

**ACNE VULGARIS**

**DONE BY:**

**HASHIM ALHAMMOURI & MOHAMMAD ALZOUBI**

Acne



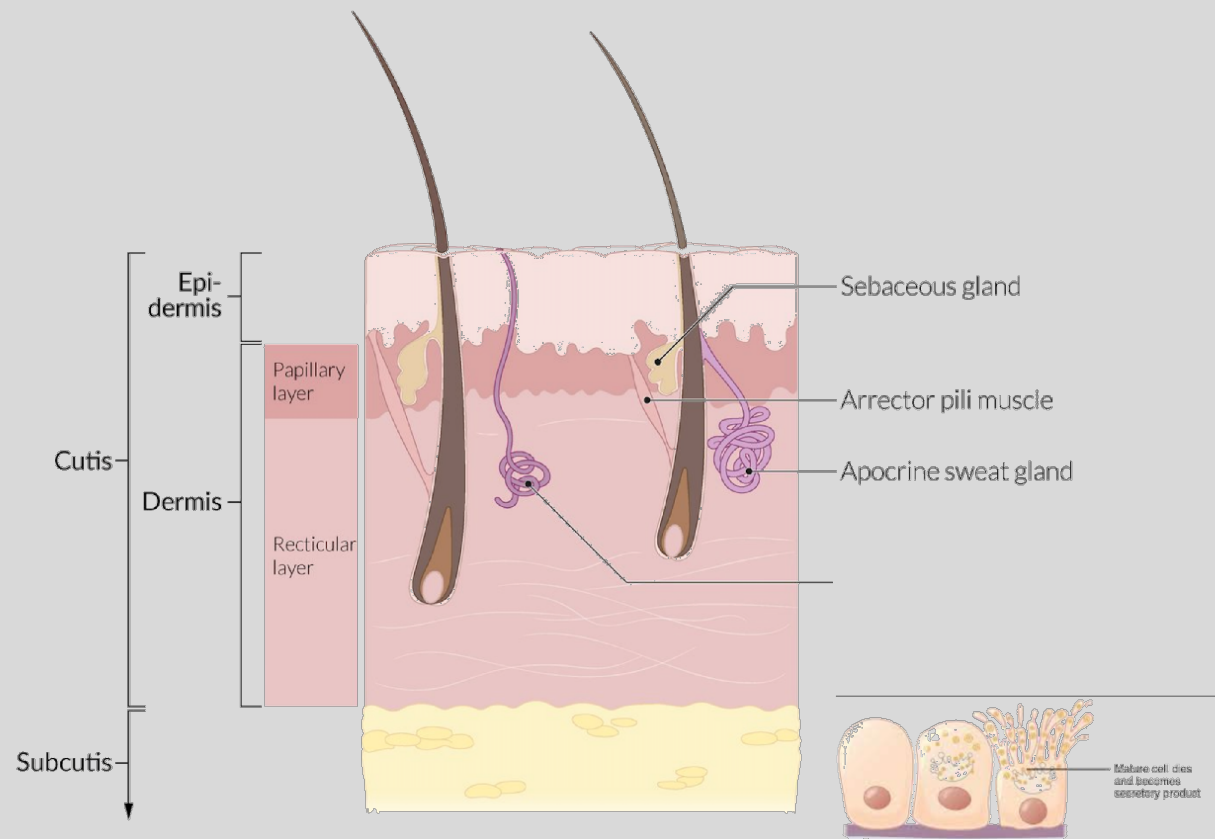
Spot

Vulgaris



Common

# Pathophysiology:



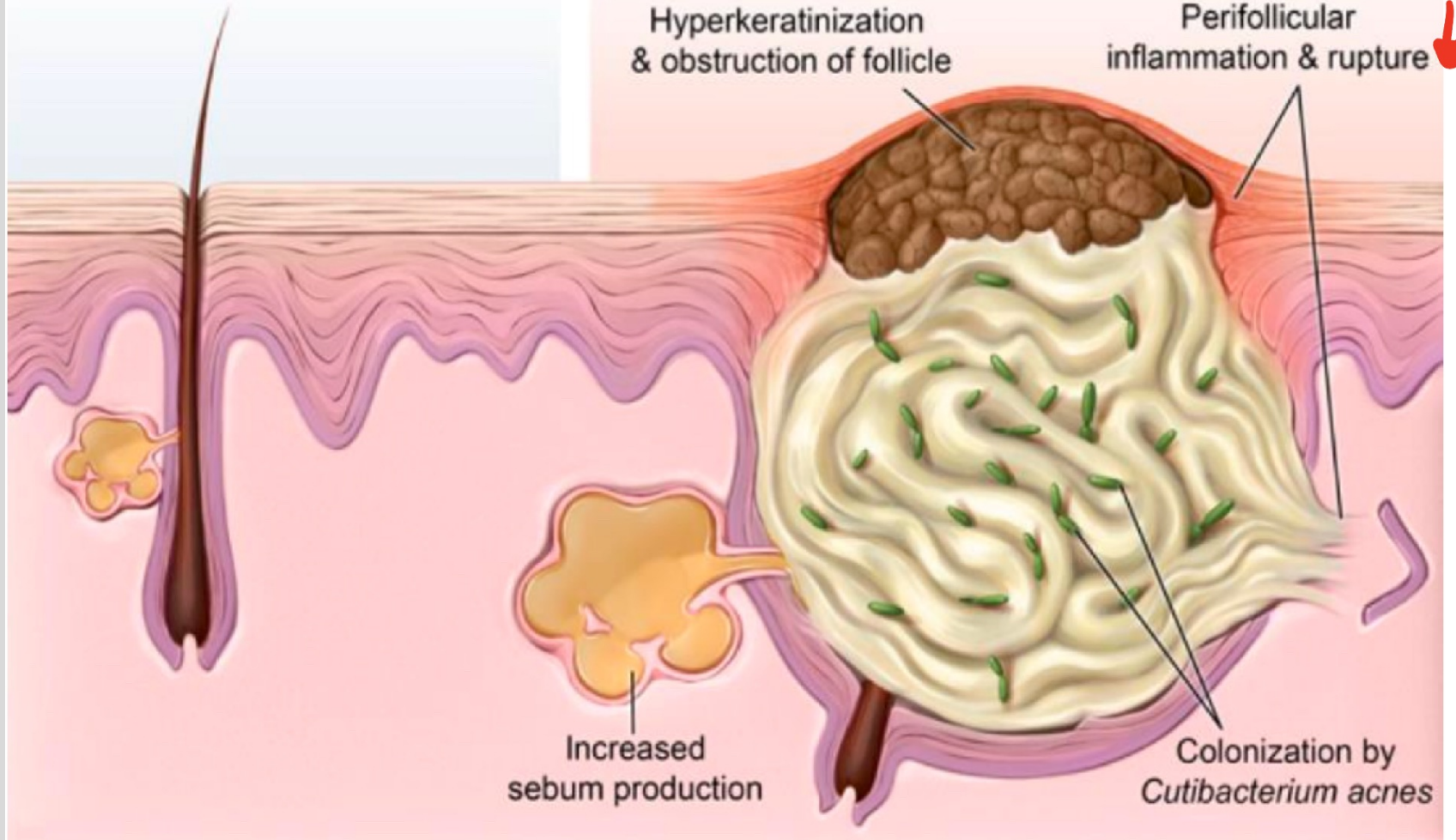
Acne is a chronic disorder of the pilosebaceous apparatus. characterized by comedones, papules, pustules, cysts and scars.

The glands themselves are multilobed and contain cells full of lipid, which are shed whole (holocrine secretion) during secretion.

