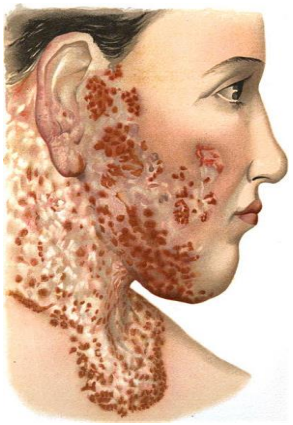
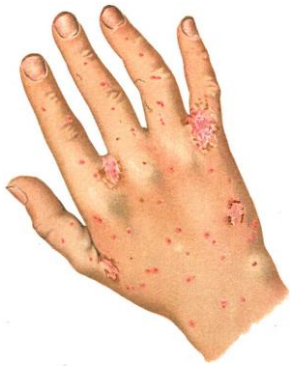
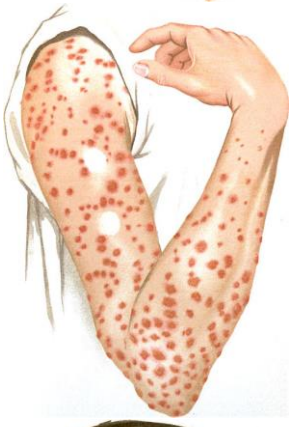
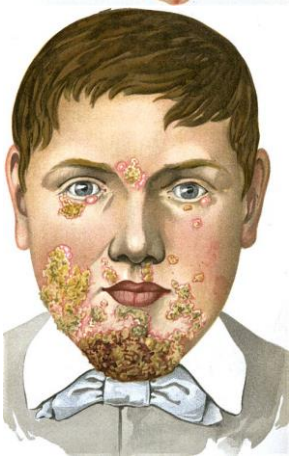
جامعة الملك سعود
King Saud University



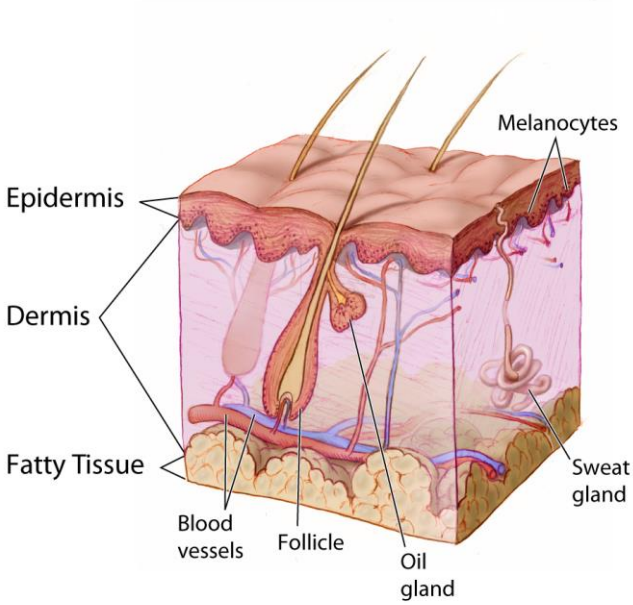






432 Teams

Dermatology



Acne Related Disorders

Done by: ***Abrar AlFaifi***
Reviewer: ***Lama Al Tawil***
Team Leader: ***Basil Al Suwaine&Lama Al Tawil***

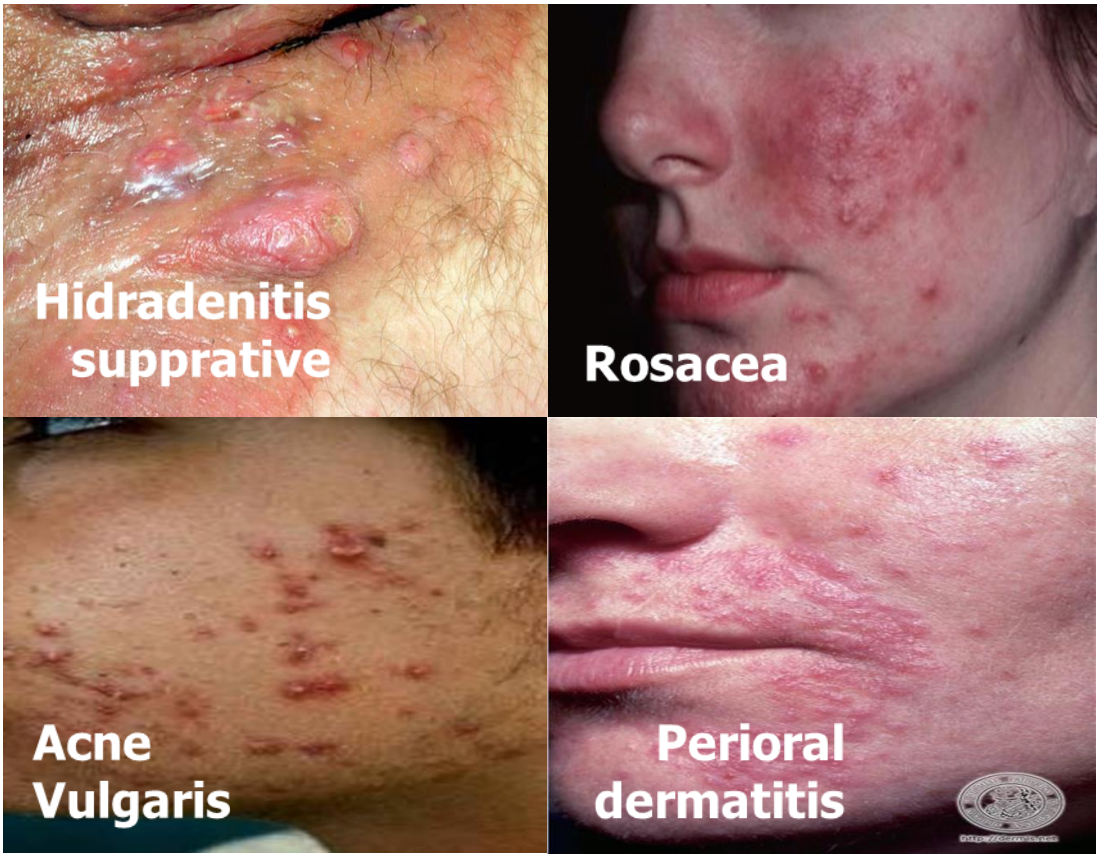
7

Color Code: Original, Team's note, Important, Doctor's note, Not important, Old teamwork

Content

Acne and Acneiform Eruptions

1. **Acne Vulgaris**
2. **Hidradenitis Supprative**
3. **Rosacea**
4. **Perioral Dermatitis**



1. Acne Vulgaris

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

-It can occur earlier around 8 years of age when the adrenal glands secretes increased levels of androgens without cortisol and the development of new zone occurs –zona reticularis- (this is called adrenarche)
-Acne occurrence with aging becomes less yet it can also appear in older age

Pathogenesis

- Increased sebum secretion (Seborrhoea).
- Ductal cornification and occlusion (micro-comedo).
- Ductal colonization with propioni bacterium acnes.
  Fond of lipids and produced by sebaceous gland
- Rupture of sebaceous gland and inflammation
  (inflammatory lesion)

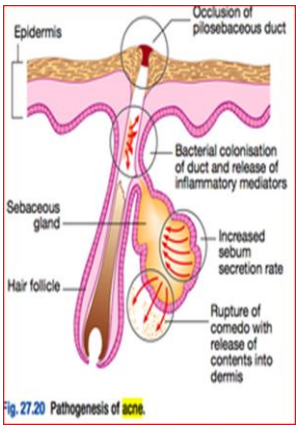


Fig. 27.20 Pathogenesis of acne.

Pilosebaceous unit: hair follicle
sebaceous gland (under the effect of hormones)

Specialized terms

- Microcomedone:

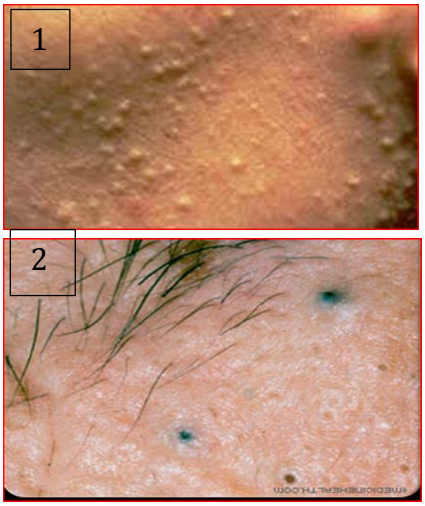
Hyperkeratotic plug made of sebum and keratin in follicular canal.

