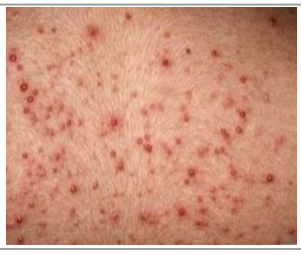


Adult acne

- Affects adults above 25 years.
- Can be continuation of teenage acne or start denovo.
- IF associated with hirsutism, irregular periods evaluate for hyper secretion of ovarian androgens (e.g. **Polycystic ovary syndrome**).

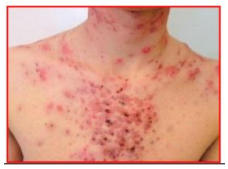
Drug induced acne

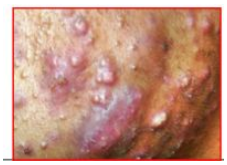
- Steroids, Iodides, Bromides, INH, Lithium, Phenytoin, Epidermal growth factor inhibitors (cetuximab) cause acneiform eruption.
- The characteristic feature of **steroids acne is the absence of comedones** and **monomorphic lesions** as small pustules and papules all looking alike. It has a predeliction to the chest & back

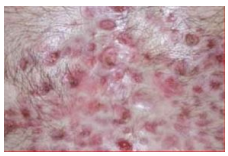


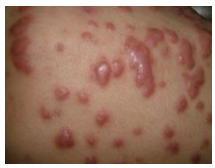
Acne conglobata

- Highly inflammatory (severe form of acne); with comedones, nodules, abscesses, draining sinuses, over the back and chest.
- Often persist for long periods.
- Affect males in adult life (18-30 years).
- **Heals with scars (Depressed or Keloidal).**
- **No systemic involvement in acne conglobata.**



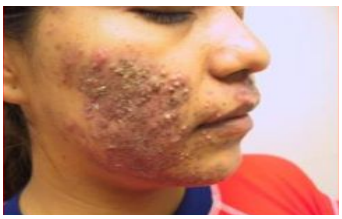






Acne Fulminans

- Sudden massive inflammatory tender lesions with ulceration Heals with scarring.
- Associated with fever, increased ESR & CRP, polyarthralgia, Leukocytosis. Systemic involvement.
- The patient might needs admission.

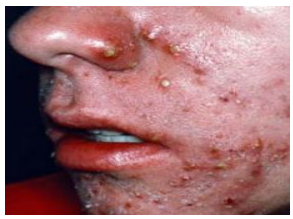


Occupa -tional acne

- Due to contact with **oils – tars –chlorinated hydrocarbons** used in the synthesis of insecticides and solvents.
- Lesions appear at site of contact including large comedones, papules,pustules, nodules.
- The most serious form is the chloracne due to systemic effect (liver damage, CNS involvement, decrease lung vital capacity).

Gram negative folliculitis

- Infection with G –ve organisms (Klebsiella, proteus, E.coli).
- Seen in patients under chronic antibiotic acne treatments.
- Superficial pustules without comedones or even cysts involving from intranasal area to chin and cheeks.
- Response to ampicillin, Isotretinoin and TMP-SM.



Aggravating Factor

01 **Diet has not relation to acne**

02 **Pre menstrual flare**

03 **Sweating**

04 **UV Radiation**

05 **Stress**

06 **Friction**

07 **Cosmetics**

Acne Tx

COMMON THERAPIES FOR ACNE VULGARIS

Topical therapy	Systemic therapy
Benzoyl peroxide (1) (It has an antibacterial effect)	Oral minocycline (1)
Antibiotics	Oral doxycycline (1)
– Clindamycin (1)	Oral tetracycline (1)
– Erythromycin (1)	Oral erythromycin (1)
– Sodium sulfacetamide/sulfur (1)	Oral azithromycin (1)
Retinoids (1)	Oral contraceptives (1)
Salicylic acid (2)	Oral spironolactone (1)
Azelaic acid (1)	Oral isotretinoin (1)
Dapsone (1)	

Antibiotics would work on the inflammatory stage, so we use keratolytics too like salicylic acid or retinoids (retin A, acretin) to stop the hyperkeratosis (stage 1)

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.*

Treatment is individualized based on the patient

Tetracycline:

S/E:

- ➔ GI upset
- ➔ Photosensitivity: more with doxycycline
- ➔ Dyspigmentation: Skin , teeth, scar site mainly with minocycline
- ➔ Drug induced Lupus mainly minocycline
- ➔ Pseudotumor cerebri (don't combine tetracyclines with isotretinoin as they both cause it)
- ➔ Use in pregnancy: CI in 2nd & 3rd trimester AE on fetal teeth and bones
- ➔ CI in children less than 9 yrs old due to 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:

Side effects? Nothing too dangerous except QT prolongation so if a pregnant lady comes with severe acne, macrolides are an option for her

• 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/).

Acne Tx

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/).

• 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 category X
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

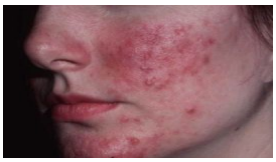
how do we screen patients to start isotretinoin?
- liver function tests
- lipid profile
- CBC (baseline)

2 months later: repeat LFTs & lipid profile -- if normal, no need to repeat until the end of the course
- CI in pregnancy, so we need to give TWO methods of contraception
- 2 -ve pregnancy tests before starting the treatment
- monthly pregnancy tests