Sebum lubricates and waterproofs the skin, and protects it from drying; it is also mildly bactericidal and fungistatic

Normal

Acne vulgaris

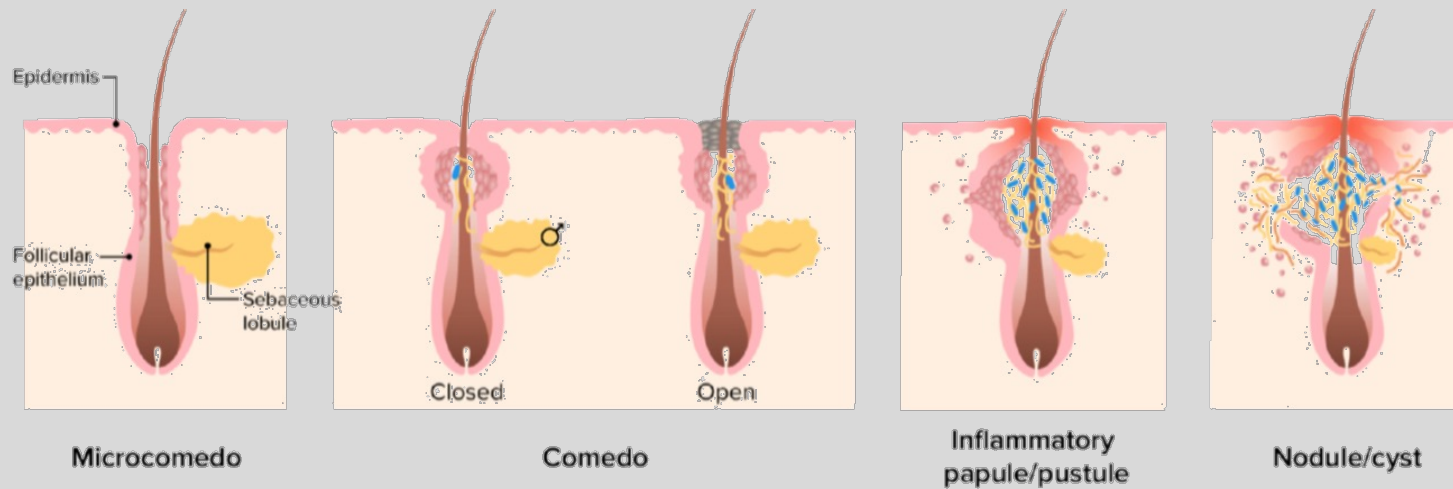


Hyperkeratinization  
& obstruction of follicle

Perifollicular  
inflammation & rupture

Increased  
sebum production

Colonization by  
*Cutibacterium acnes*

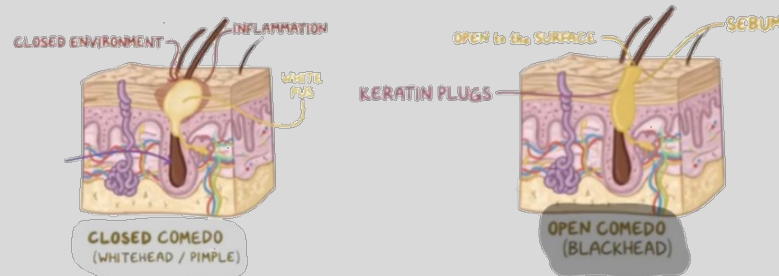


Microcomedo

Comedo

Inflammatory papule/pustule

Nodule/cyst



Follicles clogged with sebum provide an anaerobic, lipid-rich environment for the proliferation of *Propionibacterium*, an anaerobic diphtheroid that is part of normal skin flora.