- Closed comedo (whitehead[1]):

Closed follicular orifice, accumulation of sebum and keratin

- Open comedo (blackhead[2]):

Opened follicular orifice packed with melanin and oxidized lipids



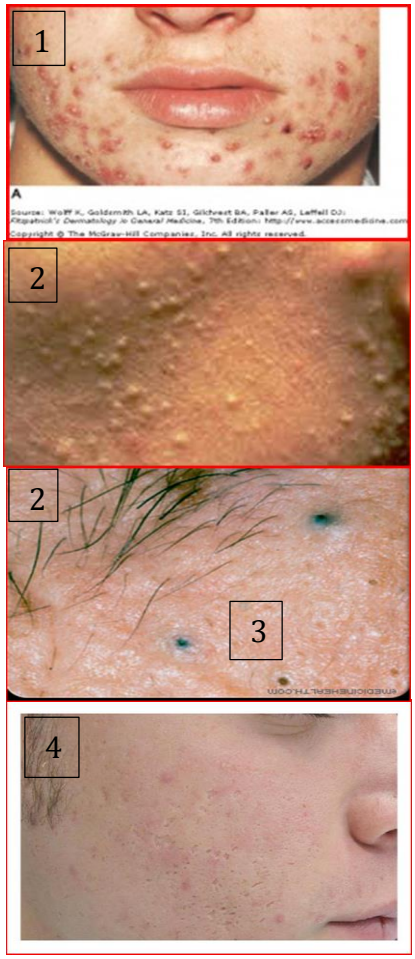
-All acne begins with a microcomedo. That lesion may progress to a closed comedo also known as a white head or an open comedo which is also known as a black head.
-The microcomedo, open and closed comedo all have the potential to evolve into papules and pustules.

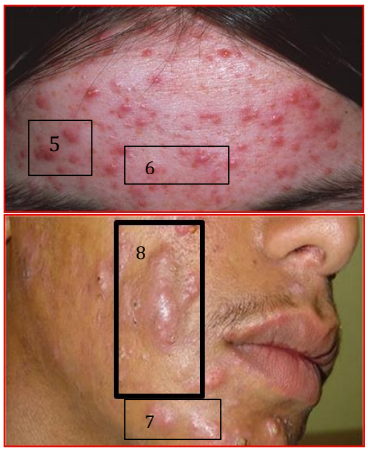
Clinical Features

- Acne lesions are divided into:
  - Inflammatory[1] (papules,pustules,nodules,cyst) because of sebaceous gland rupture and bacteria
  - Non inflammatory[2] (open, closed comedons).
- The comedons are the pathognomonic lesion for acne if not there then it's not acne
- Seborrhoea[3] (greasy shiny face) rosacea and folliculitis (no comedons)
- Post inflammatory hyper pigmentation . may resolve with bleach
- Scarring[4] (Atrophic or Hypertrophic).

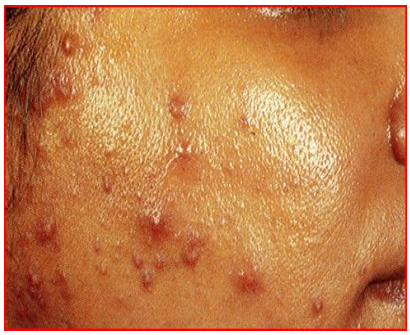
Scarring is irreversible it is what we are afraid of so we treat it aggressively by laser, surgical procedure ..etc

- When follicles rupture into surrounding tissues they result in:
  - Papules[5].
  - Pustules[6].
  - Nodules[7].
  - Cysts[8].





Seborrohea and papules , pustules



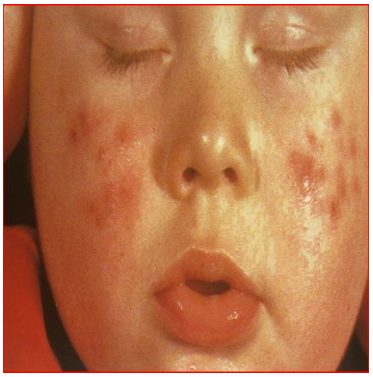
- Lesions predominate in sebaceous gland rich regions (face, upper back, chest & upper arms)
- The severity of acne ranges from mild, moderate , severe according to the predominant lesion.
- Comedon predominance is considered to be mild (comedons)treated topically , while extensive papulopustules (moderate)and nodules or cysts are considered severe treated systemically .

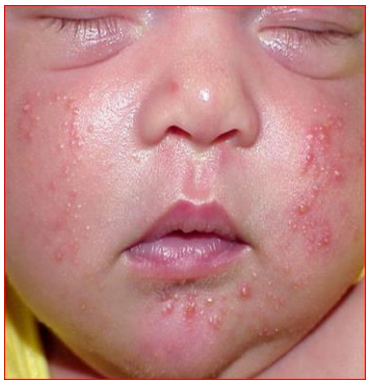
Subtypes of Acne

1-Neonatal acne

- Onset between 0-6 w of age.
- Characterized by closed comedons and pustules in the picture
- Resolve spontaneously within 1-3 months.
- No relation with later development of acne.

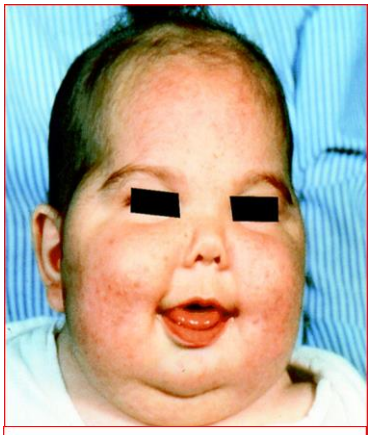
In this type the source of androgens is the mother so there's no risk of developing acne later on because the hormones effect will fade.





2-Infantile Acne

- Onset between 3-6 m
- Characterized by inflammatory lesions
- Can be associated with precocious androgen secretion secondary to brain hamartoma and astrocytoma
  - Notice the crown balding in the picture it indicates that its androgenic

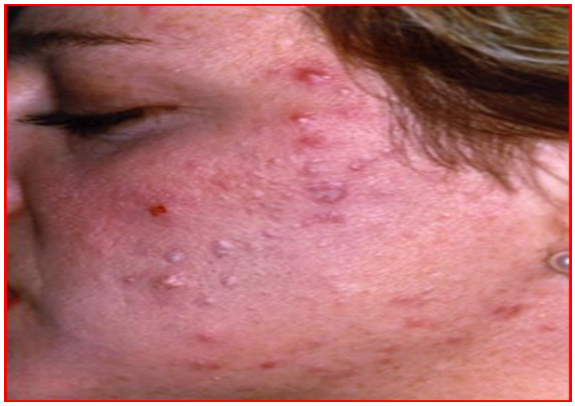


- Endocrinology examination and bone age is important.

There is increased risk of development of severe acne (also when they grow) must do investigations

To differentiate between pustule and while heads the pustule is erythematous and contains pus can be ruptured while the white heads only white color.

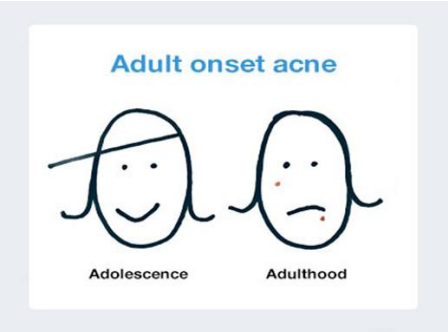
3- Teenage Acne

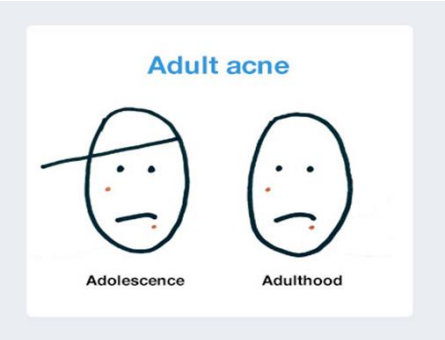


- More in boys
- Mainly comedonal
- May be the first sign of puberty

4.Adult Acne

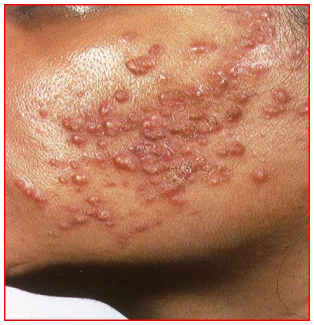
- Affect adult above 25 years
- Can be continuation of teenage acne (adolescence onset) or start denovo (adult onset)
- IF associated with hirsutism , irregular periods evaluate for hyper secretion of adrenal, ovarian androgens (e.g. Polycystic ovary syndrome) especially in the adult type





5. Drug induced Acne

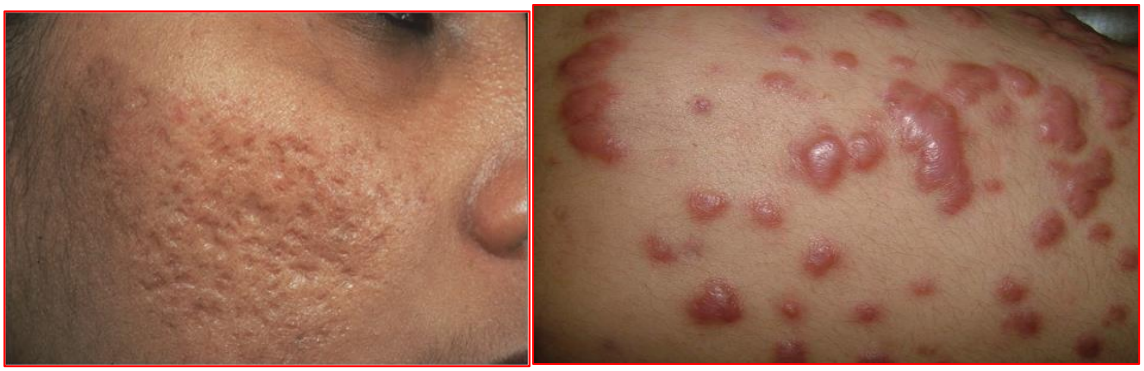
- Steroids, Iodides, Bromides, INH, Lithium,Phenytoin cause acniform eruption.
- The characteristic feature of steroids acne is the absence of comedons and monomorphic lesions as small pustules and papules all looking alike



