Acne and acneiform related eruptions

Objectives :

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

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[Color index : Important | Notes | Extra]

ACNE VULGARIS

Definition/prevalence:

- Multifactorial disease of **pilosebaceous unit** that affects both males and females.
- It is the most common dermatological disease.
- Mostly prevalent between 12-24 yrs. Affects 8% between 25-34, 4% between 35-44.

Pathogenesis:

1- Ductal cornification and occlusion (micro-comedo).
2- Increased sebum secretion (Seborrhoea).
3- Ductal colonization with propionibacterium acnes.
4- Rupture of sebaceous gland and inflammation.

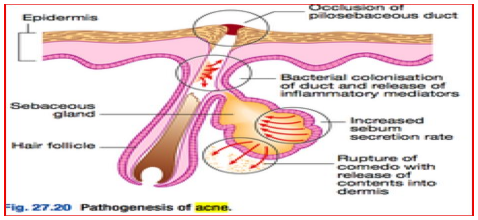
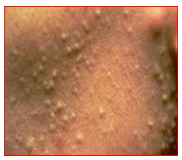
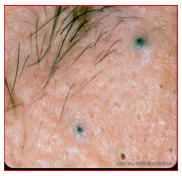


Fig. 27.20 Pathogenesis of acne.

Specialized terms:

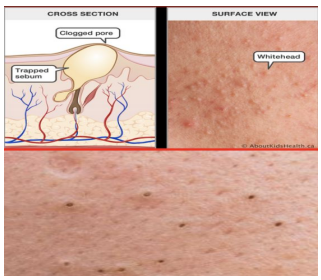


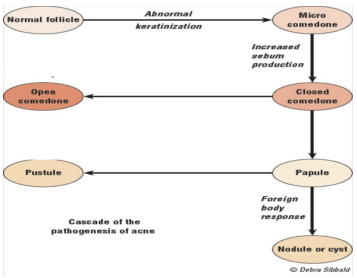


- **Microcomedone:** Hyperkeratotic plug made of sebum and keratin in follicular canal.
- **Closed Comedo (Whitehead):** Closed follicular orifice, accumulation of sebum and keratin
- **Open Comedo (Blackhead):** Opened follicular orifice packed with melanin and oxidized lipids
- We categorize acne (depending on the type of lesion) into: mild, moderate and severe. Comedones are considered **mild**. Nodules, cysts, pustules (can lead to scarring or hyperpigmentation) are considered **moderate to severe**.
- Our pathognomonic lesion is comedone, you can NOT diagnose acne without having comedones, if you do not have comedones THIS IS NOT ACNE!

Clinical features:

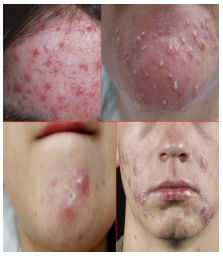
Acne lesions are divided into:





- Inflammatory (papules,pustules,nodules,cyst).
- Non inflammatory (open, closed comedones). "PIC->"
- **The comedons are the pathognomonic lesion.**
- Seborrhoea.
- Post inflammatory hyperpigmentation .
- Scarring (Atrophic or Hypertrophic).
- You have to take a good Hx and exclude that the pt has hyperandrogenisation such as PCOS.

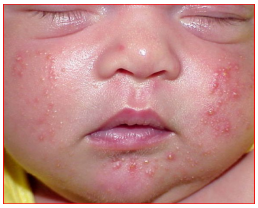
When follicles rupture into surrounding tissues they result in inflammatory lesions:



- **Papules.**
- **Pustules.**
- **Nodules**. An elevated lesion with a deep component (vertical diameter > horizontal).
- **Cysts.** Filled with a semi solid-fluid and covered by epidermal tissue
- Lesions predominate in **sebaceous gland rich regions** (face, upper back, chest & upper arms).
- 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.

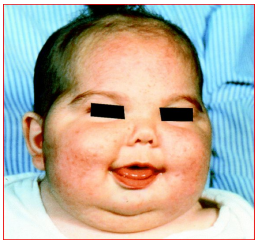
Acne subtypes:

1- Neonatal Acne:



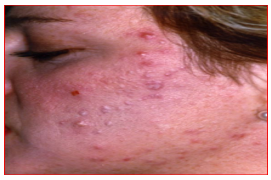
- **Onset between 0-6w of age**. The androgen comes from the mother through the placenta, so they develop acne within the 1st few weeks of life. 0= date of birth.
- Characterized by **closed comedones.**
- Resolve **spontaneously** within 1-3 months.
- No relation with later development of acne.