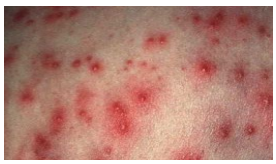
Acne vulgaris

Differential diagnosis for acne vulgaris

Rosacea



Folliculitis

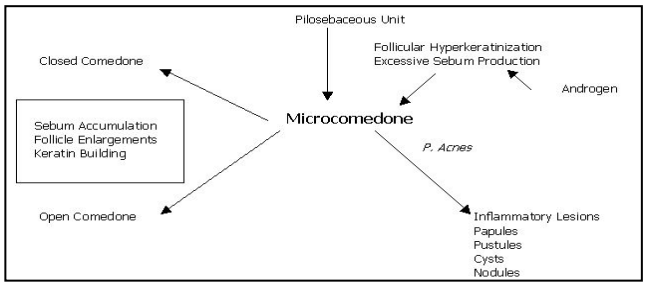


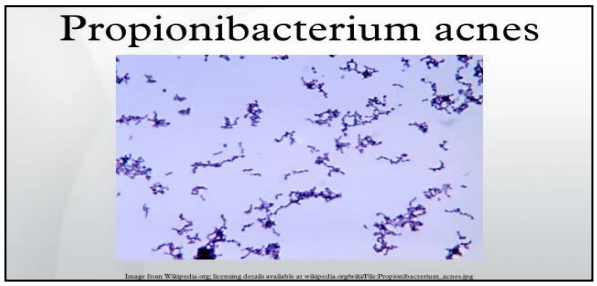
Acne treatment goals

- **Decrease scarring** + Hyperpigmentation.
- Decrease unsightly appearance.
- Decrease psychological stress.
- Explain length of treatment, may be several month and initial response may be slow but must persevere.

Principle in treating acne

- Reverse the altered keratinization.
- Decrease the intra-follicular P.acnes.
- Decrease sebaceous gland activity.
- Decrease inflammation.



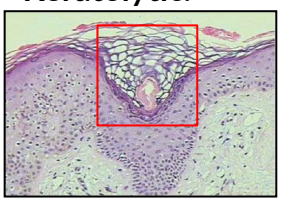


Treatments

Oral Oral therapy used To kill the bacteria	Topical Topical therapy used to alter keratinization	Miscellaneous
Antibiotics	Benzoyl peroxide	Laser resurfacing
Doxycycline	Retinoic acid	Chemical peel
Minocycline	Adaplene Tazarotene	Comedo extraction
Erythromycin	Resorcinol, Sulfer	Dermaberasion
Retinoids	Azeliac acid	Intralesional steroid
Isotretinoin	**Antibiotics:**	CROSS
Antiandrogens	Clindamycin	-
OCP	Erythromycin	-

Acne vulgaris

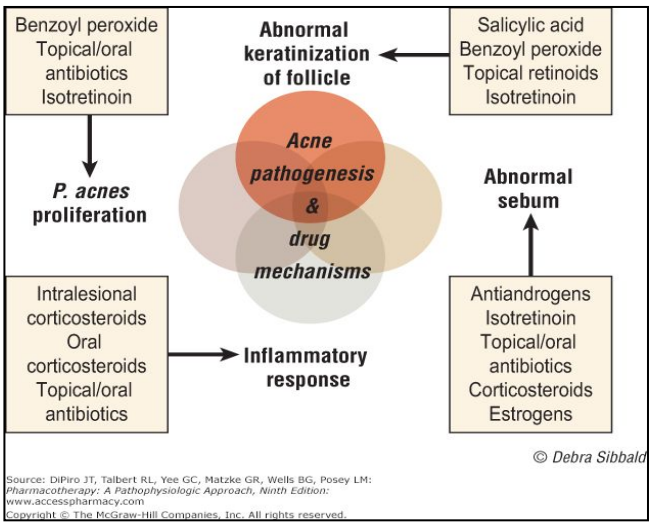
Topical therapy (Result is noticed within 2 month)

Benzoyl peroxide	Retinoic acid	Salicylic Acid	Resorcinol and sulfur	Azelaic acid
- High **antibacterial** activity. - Drying effect. - Could cause irritation and contact dermatitis.	- **Comedolytic** activity. - Advice patient not to expose to sun as it may lead to burn.	- **Comedolytic**, less potent than retinoic acid.	- **Keratolytic.** 	- **antibacterial** and bleaching.

Oral therapy

Drug	Dose	Recommendation & duration
Tetracycline	0.5 BD	• Taken on empty stomach to promote absorption. • Not to be taken with milk or antacid. • Not to be given to pregnant women.
Erythromycin	0.5 g BD	• For **pregnant women** with bad acne.
Azithromycin	250 mg	• 3 consecutive days/w for pregnant women.
Doxycycline	100 mg/day	• Can be taken with food, photosensitivity.
Minocycline	100 mg/day	• Drug could cause blue–black pigmentation in scars, lupus, hepatitis, photosensitive drug rash.
Clindamycin	—	• Could cause pseudomembranous colitis.
Trimethoprim/ Sulphamethoxazole	—	• Used only in resistant cases .
Isotretinoin	0.5-1 mg/kg	• Give long term remission. • Given in resistant acne.

- Systemic antibiotic have to be used for **3 months to avoid resistance.**



Acne vulgaris

- Vitamin A analogue

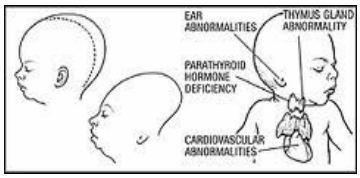
Side effects: (very common)

- Dryness of mucous membranes (Cheilitis, Conjunctivitis).
- **Headache** and increased intracranial pressure (Pseudotumor cerebri).
- Contact lens intolerance.
- Isotretinoin should not be given with tetracycline.
- **Bone** and joint pains.
- Increases triglycerides and cholesterol (most important investigation we do with patient on Isotretinoin) or LFT.
- Patients should avoid pregnancy 4 week after discontinuation of drug because of teratogenicity.
- Depression and mood swing.