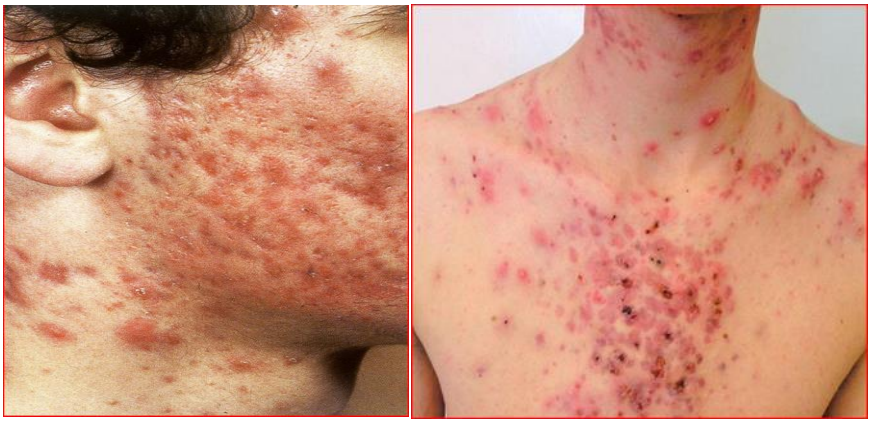
Monomorphic steroid acne

6-Acne Conglobata:

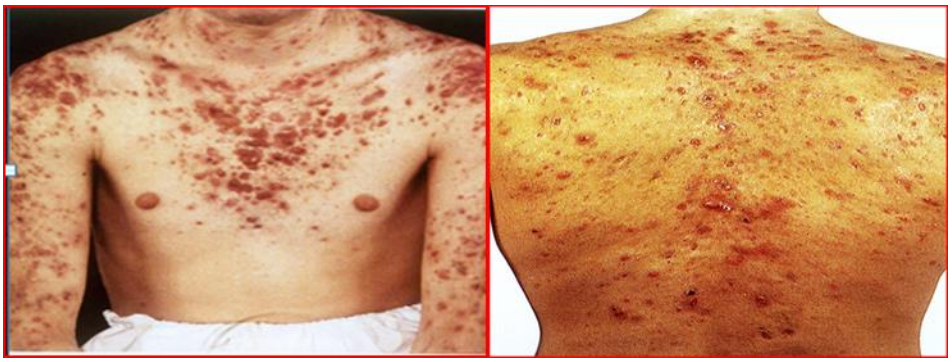
- Highly inflammatory; with comedons, nodules abscesses, draining sinuses, over the back and chest .
- Often persist for long periods. Resistant to therapy
- Affect males in adult life (18-30 years). very important
- Heals with scars (Depressed or Keloidal).



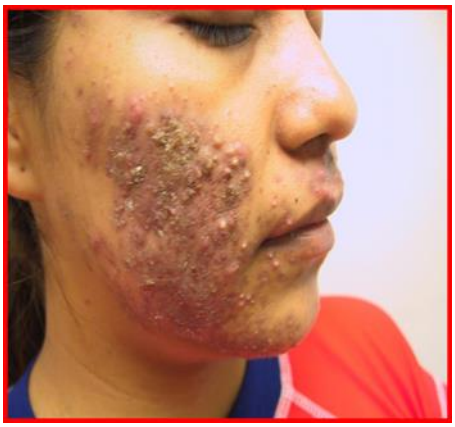
Acne conglobata with nodules and scars



Acne conglobata Scars, Nodules, Keloides, Sinuses

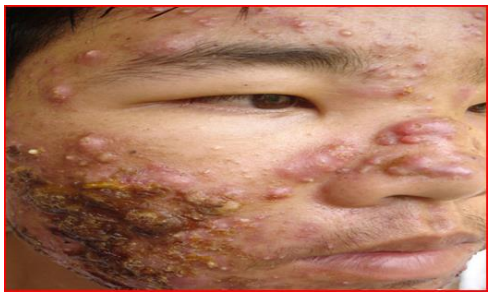


7-Acne fulminans:



- Sudden massive inflammatory tender lesions with ulceration.
- Heals with scarring
- Associated with fever, increased ESR, polyartharalgia, leukocytosis

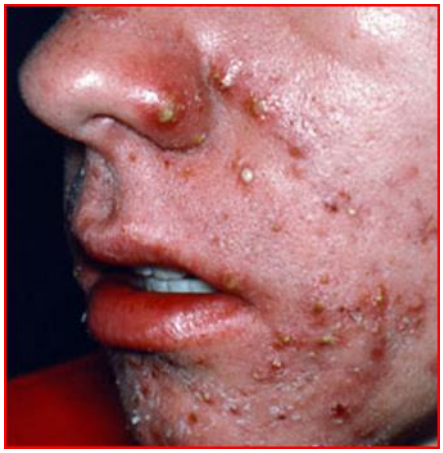
Acne fulminans
Nodules , pustules closed comedones,papules, pus and ulceration sometimes.



8-Occupational Acne:

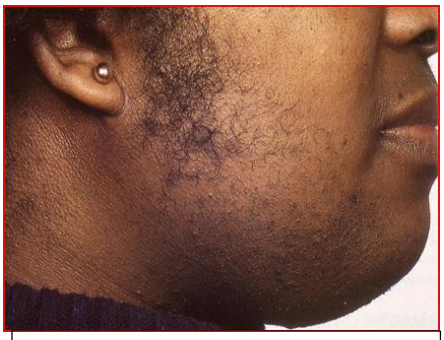
- Due to contact with oils – tars –chlorinated hydrocarbons used in the synthesis of insecticides and solvents.
- Lesions appear at site of contact (not common sites for acne: thighs, arms..etc) including large comedons, papules, pustules,nodules.
- The most serious form is the chlor acne due to systemic effect (liver damage –CNS involvement, decrease lung vital capacity) it causes not only skin toxicity but also systemic due to toxin absorption

9-Gram Negative Folliculitis:

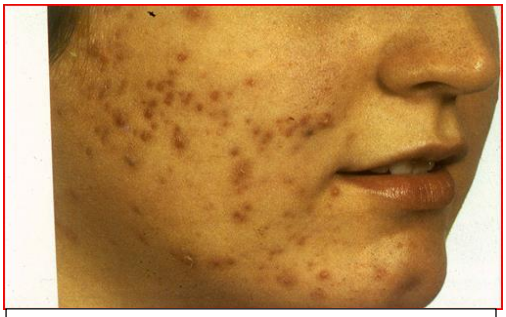


- Infection with G –ve organisms (Klebsiella, proteus, E.coli)
- Seen in patients under chronic antibiotic acne treatments
- Superficial pustules without comedons or even cysts involving from intranasal area to chin and cheeks.
- Response to ampicillin, Isotretenoin, TMP-SM(septrin).

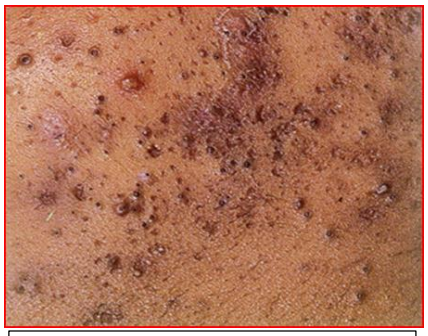
Other pictures



Hirsutism and closed comedones

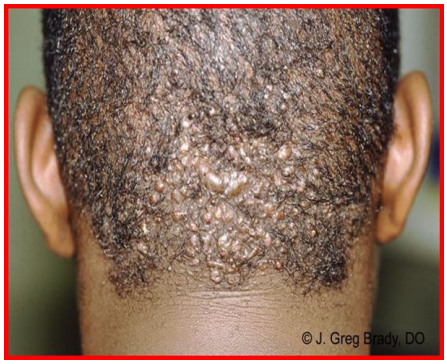


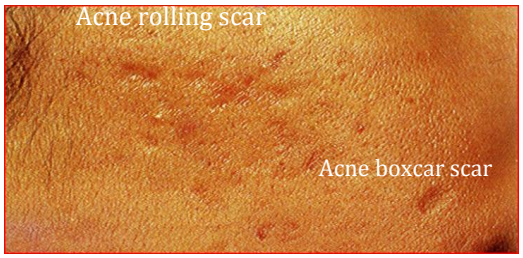
Postinfammatory hyperpigmentation, papules , pustules