2- Infantile Acne:



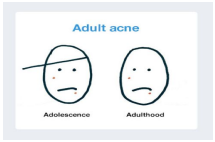
- **Onset between 3-6 m.** the baby is producing his own androgens (such as in precocious puberty) which results in severe acne.
- Characterized by inflammatory lesions.
- Can be associated with precocious androgen
- secretion secondary to **brain hamartoma and astrocytoma**.
- Endocrinology examination (LH) and bone age is important.
- There is increased risk of development of severe acne later in life.
- You want to know what is the source of hyperandrogenism: 1) bone scan (in case of PP, bone age of a 3 month year old baby could be 8 yrs!), 2) MRI for the brain, 3) hormonal analysis.

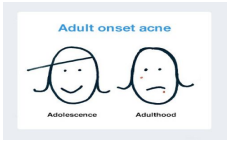
3-Teenage Acne:



- More in boys.
- Mainly comedonal.
- May be the first sign of puberty. This is because of adrenarche > the sebaceous glands are very sensitive to androgens. You can continue having acne > adult acne.

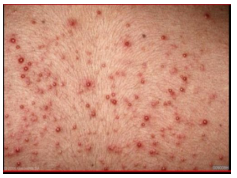
4- Adult Acne:





- 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)**.

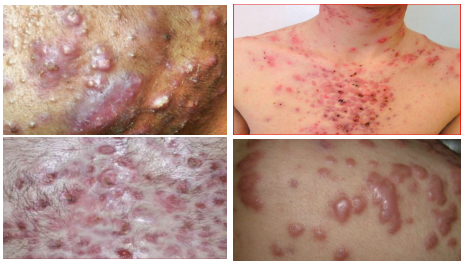
5- Drug Induced Acne:



- Pt say: I have never had acne in my life, suddenly I developed acne > consider drugs.
- **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.** We said earlier that in order to diagnose acne, we have to see comedones, but if you see lesions that are looking alike with NO comedones and the pt has hx of steroid intake for whatever reason, diagnose as steroid acne and treat as acne (same tx).

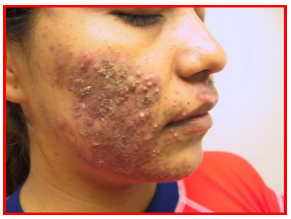
6- Acne Conglobata:

- **Highly inflammatory; with comedones, nodules abscesses draining sinuses, over the back and chest.**
- Often persist for long periods and very resistant to treatment.
- Affect males in adult life (18-30 years).
- **Heals with scars (Depressed or Keloidal).**



7-Acne fulminans ACUTE/VERY SEVERE

- Sudden massive inflammatory tender lesions with ulceration
- Heals with scarring.
- Associated with **fever, increased ESR & CRP, polyarthralgia,leukocytosis** and osteomyelitis of the sternoclavicular joint.
- What are the risk factors? **Early age, male gender, genetic predisposition and can result from taking isotretinoins. (IMP)**
- How would treat? You have to give an anti-inflammatory either steroidal or non-steroidal (preferably: use systemic steroids + Abx) احنا قلنا إنها ممكن تسبب حبوب لكن هدفنا الأساسي هنا إننا نوقف الالتهاب اللي صاير

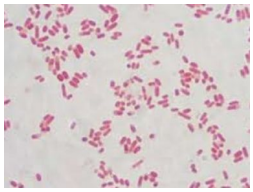


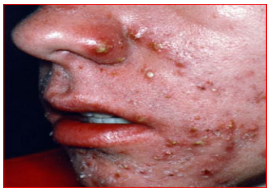
8- Occupational Acne

- 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).