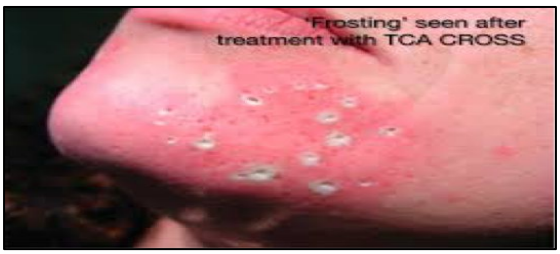
Hormonal

Isotretinoin (Accutane)

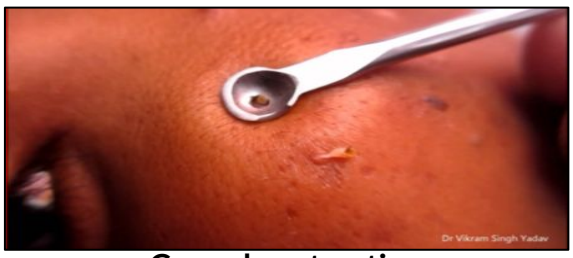
- OCP consider less androgenic progestogen, eg: marvelon/cilest, but increased risk of DVT.
- Consider cyproterone acetate (antiandrogen). With oestrogen (dianette). flutamide (antiandrogen).
- Used in polycystic Ovarian syndrome (POS). Think about female with hirsutism and acne.



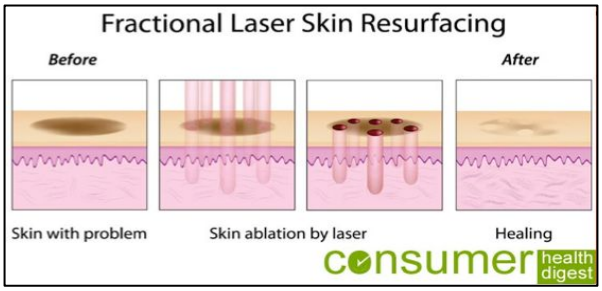
Other Treatments:

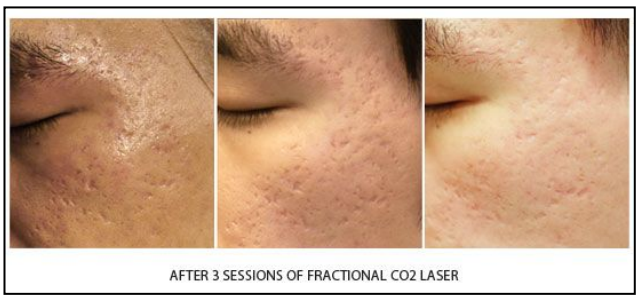


CROSS (chemical reconstruction of skin scars)



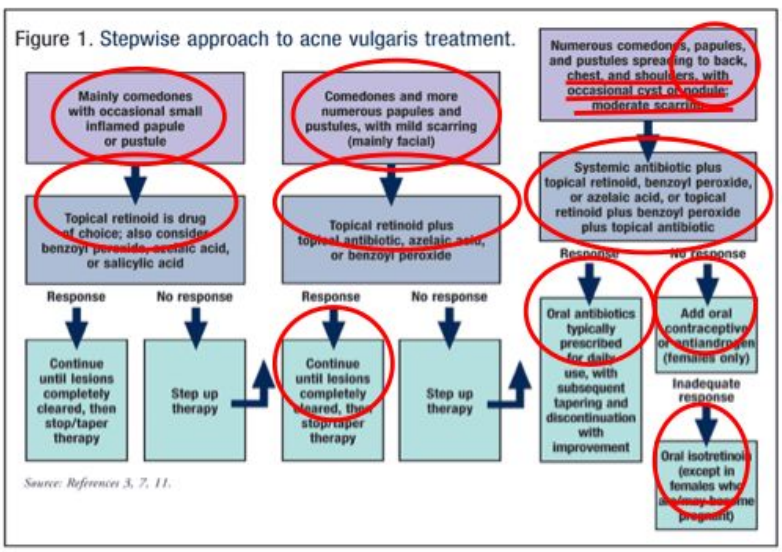
Comedo extraction





Take Home Massage:

- **A** avoid squeezing and manipulation.
- **C** comply with medication.
- **N** no cosmetics and moisturizers.
- **E** early treatment to avoid scaring.

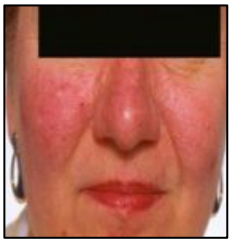


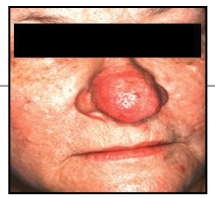
Acne related disorders

B)Rosacea

Definition

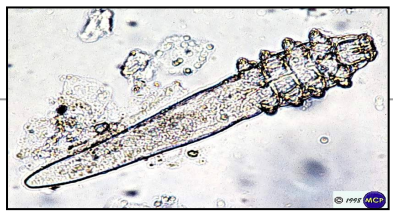
- A chronic skin rash involving the central face
- Papules and Papulo-pustules in the **center of the face and nose** against vivid erythematous background with **telangiectasia**. (pathognomic feature).





Incidence

- Common in 3rd and 4th decade, Peaks between 40-50.
- Starts between the age of 30 and 60 years.
- Common in fair skin.
- Women are affected more than men **but rhinophyma is more in men.**



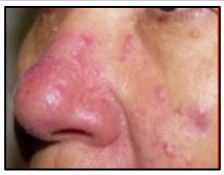
Pathogenesis

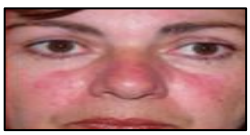
- Unknown.
- Genetic predisposition (38% have a relative).
- Sunlight and heat (in kitchen and crowded places).
- Constitutional predisposition to flushing & blushing.
- **Demodex folliculorum mite.**
- H. Pylori infection.