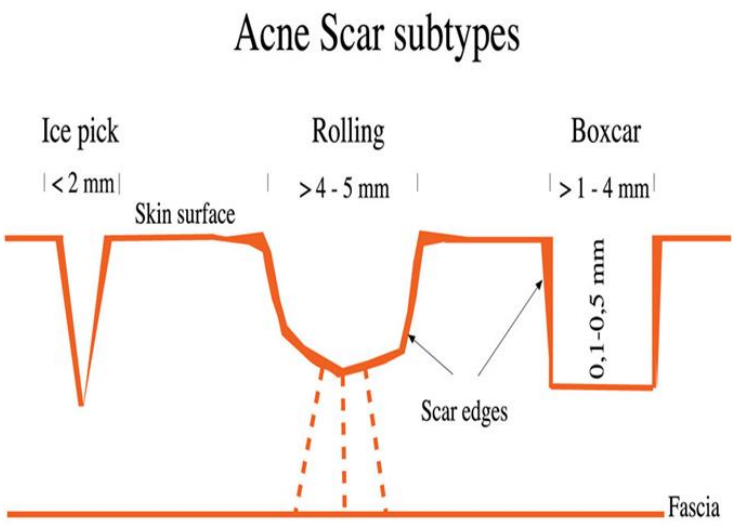


Open comedones, papules ,pustules

Acne Keloidales
It heals with scar and keloids causing alopecia







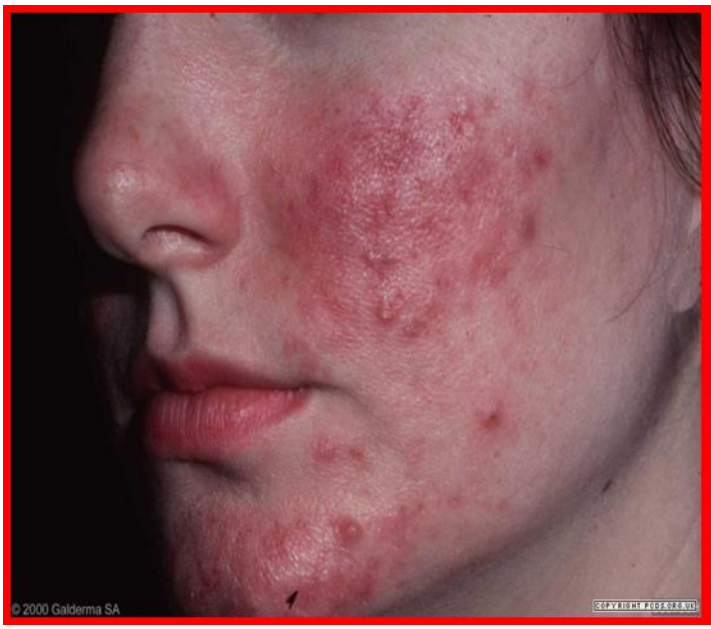
Ice pick: deep, very narrow scars that extend into the dermis. The skin looks as if it has been pierced by an ice pick or sharp instrument. Ice pick scars seem to make a small, deep "hole" in the skin. Some may look like a large, open pore.
Boxcar: round or oval depressions with steep vertical sides. Wider than ice picks, give the skin a pitted appearance.
Rolling scars: "wave-like" undulations, normal appearing skin. fibrous bands of tissue develop between the skin and the subcutaneous tissue below which pull the epidermis which creates the rolling appearance of the skin. Treated by subscision (cut the fibrous bands)

Aggravating Factors:

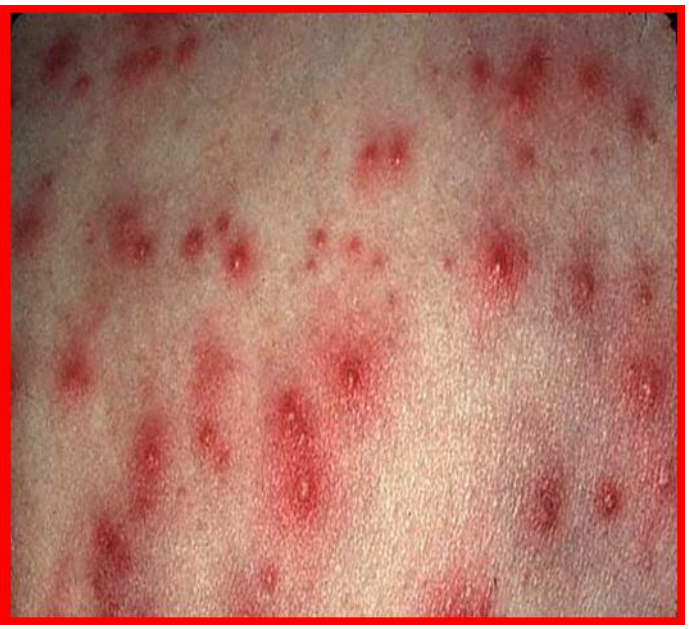
- Diet has no relation to acne. but reports show low fat and skimmed may cause the problem
- Pre menstrual flare
- Sweating
- UV radiation
- Stress
- Friction
- Cosmetics (contains oil and when you have acne you must not apply oily products or moisturizer on your skin)

Differential Diagnosis

Rosacea الوردية



Folliculitis



ACNE TREATMENT – Goals

- Decrease scarring
- 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:

We should not depend on one method in treating acne because the pathogenesis happens in many ways

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

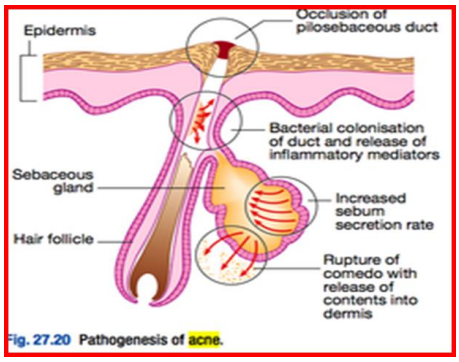
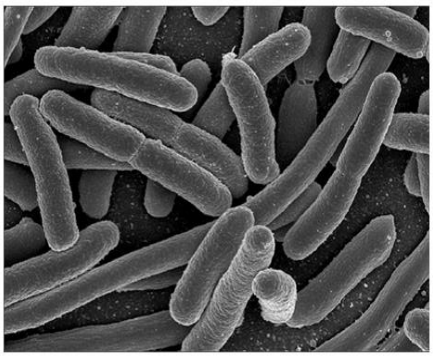


Fig. 27.20 Pathogenesis of acne.

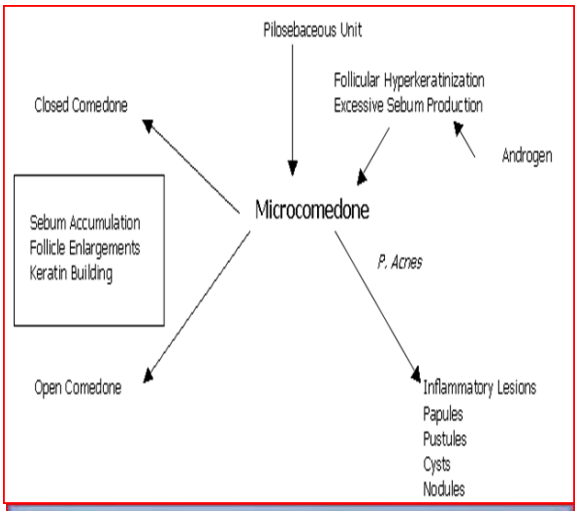


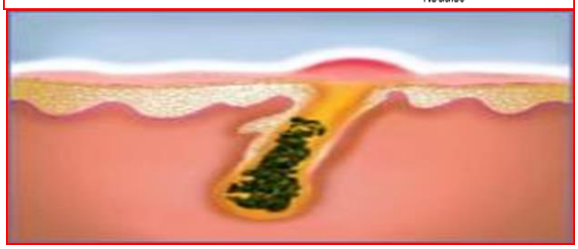
Treatment

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

- Clearasil (trade name) is the safest topical comedolytic but very weak
- Erythromycin best given to pregnant women
- Isotretinoin is always given as monotherapy never combined with other oral medication unlike in antibiotics

- Antiandrogens and OCP given for PCO patients plus other acne treatments
- Miscellaneous treatment is to prevent scarring
- Intralesional steroid injection to reduce inflammation and scarring
- Drugs which causes Photosensitivity should be applied at night





1-Topical Therapy

Benzoyl peroxide: Gel causes bleaching
High antibacterial activity
Drying effect
Could cause irritation and contact dermatitis
Benzac Ac gel (trade name)
5% conc (for facial use)
10% conc (for back and arms)
for papule and pustule

Retinoic Acid:
Comedolytic activity (if comedons present)
Advice patient not to expose to sun as it may lead to burn (apply only at night)
Avotin A, Acretin (trade name)

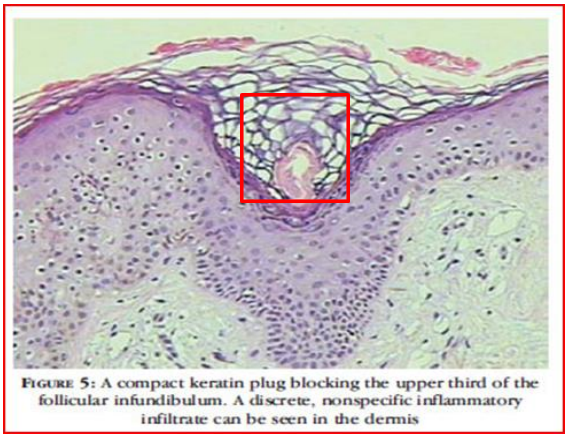


FIGURE 5: A compact keratin plug blocking the upper third of the follicular infundibulum. A discrete, nonspecific inflammatory infiltrate can be seen in the dermis