9- 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, TMP-SM.** After culture

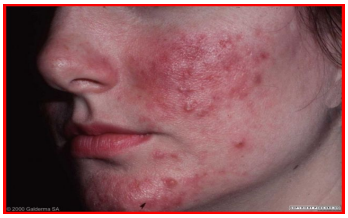




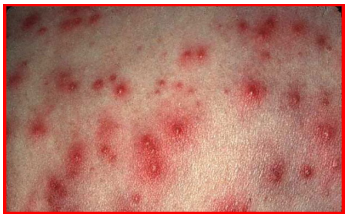
Aggravating factors:

- Diet has no relation to acne.
- Premenstrual flare.
- Sweating.
- UV radiation.
- Stress.
- Friction. حجاب/قبعة
- Cosmetics.

Differential diagnosis:

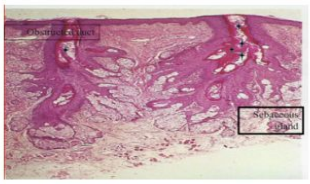


Rosacea

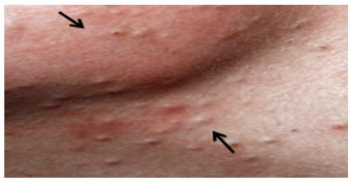


Folliculitis

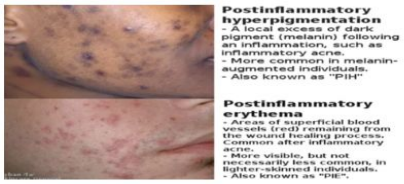
Pictures from the slides:



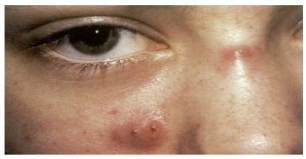
Obstructed sebaceous duct



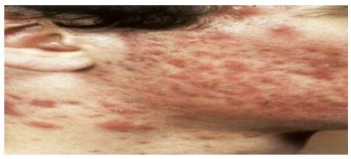
Closed and open comedones



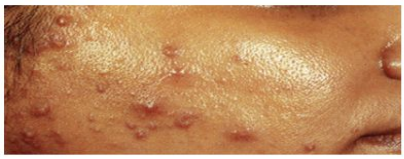
Marked post inflammatory hyperpigmentation and erythema



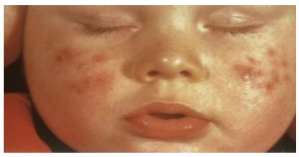
Nodules



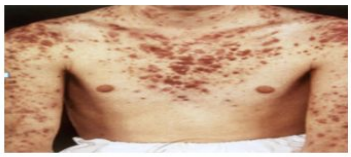
Acne conglobata with nodules and scars



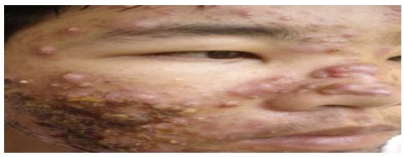
Seborrhea and papules, pustules



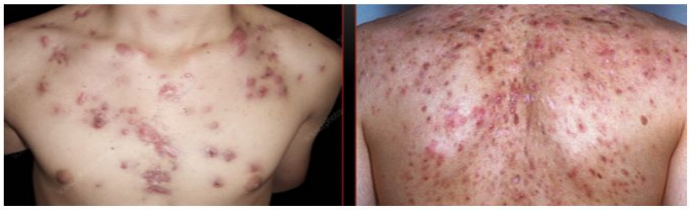
Neonatal acne



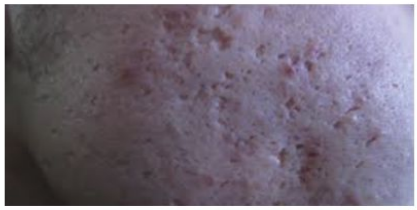
Nodules, Keloids



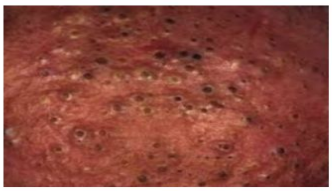
Acne fulminans (Nodules, pustules closed comedones, papules, pus).