Clinical Findings

The Hallmark Is:

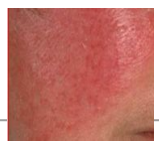
- **Episodes of flushing and erythema in butterfly distribution.**(MCQ)
- Papules and pustules.
- **Erythema** (flushing on the face) and telangiectasia.
- **Telangiectasia is only in rosacea not in acne.**
- **Absent comedones.**
- **Granulomas** (firm papules).
- **Stage 1: persistent erythema and telangectasia**
- **Stage 2: persistent erythema and telangectasia , papules and pustules**
- **Stage 3: Solid edema and rhinophyma**
- **Ocular Rosacea : blepharitis , conjunctivitis , episcleritis**

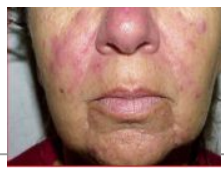




Localization

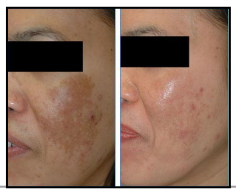
- The **nose, cheeks**, chin, forehead and glabella (between eyebrows).
- May involve ears and chest.





Types of Rosacea

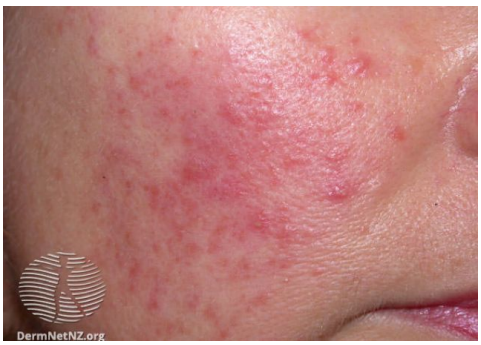
- Erythematotelangiectatic.
- Papulopustular.
- **Ocular** (it develops conjunctivitis).
- Phymatous.

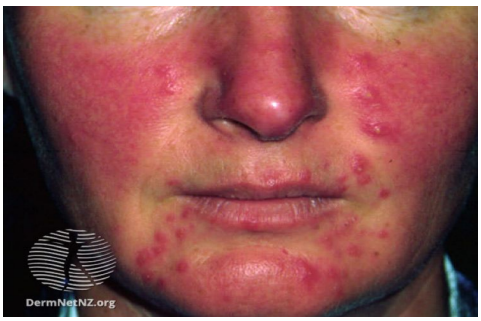


Acne related disorders

B)Rosacea

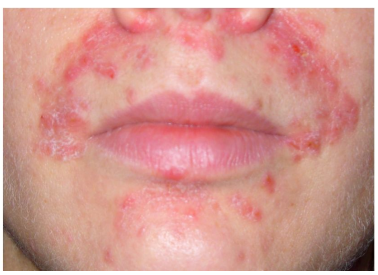
Triggers	• Hot or cold temperatures, Wind. • Hot drinks, Caffeine, Spicy food and Alcohol. • Exercise, Emotions. • Topical products that irritate the skin and decrease the barrier. • Medications that cause flushing (nicotinamide). • UVR • cold -Spices
Associated diseases	• **MARSH syndrome:** Melasma + Acne + Rosacea + Seborrheic dermatitis + Hirsutism.
Treatment of Rosacea	**General measure** -Reduce exposure to triggers (UV, Heat , steroid , hot spicy food, alcohol) **Topical Rx:** Abx : Metronidazole , Erythromycin , Clindamycin Anti-mite : Ivermectin Alpha-2 agonist : brimonidine, oxymetazoline hcl Azelaic acid to minimize the erythema - something that causes vasoconstriction .. unfortunately effect only lasts for 8 hours & sometimes ends up with rebound erythema.. so not first line Calcineurin inhibitors (eg, tacrolimus and pimecrolimus) -Oral Abx for more severe disease (stage 2, combine oral + topical)): Tetracyclines , Macrolides -Oral Ivermectin -Oral Isotretinoin for even more severe disease -Vascular Lasers



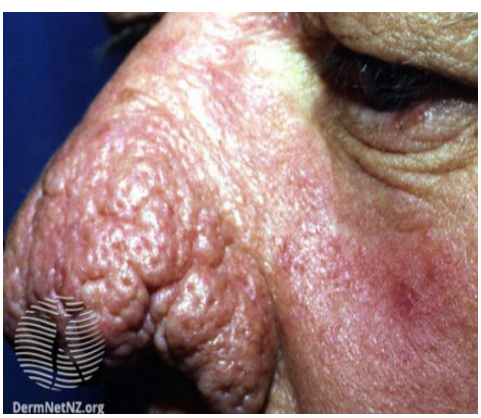


another variant of rosacea
• exactly like rosacea: same triggers & pathogenesis -- only difference is distribution.. here: around the mouth

Perioral dermatitis

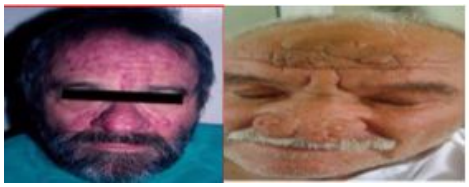


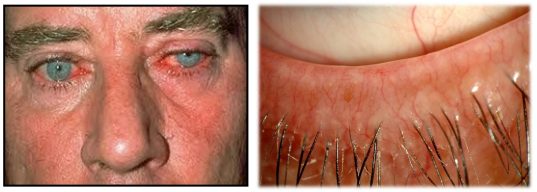
stage 3: rhinophyma --> thickening of the skin over the nose (treatment: surgery & resurfacing laser)



Acne related disorders

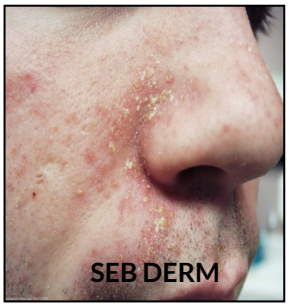
Phymatous complication	• **Rhinophyma**: Swelling of the nose due to sebaceous gland hyperplasia. • Other phymatous complications include: gnathophyma, otophyma, blepharophyma and metophyma.
Eye complications	**Occurs in 50% of cases including:** • **Blepharitis, conjunctivitis, Keratitis, Iritis and Eyelid telangiectasia.**

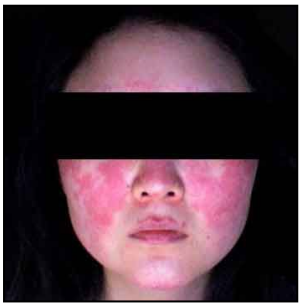


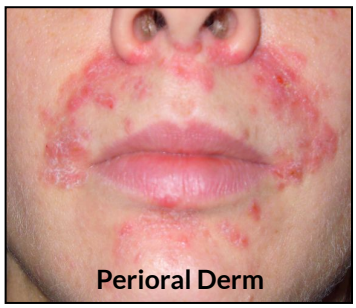


Differential diagnosis for Rosacea:

- **SLE (erythema only).** (No telangiectasis)
- **Acne (comedones).**
- Seborrheic dermatitis (no pustules).
- Perioral dermatitis.