Salicylic Acid:
Comedolytic, less potent than retinoic acid

Resorcinol and sulfur: are keratolytic
Clearasil (trade name)

Azeliac acid: antibacterial and bleaching.
Skinoren(trade name)

Topical treatment result within 2 months

Keratolytic: Agents that soften, separate, and cause desquamation of the cornified epithelium or horny layer of skin. They are used to expose mycelia of infecting fungi or to treat corns, warts, and certain other skin diseases
Comedolytic: dissolve and inhibit the formation of the clog in the follicular canal

2-Treatment of antibiotic

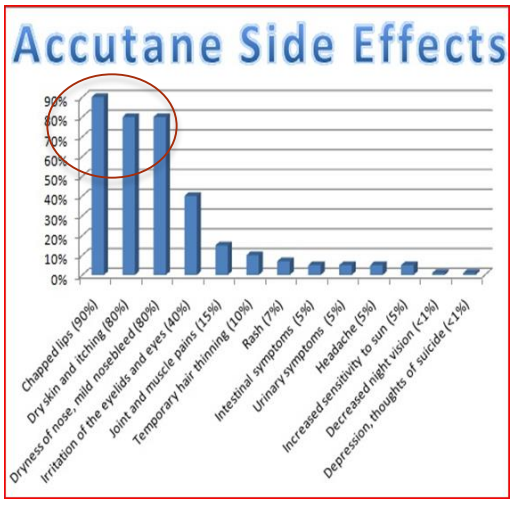
Drug	Dose	Recommendation and Duration
Tetracycline	0.5 BD	Taken on empty stomach to promote absorption Not to be taken with milk or antacid Not to be given to pregnant women "Why"?
Erythromycin	0.5 g BD	For pregnant women with bad acne
Doxycycline	100 mg/day	Can be taken with food, photosensitivity.
Minocycline	100 mg/day	Drug could cause blue – black pigmentation in scars, lupus, hepatitis, photosensitive drug rash
Clindamycin Topical(dalacin T)		Could cause pseudo membranous colitis
Trimethoprim Sulphamethoxazole		Used only in resistant cases .
Isotretinoin (Accutane	0.5-1mg/kg	Give long term remission Given in resistant acne

Not given to pregnant women it causes bone hypoplasia and teeth discoloration

Systemic Antibiotic has to be used for 6 months

3-Hormonal

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



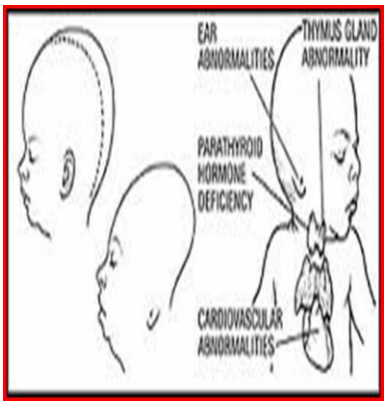
4-Isotretinoin [Accutane]:

- Vitamin A analogue
- Side Effects of Isotretinoin:

-Dryness of mucous membranes [Chelitis,Conjunctivitis]

-Headache and increased intracranial pressure [psuedotumor cerebri]

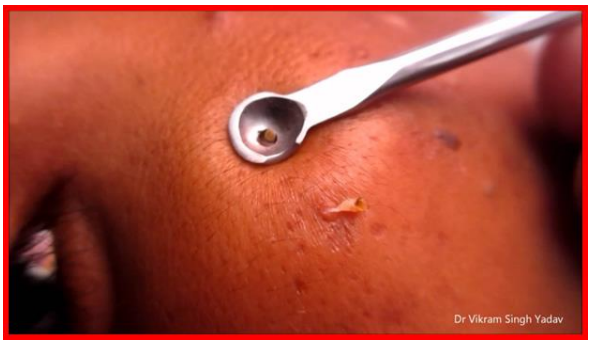
-Isotretinoin should not be given with tetracycline (it increases intracranial pressure-pseudo tumor cerebri-)



Teratogenic anomalies

-Bone and joint pains.
-Increases triglycerides and cholesterol or LFT
-Patients should avoid pregnancy 4 w after discontinuation of drug because of teratogenicity. Because its lipophilic .Unlike Acitretin it's half life longer she can conceive after stopping the medication by 2 or 3 years

Miscellaneous treatment:

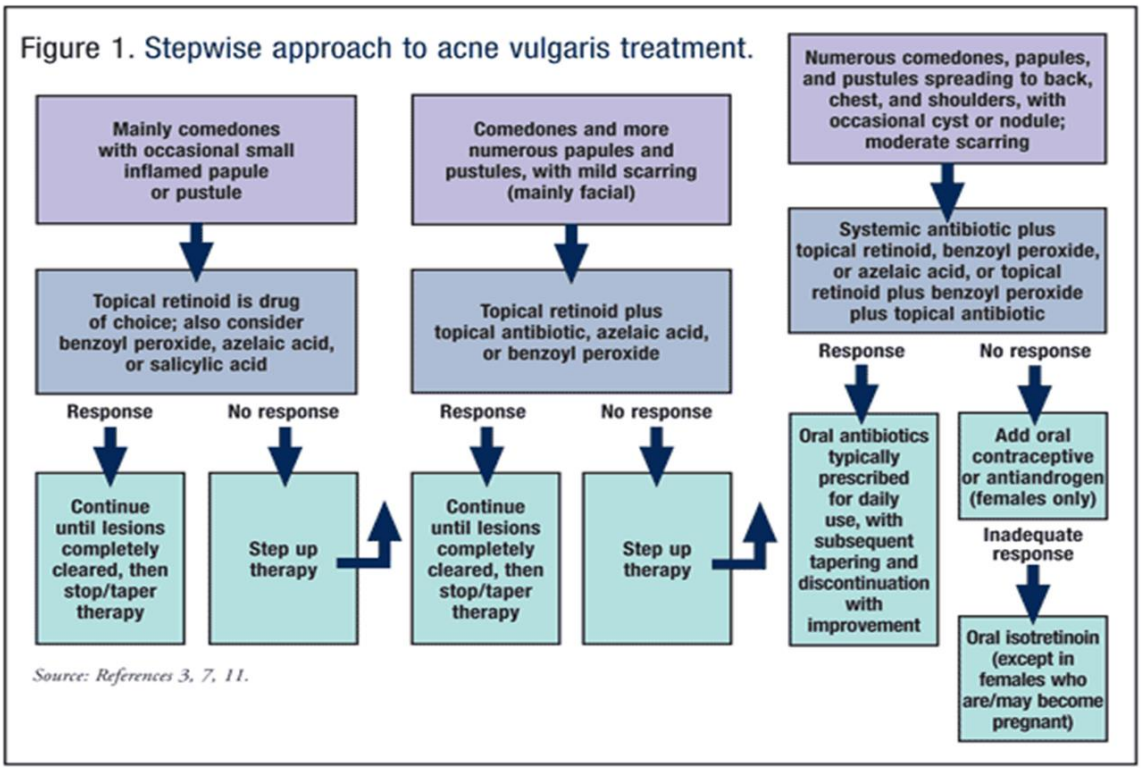


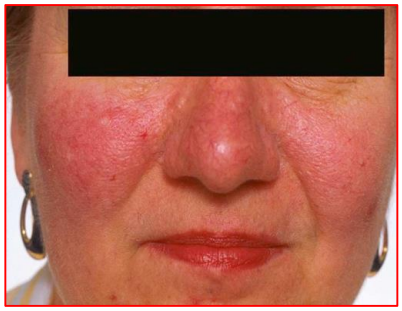
Comedo extraction

-Chemical reconstruction of skin scars CROSS
-Using trichloroacetic acid (TCA) for the treatment of atrophic acne Scar
-You will see frosting after applying the liquid within 3 minutes nd it's positive sign for successful peeling

Approach to acne vulgaris treatment:

Always remember in derma we start by general management first (hygiene, cleansers..etc) then Topically but if the case is so severe, extensive and progressing we give systemic antibiotic and to prevent scarring we interfere surgically or by laser therapy. Follow the scheme below for the treatment it is very clear.
Check what the patient is bothered by and according to that you pick your drug if comedolytic or keratolytic





Rosacea (erythematous background)

2. Rosacea

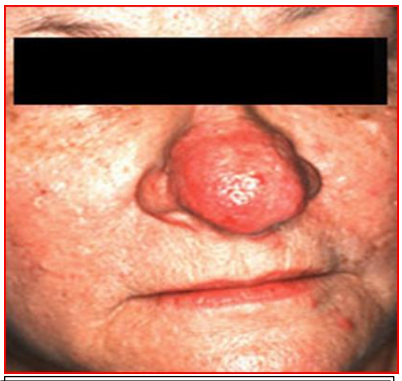
Similar to acne plus other features

- Definition:

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

- Incidence:

-Common in 3rd and 4th decade and sometimes at acne age
- Peaks between 40-50.
-Common in fair skin.
-Women are affected more than men but rhinophyma[1] is more in men.