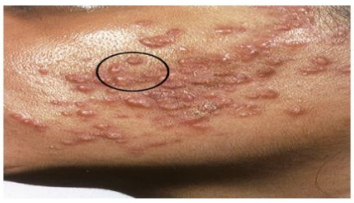
Acne conglobata (Nodules, Keloids, Sinuses, Scars)



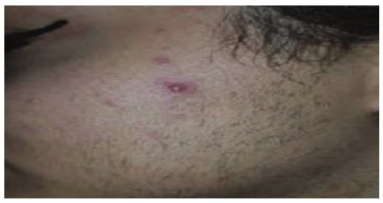
Acne icepick (<2 mm) and boxcar (4 mm) scars



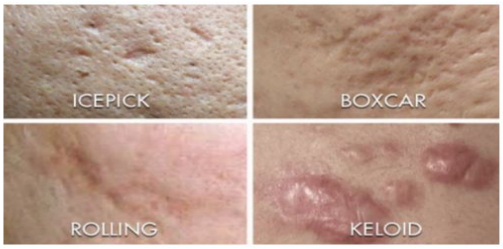
Chloracne

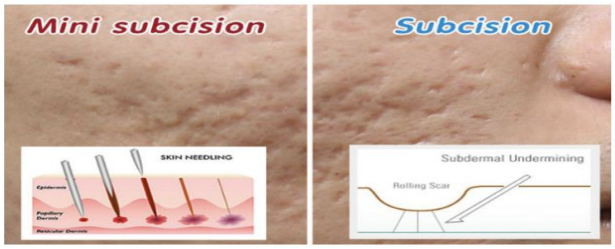


Monomorphic steroid acne



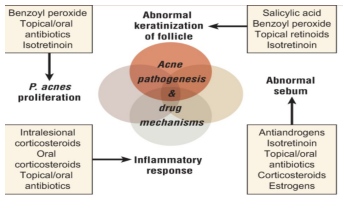
Hirsutism and acne





Rolling acne scars

Acne treatment:

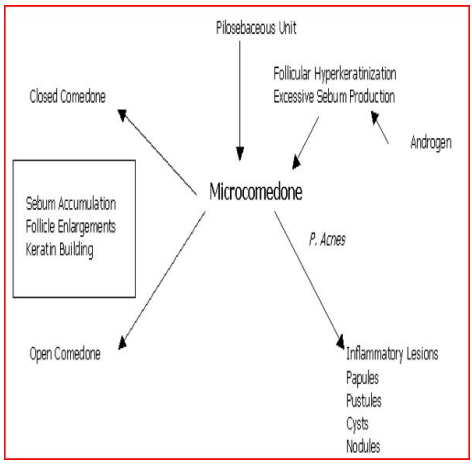
Treatment goals	• Decrease scarring. The most important • Decrease unsightly appearance. • Decrease psychological stress. • Explain length of treatment, may be several months and initial response may be slow but must persevere .
Principles in treating acne	• **Reverse the altered keratinization.** • Decrease the intra-follicular P.acnes. • Decrease sebaceous gland activity. • Decrease inflammation. • There is no monotherapy in acne. 

Topical	Oral	Miscellaneous
Benzoyl peroxide	**Antibiotics:**	Laser resurfacing
Retinoic acid	Doxycycline	Chemical peel
Adaplene Tazarotene ,	Minocycline	Comedo extraction
Resorcinol,Sulfer	Erythromycin	Dermaberasion
Azelaic acid	**Retinoids:**	Intralesional steroid
Antibiotics:	Isotretinoin	CROSS
Clindamycin	**Hormones:**	
Erythromycin	Antiandrogens	
	OCP	

1) Topical therapy:

Benzoyl peroxide	Retinoic Acid	Salicylic Acid	Resorcinol and sulfur	Azelaic acid
- **The most commonly used.** - **High antibacterial activity**. - Drying effect. - Could cause irritation and contact dermatitis.	- **Comedolytic activity.**deeper/acts on comedones. - Advice patient not to expose to sun as it may lead to burn.	- **Comedolytic**, less potent than retinoic acid.	- Are **keratolytic**. Keratolytic = works on the stratum corneum only.	-**antibacterial and bleaching.** -Topical treatment result is noticed within 2 months. **IT IS THE ONLY TOPICAL Tx THAT IS SAFE DURING PREGNANCY**

Drug	Dose	Recommendation and 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 "Why"?
Erythromycin	0.5 g BD	For pregnant women with bad acne
azithromycin	250mg	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 pseudo membranous colitis
Trimethoprim Sulphamethoxazole		Used only in resistant cases .
Isotretinoin	0.5-1mg/kg	Give long term remission Given in resistant acne



*Tetracycline: teratogenic/ hypoplasia of the bones / Erythromycin is safe during pregnancy./Doxycycline: Contraindicated in pregnancy.