*Propionibacterium* acnes infection produces **lipases** that break down sebum, releasing **proinflammatory fatty acids > results in pustule or nodule formation.**

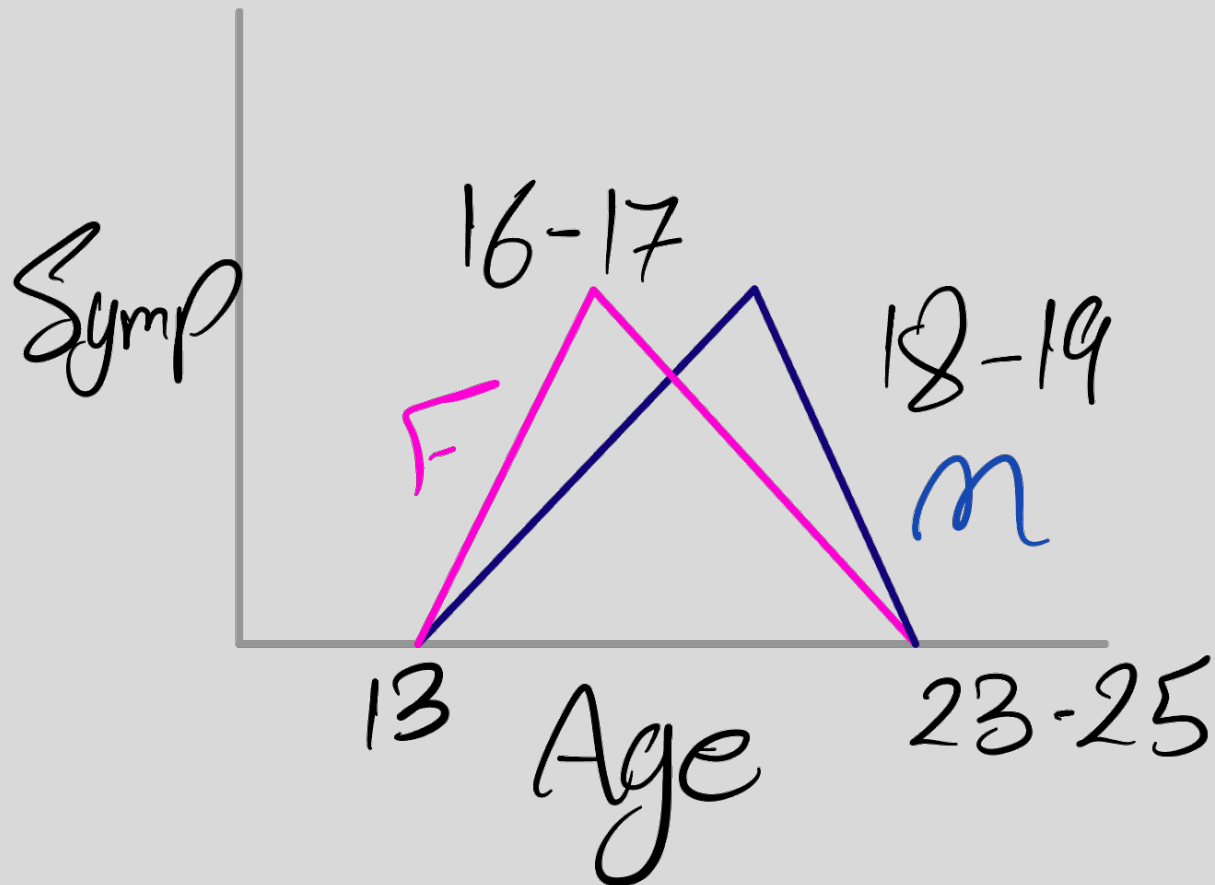
Rupture of these follicles is associated with intense inflammation and tissue damage



5. **Genetic.** There is a high concordance of the sebum excretion rate and acne in monozygotic, but not dizygotic twins. **The severity of acne & tendency to scar do run in families.**