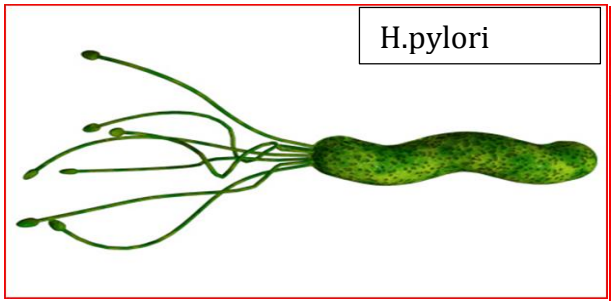


rhinophyma1

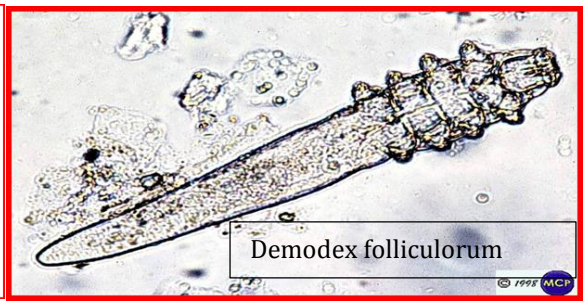
Rosacea Pathogenesis:

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

first starts as flushing and blushing then to persistent erythema and progress to papules and pustules



H.pylori

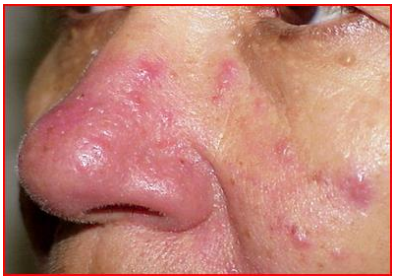


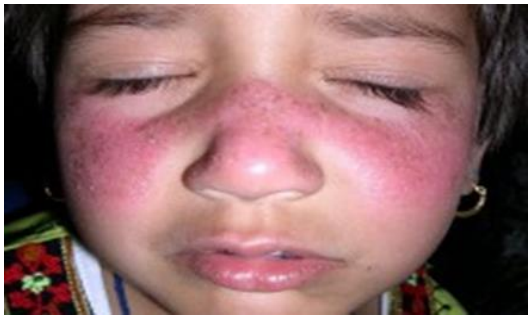
Demodex folliculorum

Clinical findings:

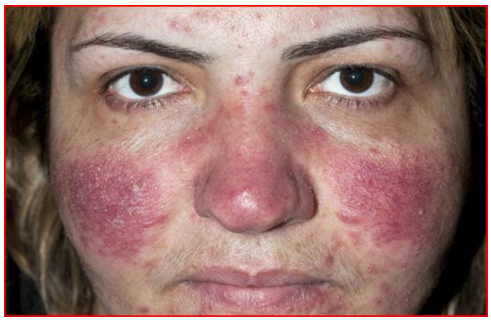
- The hall mark is:
  -Episodes of flushing and erythema in butterfly distribution.ddx SLE
  -Papules and pustules.
  -Erythema and telangiectasia.
  -Absent comedons.
  -Granulomas [firm papules].
- Localization:

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

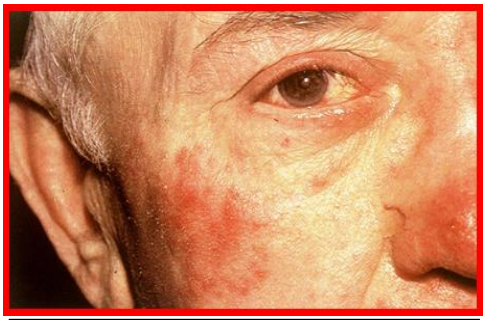




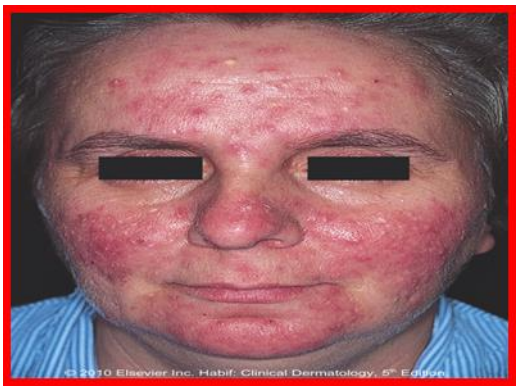
Malar erythema



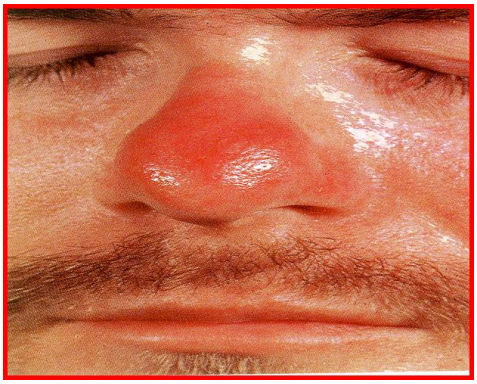
Malar erythema and scales

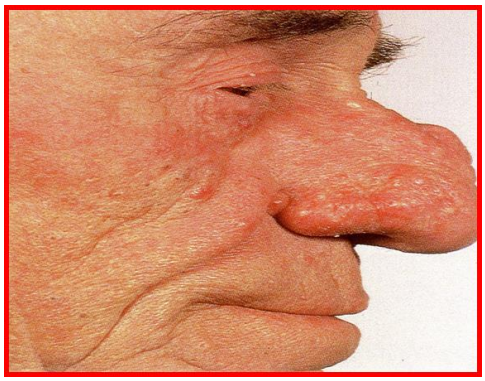


Telangictasia, papules , blepharitis , conjunctivites

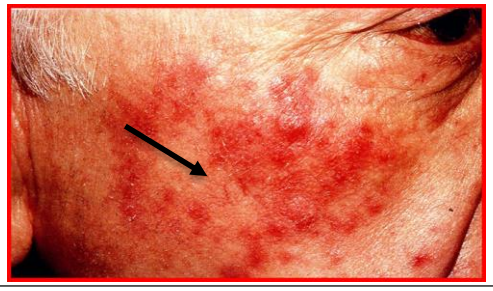


Papules on erythematous background

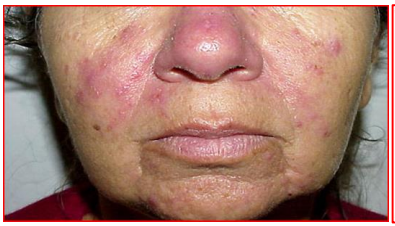




Rhinophyma

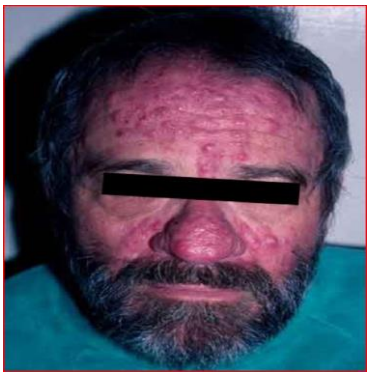


Papules on erythematous background , telangictasia




Types of Rosacea:

-Erythematotelangictatic
-Papulopustular.
-Ocular What affects the skin affect the eyelids causing symptoms
-Phymatous.



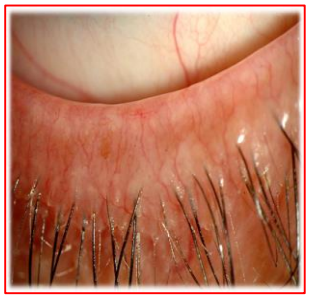
Complications

- Rhinophyma:

Swelling of the nose due to sebaceous gland hyperplasia
In the picture the forehead shows granulomas

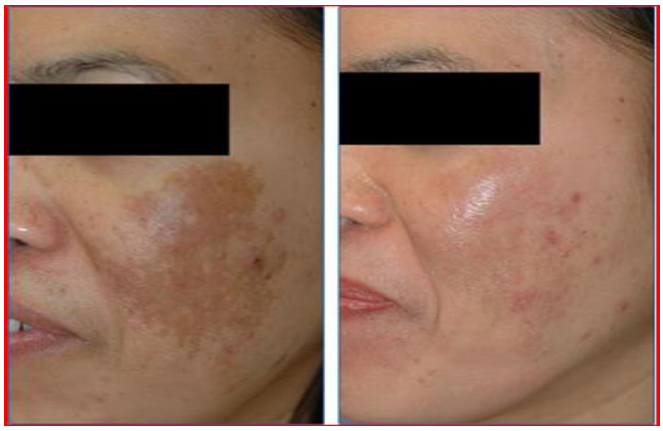
- Eye complications:

Occurs in 50% of cases including
Blepharitis
Conjunctivitis
Keratitis
Iritis
Eyelid telangi-ectasia.