2) Systemic Antibiotic:

- Have to be used for 3 months to avoid resistance. Could develop resistance or g-ve folliculitis

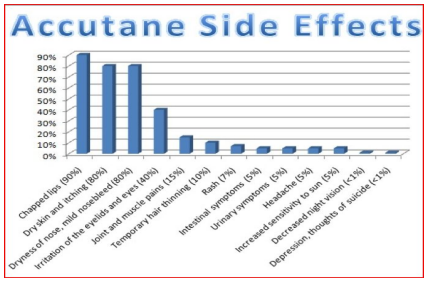
3) Hormonal:

You have to prescribe OCP that has the lowest androgenic progesterone

- OCP consider less androgenic progestogen eg marvelon/cilest, but increased risk of DVT.
- Consider cyproterone acetate (antiandrogen) with oestrogen(dianette) flutamide(antiandrogen).

4) Isotretinoin [Accutane]: Vitamin A analogue

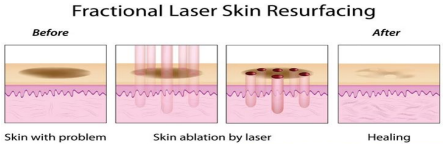
Side Effects of Isotretinoin:

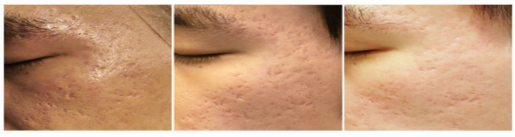


- **Dryness of mucous membranes [Cheilitis, Conjunctivitis]**.
- Headache and increased intracranial pressure **[Pseudotumor Cerebri]**.
- **Isotretinoin should not be given with tetracycline.** As both increase the risk of pseudotumor cerebri.
- Contact lens intolerance.
- Bone and joint pains.
- Increases triglycerides and cholesterol or LFT.
- **Patients should avoid pregnancy 4 w after discontinuation of drug because of teratogenicity.** Do not give it to a married lady without contraception. The pt should wait for 1 month after stopping the drug to get pregnant. We have different classes of retinoids, every class has a different time required to get pregnant after discontinuation, for example: Isotretinoin (1 **month**), Acitretin & Etretinate(2-3 **YEARS**!).

5) Others:

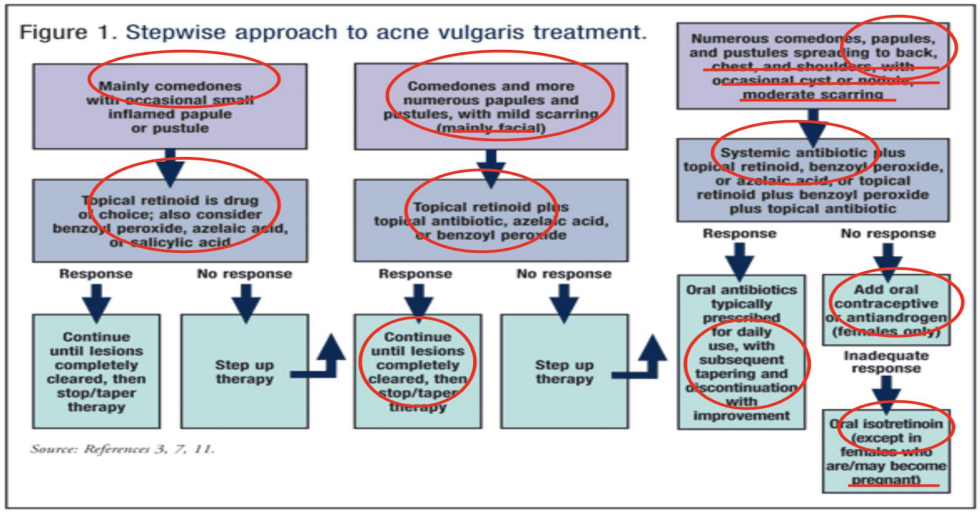
cross Comedo extraction




AFTER 3 SESSIONS OF FRACTIONAL CO2 LASER

***CROSS:**

chemical reconstruction of skin scars (with trichloroacetic acid)



A avoid squeezing and manipulation

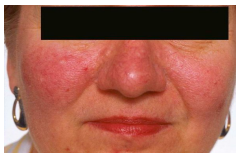
C comply with medication

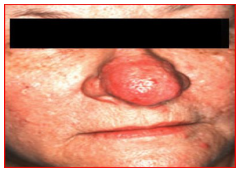
N no cosmetics and moisturizers.