Treatments:

- **General measures:**
  - Schedules are determined by stage & severity.
  - The skin of rosacea patients is delicate to physical insults.
  - Patient should use mild soaps or diluted detergents.
  - Protection against sunlight by sunscreen
  - Avoid hot drinks and heat.

Topical	Systemic
1. Topical antibiotics: • Clindamycin • Erythromycin (2% gel bed) (In pregnancy).	• Tetracycline reduces erythema. 500 mg bid till clear then taper.
2. Metronidazole (gel 0.75%): • Affects papules or pustules but no effect on erythema (most important drug).	• Oxy-tetracycline.
3. Imidazoles: • e.g. Ketoconazole cream, Has anti-inflammatory action.	• Minocycline 100 mg bid till clear then taper.
4. 2-5% sulfur lotion,sulfacetamide	• Doxycycline 100 mg bid then taper.
5. Isotretinoin 0.1% in cream	• Isotretinoin in resistant phymas cases (0.1 - 0.2 mg/kg).
6. Antiparasitic : • Lindane, permethrin, Benzyl benzoate, Crotamiton, ivermectin.	• Metronidazole 500 mg for 20-60 days. • Azithromycin.
• Sunscreen, Vascular laser, brimonidine α-adrenergic blocker.	• Anti H.pylori therapy.

Acne related disorders

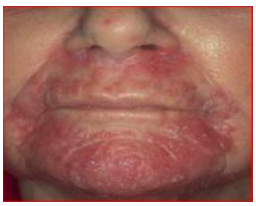
Take Home Massage:

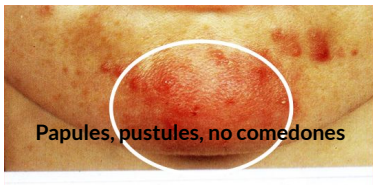
- **R** recognize triggers.
- **O** ocular hygiene.
- **S** sunblock.
- **A** avoid hot food.
- **C** comply with instructions.
- **E** early treatment.
- **A** avoid scrubs and harsh cleansers.

C) Perioral dermatitis

Features

- Occurs mainly in young women (Rare).
- **Discrete & confluent papulo-pustules over the perioral or periorbital skin sparing the vermilion border of the lips.**
- **No comedones.**
- Predominant in females at 20-30 years of age.
- Aggravated by topical steroids, dentifrice and moisturizers.
- Occasionally itchy or burning or feeling of tightness.





Differential Diagnosis

- Acne.
- Rosacea.
- Seborrheic Dermatitis.
- Atopic Dermatitis.
- Allergic Contact Dermatitis.

Treatment

- Wean patients of topical steroid.
- Stop any moisturizers.
- In pregnant mild cases use topical antimicrobial therapy with metronidazole gel and erythromycin solution.
- Pimecrolimus cream in steroid induced perioral dermatitis.
- Topical anti acne medication like adaplene and azelaic acid.
- In severe cases oral doxycycline or minocycline .
- Isotretinoin for resistant cases.

Acne related disorders

D) Hidradenitis Suppurativa (HS)

Definition	• 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. • Associated with obesity.

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 (patient with HS over the groin or perianal area --> refer to GI for colonoscopy)
	• 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 and hyperkeratosis
	  ○ 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.

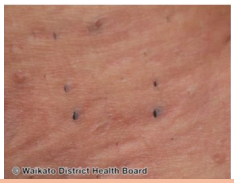
Acne related disorders

D) Hidradenitis Suppurativa (HS)

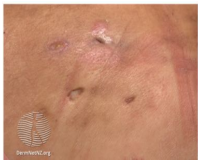
Clinical features

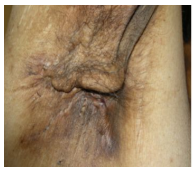
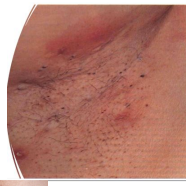
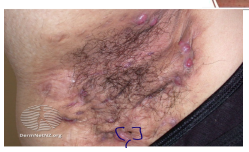
It is characterized clinically by:

- **Double headed comedones (characteristic lesion).**
- Painful firm papules and nodules ,Pustules, fluctuant pseudocysts, and abscesses
- Draining sinuses linking inflammatory lesions
- Hypertrophic and atrophic scars
- **Submammary, axillary , inguinal regions** are common In females.
- **Perineal involvement** occurs more in males.



Double headed comedones


Draining sinuses and scars




sinus tract opening and scars

Pathogenesis

- Unknown with Genetic predisposition (38% have a relative affected).
- **Apocrine duct occlusion**.
- Dilatation and **rupture of apocrine gland.**
- **Secondary bacterial infection** with (Coagulase negative staphylococcus, anaerobes are often cultured) and draining sinuses.

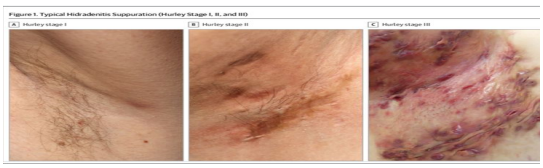
Diagnosis

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.