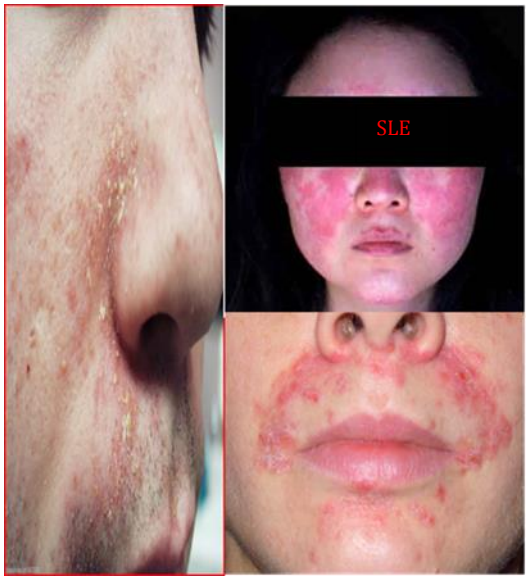

Associated diseases:

MARSH syndrome =
Melasma الكلف
Acne
Rosacea الوردية
Seborrheic dermatitis
Hirsutism



Differential diagnosis:

- SLE (erythema only)
- Acne (comedons)
- Seborrheic dermatitis no pustules
- Perioral dermatitis same morphology but different location



Seborrheic dermatitis | PERIORAL DERM

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 patients with rosacea have sensitive skin (photosensitivity) burns easily
-Avoid hot drinks and heat. The heat causes vasodilation of the skin vessels this is mediated by the hypothalamic tract

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	Doxycycline
5. Isotretinoin 0.1% in cream	Isotretinoin in resistant cases phymas (0.1 -0.2 mg/kg)
Antiparasitic Lindane Crotamiton Benzyl benzoate	Metronidazole 500 mg for 20-60 days
Sunscreen, Vascular laser	Azithromycin

#3 is antifungal
Antiparasitic is used for Demodex folliculorum mite
The treatment is just like acne but what's important here the dose of Isoretinoin is lesser **0.1-0.2mg/kg** plus azithromycin metronidazole (these two are not used in acne)

1-Topical:

- **Metronidazole** gel 0.75% (Rozex gel)
- **Erythromycin** 2% gel bid
- **New modalities of topical:**

- Topical brimonidine 0.33% gel

-a vasoconstrictive alpha-2 adrenergic receptor agonist used in the treatment of open angle glaucoma
-Used mainly for erythema

- Topical ivermectin

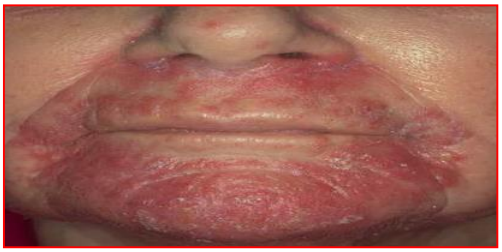
-Has both antiinflammatory and antiparasitic properties used for patients with scabies
-used for the treatment of inflammatory lesions of rosacea as a 1% cream.

2-Systemic:

Minocycline 100 mg bid till clear then taper
Doxycycline 100 mg bid then taper
Tetracycline 500 mg bid till clear and tapered

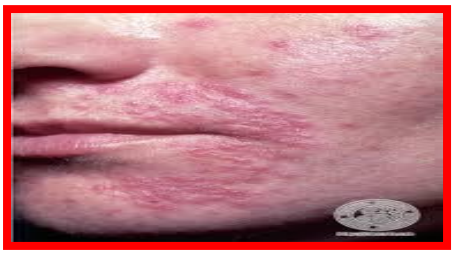
3-Anti H. pylori therapy.

3. Perioral Dermatitis

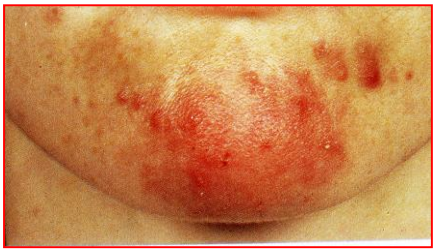


- Occurs mainly in young women
- Discrete & confluent papulo- pustules over the perioral or periorbital skin sparing the vermilion border of lips.
- No comedons.
- Predominant in females at 20- 30 years of age.
- Aggravated by topical steroids and moisturizers.
- Occasionally itchy or burning or feeling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

-Seen in pregnant women and worsens in pregnancy, toothpaste makes it worse too.
-try to relieve the tighness by moistrizer but it makes it worse



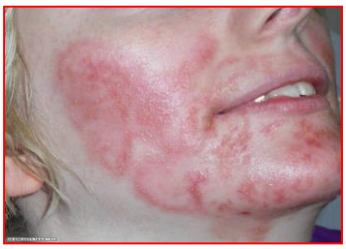
Female with papules over chin



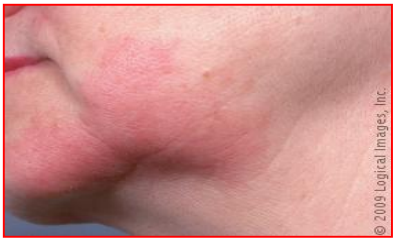
Papules , pustules, no comedones

Differential Diagnosis

- Acne.
- Rosacea. Perioral dermatitis is similar to rosacea but different location
- Seborrheic Dermatitis.
- Atopic Dermatitis.
- Allergic Contact Dermatitis.



Atopic dermatitis

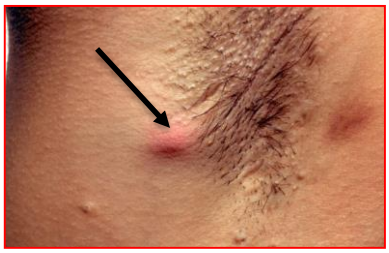


Allergic contact dermatitis

TREATMENT

- Wean patients of topical steroid. Gradual withdrawing, give them milder steroid till you stop it.
- Stop any moisturizers.
- In pregnant mild cases use topical antimicrobial therapy with metronidazole gel and erythromycin solution.
- Pimecrolimus cream in steroid induced perioral dermatitis. (this cream is usually used in atopic dermatitis instead of steroids)
- Topical anti acne medication like adaplene and azelaic acid. (acne medication)
- In severe cases oral doxycycline or minocycline .
- Isotretinoin for resistant cases.

4. Hidradenitis Supprativa



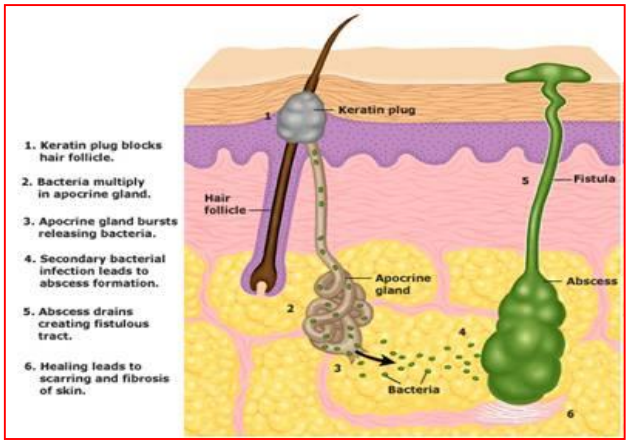
- Chronic supprative scarring disease of **apocrine gland** bearing skin (axillae, anogenital region ,under female breast).
- Associated with obesity
- Develops in 2nd and 3rd decades

-Supprativa= pus

-Nodule forms under the arm, then disappears, then shows up again plus recurrent infections

PATHOGENESIS:

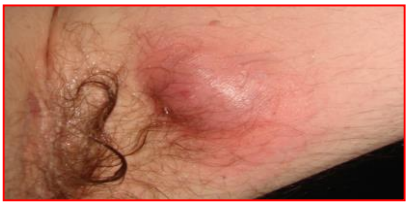
- Unknown
- Apocrine duct occlusion.
- Dilatation and rupture of apocrine gland.
- Secondary bacterial infection and draining sinuses.
- Genetic predisposition[38% have a relative affected*].*



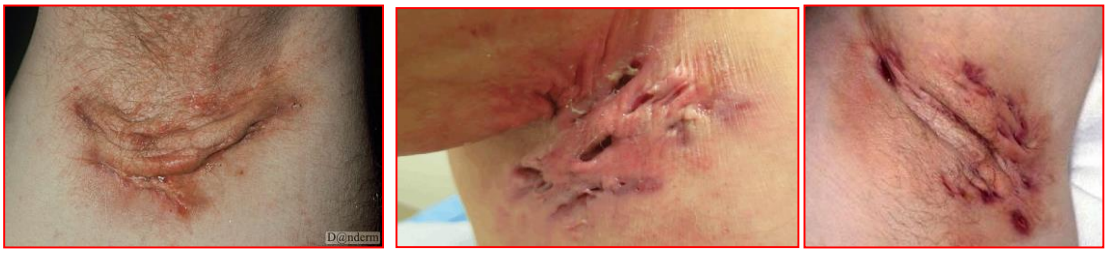
Clinical Presentation

- 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.