E early treatment to avoid scaring.

ROSACEA

Definition:





- Papules and Papulo- pustules in the center of the face against **vivid erythematous background with telangiectasia.**

Incidence:

- Common in **3rd and 4th decade.** Peaks between 40-50.
- Common in fair skin.
- Women are affected more than men but rhinophyma is more in men.

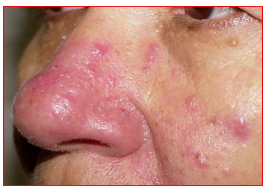
Pathogenesis:

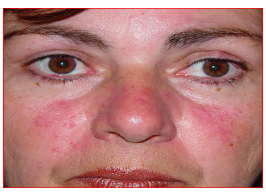
- Unknown.
- Genetic predisposition (38% have a relative).
- Sunlight and heat.
- Constitutional predisposition to flushing & blushing.
- Demodex folliculorum mite.
- H. Pylori infection.

Clinical findings:

The hallmark is:

- Episodes of flushing and erythema in **butterfly distribution.** SLE is one of the Ddx.
- Papules and pustules.
- Erythema and telangiectasia.
- **Absent comedones.**
- Granulomas [firm papules].



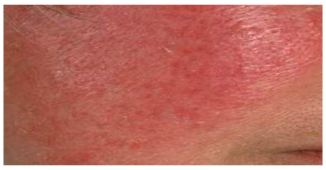
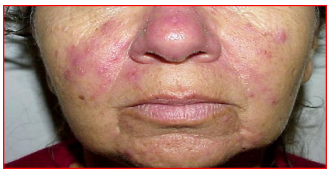


Localization:

- The nose, cheeks, chin, forehead, glabella.
- May involve ears, chest.

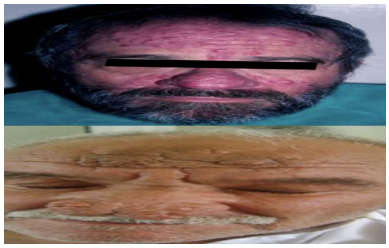
Types of Rosacea:

- Erythematotelangiectatic.
- Papulopustular.
- Ocular. Dry eye
- Phymatous.

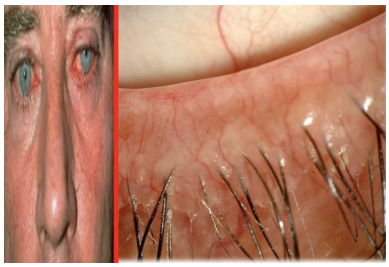



Complications:

- **Phymatous complication:**
  - Rhinophyma:Swelling of the nose due to sebaceous gland hyperplasia.
  - Other phymatous complications include gnathophyma (chin swelling), otophyma (ear swelling), blepharophyma (eyelid swelling) and metophyma (forehead swelling).



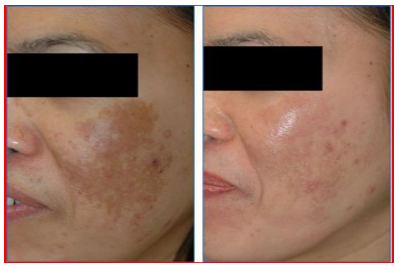
- **Eye complications:**
  - Occurs in 50% of cases including:
  - Blepharitis
  - Conjunctivitis.
  - Keratitis.
  - Iritis.
  - Eyelid telangiectasia



Associated diseases:

MARSH syndrome

- Melasma.
- Acne.
- Rosacea.
- Seborrheic dermatitis.
- Hirsutism.