Associated findings

The follicular occlusion tetrad including:

- Extensive acne vulgaris (conglobata variety).
- Perifolliculitis of the scalp.
- Pilonidal sinus.
- Crohn's disease in 39% of patients.
- Irritable bowel syndrome.
- **Sjogren syndrome.**

Acne related disorders

D) Hidradenitis Suppurativa (HS)

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 if there are ulcers or draining sinuses
- Analgesics (Pain management by paracetamol)
- Management of anxiety and depression
- Practicing proper hygiene, Using soaps and antiseptic and antiperspirant agents.
- Using warm compresses

Topical treatments: if it's a mild disease

- Antibacterial wash
- Topical clindamycin
- Other topical antibiotics: fusidic acid, dapsone, metronidazole.

Intralesional steroid for inflammatory nodules

Systemic treatments: for more severe disease

- Antibiotics (they'll work as anti inflammatory): Tetracyclines ,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

Other systemic treatments:

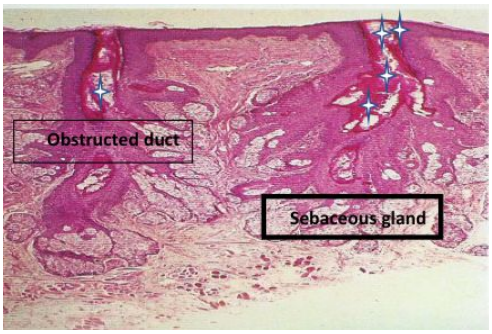
- Hormonal therapies: estrogens, anti-androgen therapy
- Biologics: Anti-TNF-alpha adalimumis , Infliximab (no clear role for biological tx)
- Other systemic medical treatments used off-label: metformin, acitretin, dapsone, colchicine, and zinc gluconate (not common)
- Intralesional triamcinolone acetonide for acute lesions.
- **Retinoids** (Acitretin better than isotretinoin).

Surgical and other procedural measures: for sinuses and scarring, refer to surgery

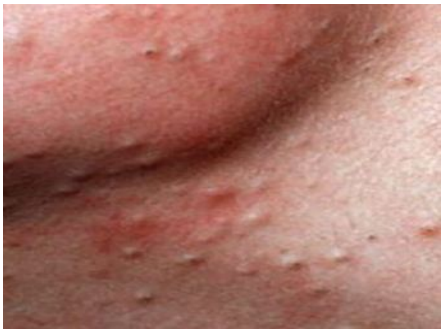
- Incision and drainage of acute abscesses
- Local excision of persistent nodules, abscesses, and sinuses
- Deroofing and curettage of persistent abscesses and sinuses
- Radical excisional surgery of an entire affected area
- Laser ablation (CO_2) of nodules, abscesses, and sinuses
- Laser/light hair removal because we know that the pilosebaceous unit is the problem
- Incision and drainage of abscess better avoided. (Surgery is effective).
- Excision of sinus tracts and chronic nodules.

Acne vulgaris and related disorders

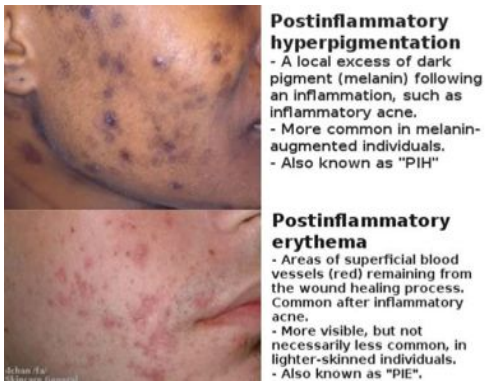
❖ Pictures from the slides :