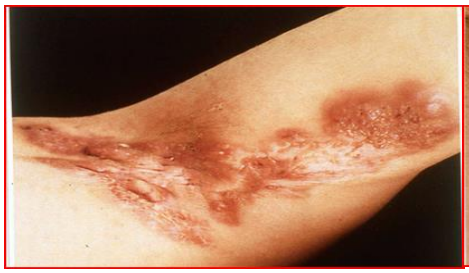
Neighbored comedons



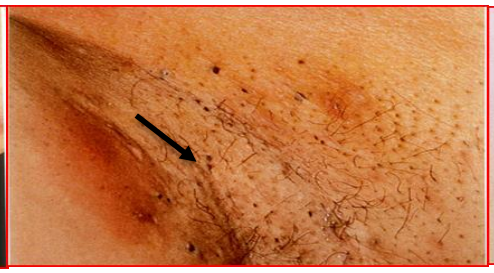
Nodule, abscess



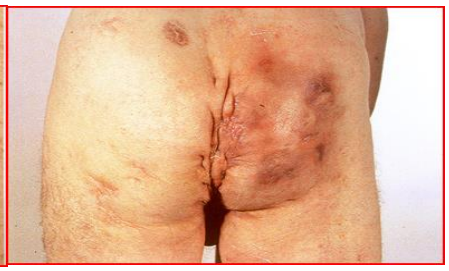
Sinus ,nodules and scars in the underarm



Sinuses, nodules, connecting tracts ,scars



Double headed comedones



scars and sinus tracts

Hurley stages: This staging is done for treatment selection

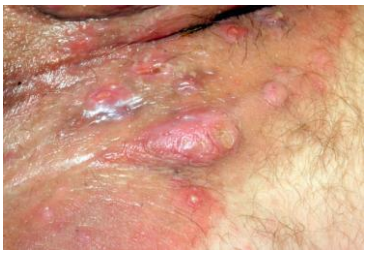
Appendix Table 3. **Hurley Stages**

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

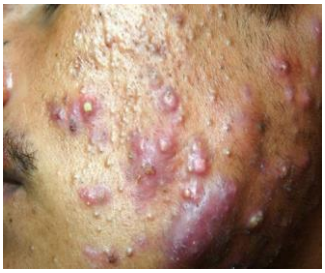
Stage 1: single or multiple show up and disappear without complications
Stage2: abscess with tract formation and scarring but distributed away from each other
Stage 3: when close to each other, whole area is involved plus the complications

Associated findings

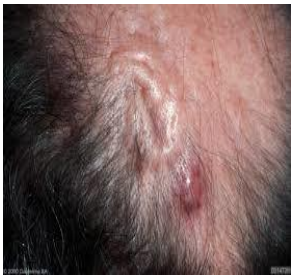
- The follicular occlusion tetrad including: if hidradenitis supprativa presented plus the following 3 we call it follicular occlusion tetrad if one was missed we call it follicular occlusion triad
- Extensive acne vulgaris (conglobata variety)
- Perifolliculitis of the scalp
- Pilonidal sinus



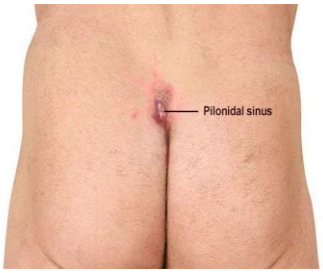
Hidradenitis supprativa



Acne conglobata



Perifolliculitis



Pilonidal sinus

- Crohn's disease in 39% of patients
- Irritable bowel syndrome
- Sjogren syndrome

Management

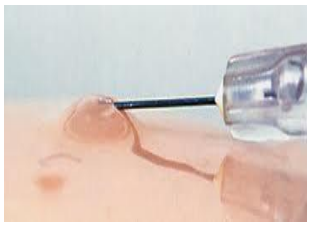
General measures:

- Wearing loose fitted clothing (to avoid friction and skin lesion formation)
- Avoid trauma to the area (shaving,plucking..etc)
- Washing with non soap cleansers daily to decrease odor. (Due to pus)
- Covering the oozing lesions with non adhesive bandage (to prevent infecting other sites)
- Weight reduction (skin folds irritation)
- Smoking cessation (it flares HS)

-How to differentiate between folliculitis vs furunculousis vs Hidradenitis Supprativa
Folliculitis: superficial pustule
Furunculosis: deeper looks a bit like HS but no associated features of HS

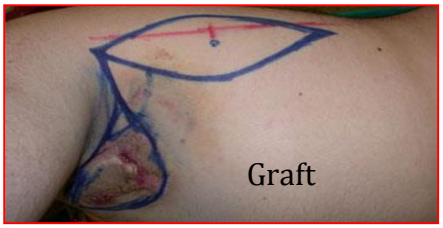
Medical:

- Intralesional triamcinolone acetonide for acute lesions (to suppress inflammation. Every 4 weeks to 6 weeks until it resolves)
- Antibiotics (minocycline erythromycin)
- Clindamycin (300 mg twice daily) and rifampin (600 mg once daily) for 10 weeks (combination)
- Retinoids (Acitretin better than isotretinoin)
- Antiandrogens.
- Biological therapy



Surgical:

- Incision and drainage of abscess better avoided
- Excision of sinus tracts and chronic nodules
- Complete excision of the area and grafting.
- CO2 laser



SUMMARY

- Acne Conglobata is characterized by large abscesses and grouped inflammatory nodules and treated with oral ISOTRETINOIN for 5 months and systemic STEROIDS. No need to start gradually here because it's severe and you want to prevent scarring.

- Acne fulminans has sudden onset, severe and often ulcerating acne, fever, polyarthritis, and treated with a combination of oral steroids and isotretinoin.

- When a person spends hours in front of a mirror squeezing and picking at every blemish, the condition is termed "excoriated acne."

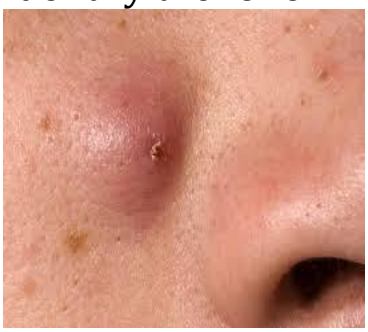
- Iodides, bromides, lithium, steroids can aggravate acneiform eruption.

MCQs

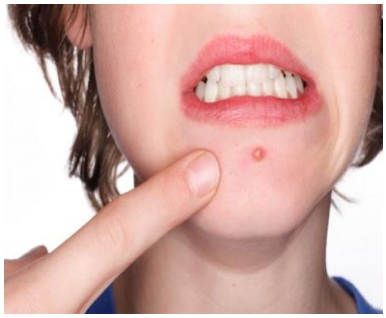
1- A patient has fever & polyarthritis with acne on his trunk:
a) Acne conglobata.
b) Acne fulminans.
c) Acne chemical.
d) Acne tropical.
e) Acne vulgaris

2- Drugs aggravate acneiform eruption:-
a) Clonidine – gold.
b) Captopril – arsenicals.
c) Steroid – lithium.
d) Beta – blockers.
e) Thiazid –bismuth.

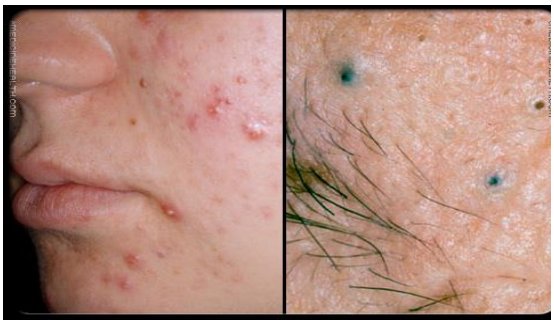
Identify the following :



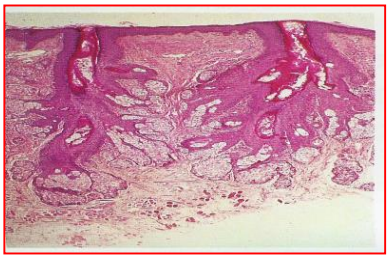
Nodules



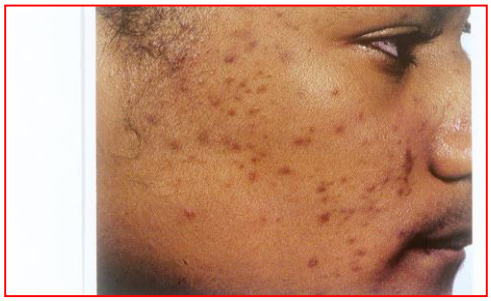
Papules

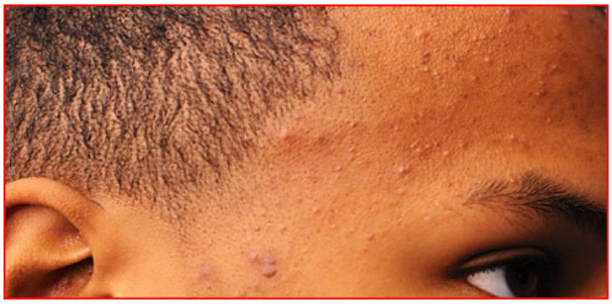


Papules and pustule and black head

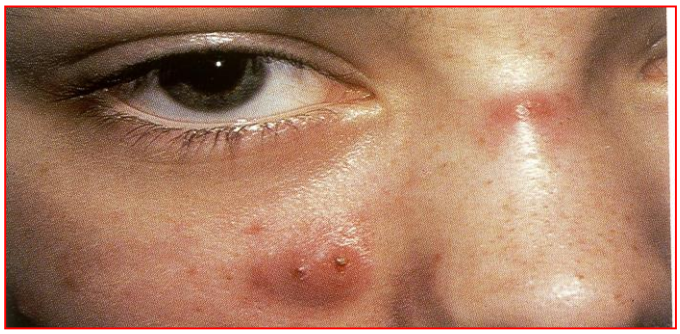


On the left closed and open comedons .on the right obstructed sebaceous duct





On the right closed and open comedons
On the left post inflammatory hyperpigmentation



Nodules

Ans :
B
C