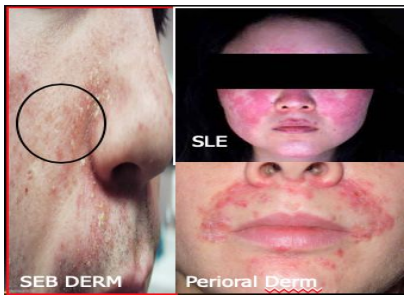


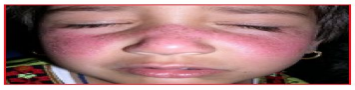
Triggers:

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

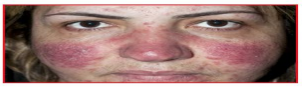
Differential diagnosis:

- SLE (erythema only). No papules or pustules/spared nasolabial fold
- Acne (comedones).
- Seborrheic dermatitis no pustules.
- Perioral dermatitis.

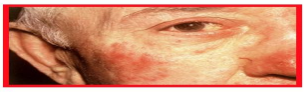




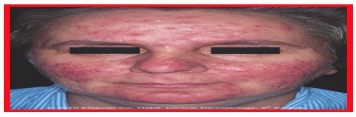
Malar erythema



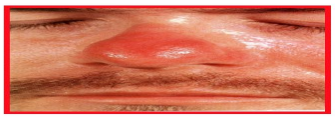
Malar erythema and scale



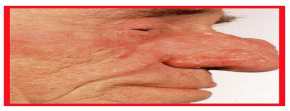
Telangiectasia, papules,blepharitis and conjunctivitis



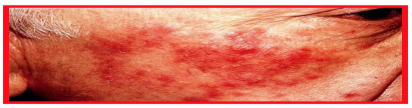
Papules on erythematous background



Rhinophyma



Rhinophyma



Papules on erythematous backgrounds and telangictasia

Treatment:

Schedules are determined by stage & severity. General measures:

- 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.

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

Topical	Systemic
1.Topical antibiotics Clindamycin. Erythromycin.	Tetracycline reduces erythema.
2. Metronidazole –affects papules or pustules but no effect on erythema	Oxy-tetracycline.
3. Imidazoles e.g. Ketoconazole cream – has anti-inflammatory action	Minocycline
4. 2-5% sulfur lotion,sulfacetamide	Doxycycline
5. Isotretinoin 0.1% in cream	Isotretinoin in resistant phymas cases (0.1 -0.2 mg/kg)
Antiparasitic : Lindane, permethrin Benzyl benzoate, Crotamiton ,ivermectin	Metronidazole 500 mg for 20-60 days
Sunscreen, Vascular laser, ,brimonidine α adrenergic blocker	Azithromycin

1) Topical :

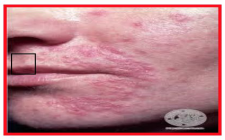
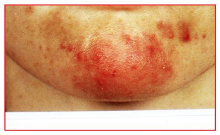
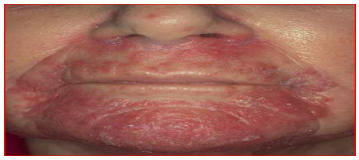
- Metronidazole gel 0.75%. Most commonly used
- Erythromycin 2% gel bid.

2) Systemic :

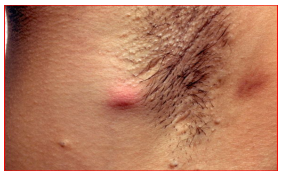
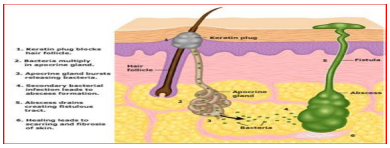
- Minocycline 100 mg bid till clear then taper .
- Doxycycline 100 mg bid then taper .
- Tetracycline 500 mg bid till clear and tapered it decreases erythema
- Anti H.pylori therapy