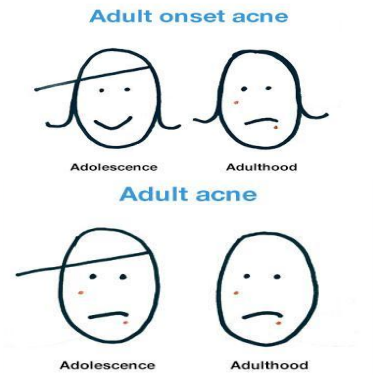
Obstructed sebaceous duct

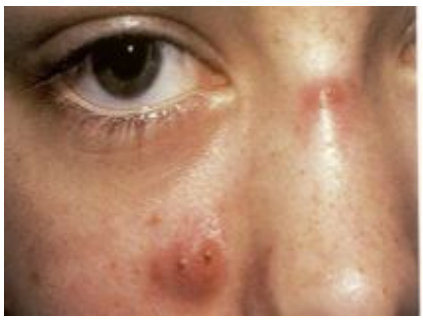


Closed and open comedones

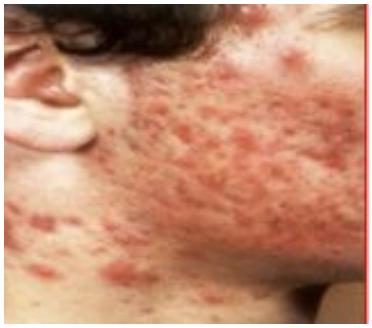


Marked post inflammatory hyperpigmentation and erythema

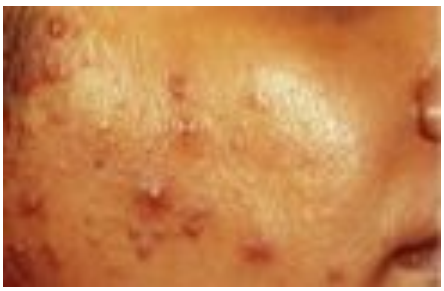




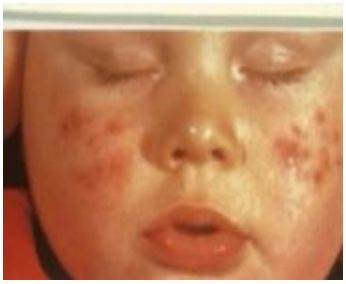
Nodules



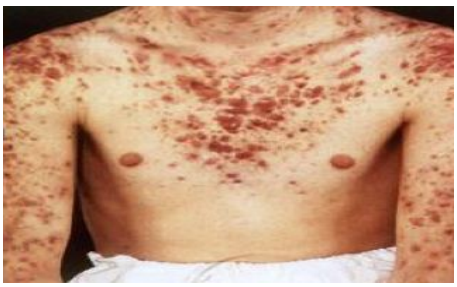
Acne conglobata with nodules and scars



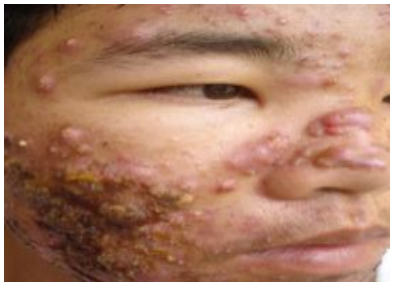
Seborrhea and papules, pustules



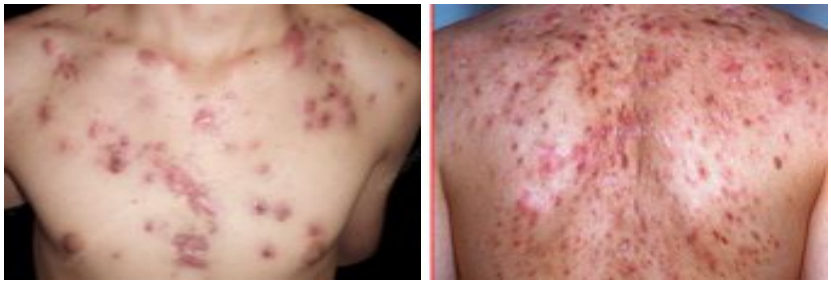
Neonatal Acne



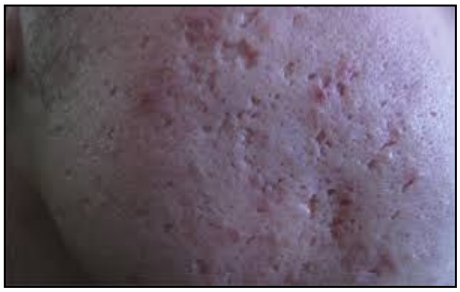
Nodules, Keloides



Acne fulminans (Nodules, pustules, closed comedones, Papules and pus)

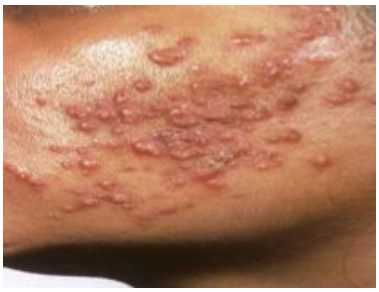


Acne conglobata
(Nodules, keloides sinuses, scars)



Acne ice pick and boxcar scars

Chloracne

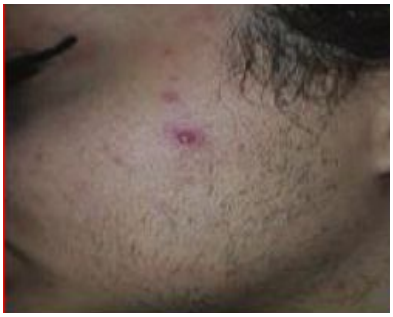


Monomorphic steroid Acne

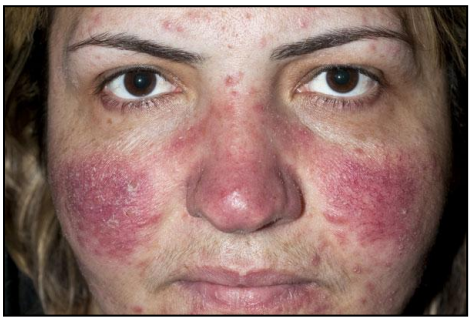
Same morphology indicates drug-induced.

Acne vulgaris and related disorders

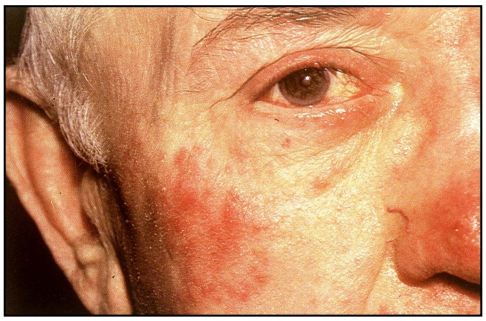
❖ Pictures from the slides :



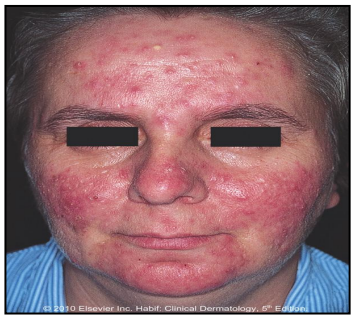
Hirsutism and Acne



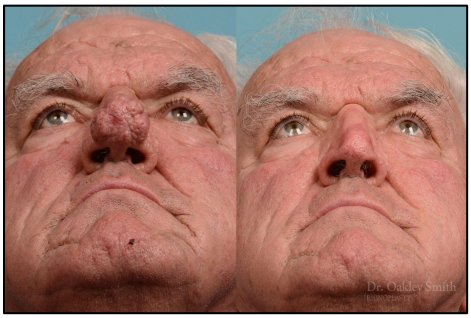
Malar erythema and scales



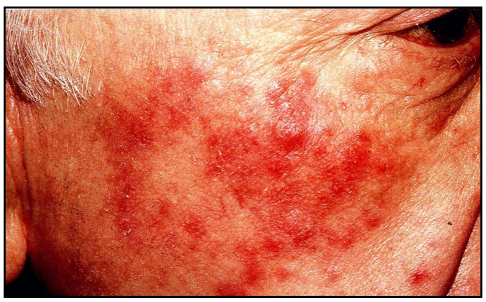
Telangiectasia, papules, blepharitis, conjunctivitis