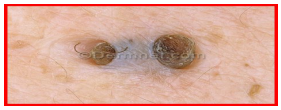
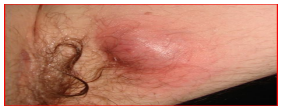
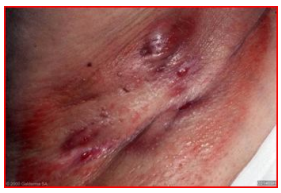
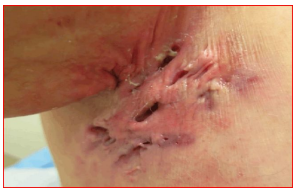
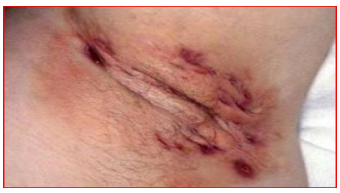
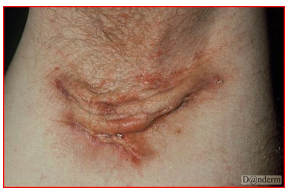
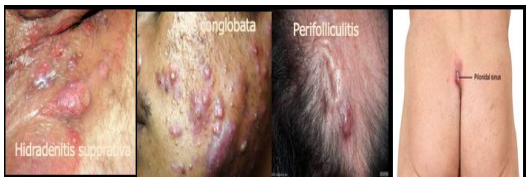
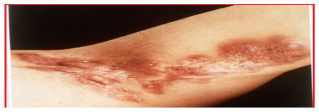
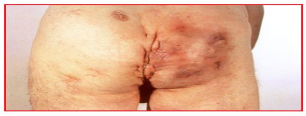
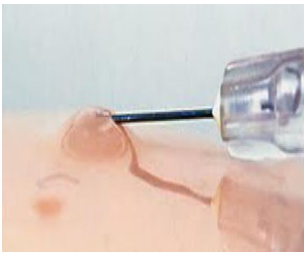
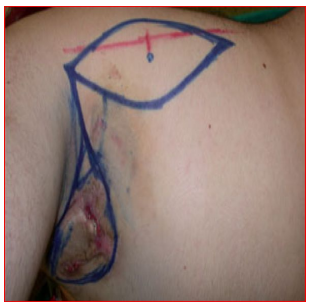
★ WHAT IS THE DIFFERENCE BETWEEN ROSACEA AND ACNE? comedones

PERIORAL DERMATITIS

Definition	• Occurs mainly in young women. • Discrete & confluent papulo- pustules over the perioral or periorbital skin sparing the vermilion border of lips. • No comedones. • Predominant in females at 20- 30 years of age. A disease of females • Aggravated by topical steroids, dentifrice and moisturizers. • Occasionally itchy or burning or feeling of tightness.  Female with papules over chin  Papules, pustule and no comedones 
DDx	• Acne. • Rosacea. • Seborrheic Dermatitis. • Atopic Dermatitis. • Allergic Contact Dermatitis 
Treatment	• Wean patients of topical steroid. Or give the least potent 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 adapalene and azelaic acid. • In severe cases oral doxycycline or minocycline . • Isotretinoin for resistant cases.

HIDRADENITIS SUPPURATIVA

Definition	• Chronic recurrent suppurative scarring **disease of apocrine gland bearing skin (axillae, anogenital region, under female breast).** • Associated with obesity. • Develops in 2nda nd 3rd decades. 
Pathogenesis	• Unknown • Apocrine duct occlusion. • Dilatation and rupture of apocrine gland. • Secondary bacterial infection and draining sinuses. • Genetic predisposition[38% have a relative affected]. 

Clinical presentation:	• Intermittent pain and tenderness. • Pus drainage. • **Double headed comedons [characteristic lesion].** • Nodules, abscess, sinus tracts, scarring. • Submammary, axillary , inguinal regions are common in females. • Perineal involvement occurs more in males. With crohn's disease      
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. Groin area • Irritable bowel syndrome. • Sjogren syndrome.   Sinuses, nodules, connecting tracts  Double headed comedones  Tracts and sinuses
Treatment:	**<u>General measures:</u>** • Practicing proper hygiene. • Using soaps and antiseptic and antiperspirant agents. • Using warm compresses. • Wearing loose-fitting clothing. • <u>Smoking cessation.</u> • <u>Weight reduction.</u>  **<u>Medical :</u>** • intralesional triamcinolone acetonide for acute lesions as anti inflammatory • Antibiotics (minocycline erythromycin) • Retinoids (**Acitretin** better than isotretinoin • Antiandrogens. • Biological therapy (infliximab, adalimumab)  **<u>Surgical:</u>** The best Tx is surgical ❖ Incision and drainage of abscess better avoided ❖ Excision of sinus tracts and chronic nodules ❖ Complete excision of the area and grafting. ❖ CO2 laser.