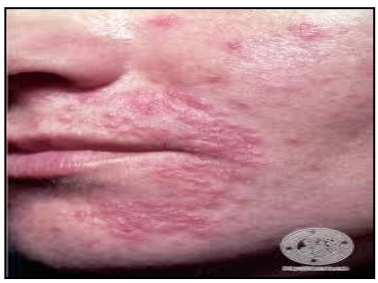
Papules on erythema background



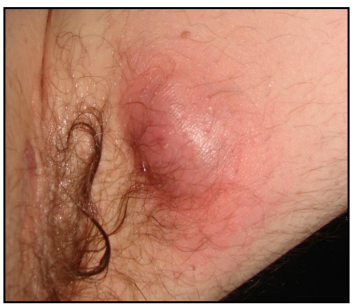
Rhinophyma



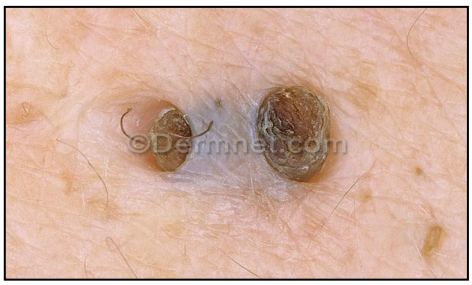
Papules on erythematous background, Telangiectasia



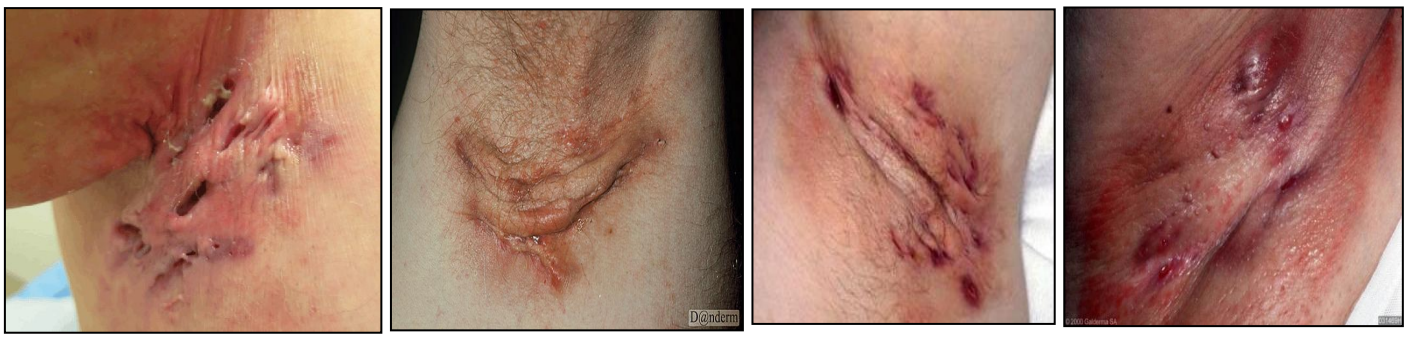
Female with papules over chin



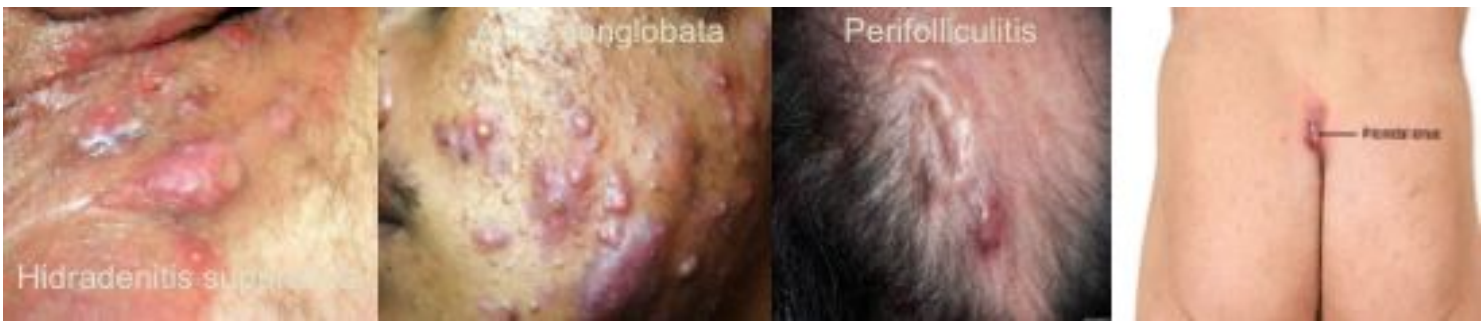
Nodules (Hidradenitis suppurativa)



Double headed comedones



Hidradenitis suppurativa



Questions

1- A patient has acne and with a resistant acne on topical antibiotic what would you give with antibiotic to enhance antibiotics role and to treat his condition:

A) Tretinoin
B) benzoyl peroxidase
C) Azelaic Acid
D) Metronidazole

2- Which of the following makes diagnosis of acne vulgaris more likely over rose acne (rosacea)?

A) pustules
B) telangiectasia
C) papules
D) comedones

3- Which of these findings favors a diagnosis of acne instead of rosacea?

A) Scarring
B) Pustules
C) papules
D) Erythema

4- 58 years old female came to ophthalmology complaining of redness of eye with pain diagnosis of conjunctivitis was made. which of following dermatological disease can cause this complication:

A) Acne vulgaris
B) Perioral dermatitis
C) Rosacea
D) Hidradenitis Suppurativa

5-) A 30-year-old lady who has recently exposed to the sun and taking vitamin B6 supplements for over a year. She presented with episodic flushing, telangiectasia, few papules and pustules over both cheeks and forehead. The clinical picture is characteristic of which of the following diseases?

A) Hidradenitis Suppurativa
B) Folliculitis
C) Drug induced acne
D) Rosacea

Answers:
1:B, 2:D, 3:A, 4:C, 5:D