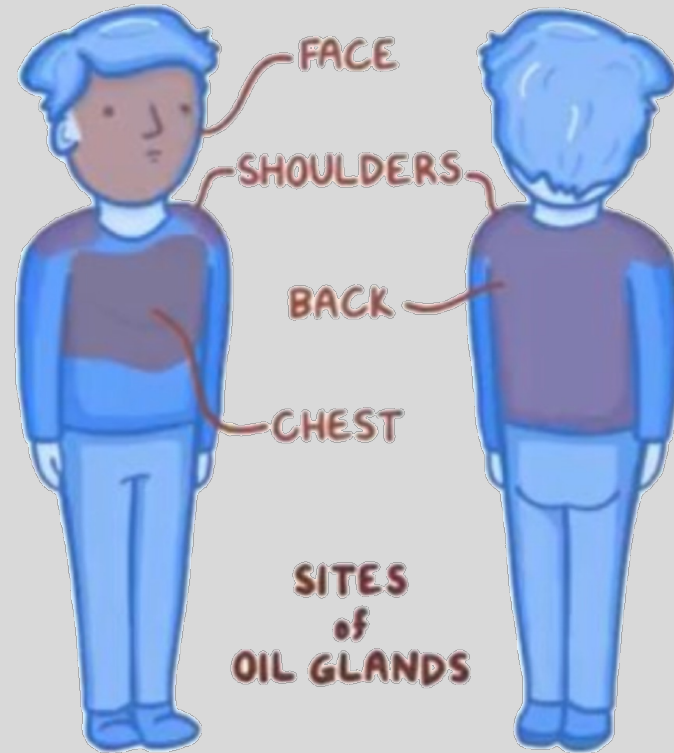
# Acne typical presentation:

Epidemiology:  It affects the sexes **equally**, starting between 12 and 14 years, tending to be earlier in females. peak age for severity in females is 16-17 and in males 17-19 years.



# Signs & Symptoms

? Lesions are present mainly on face, shoulders, upper chest and back.





Seborrhoea (a greasy skin) is often present.



# Types of Acne

## NON-INFLAMMATORY

## INFLAMMATORY

Healthy

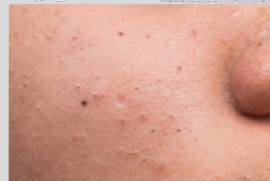
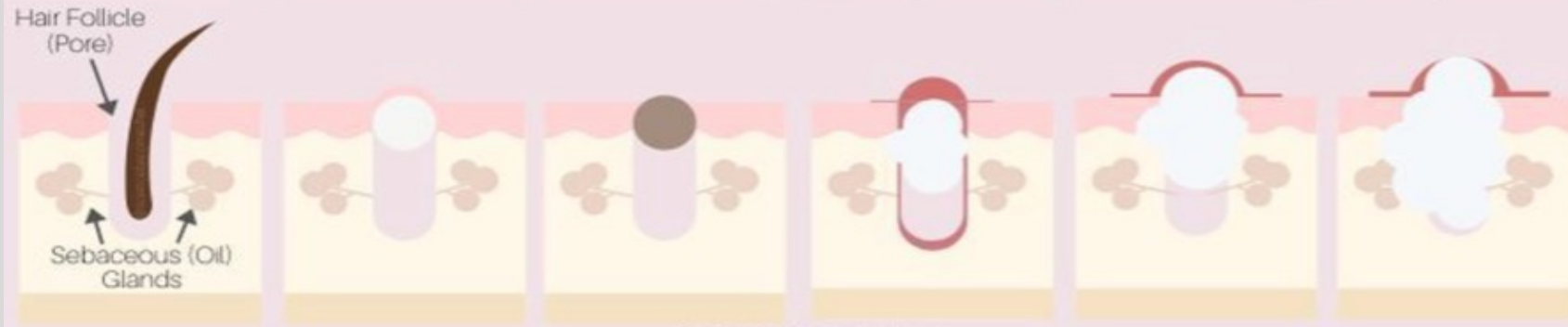
Whitehead

Blackhead

Papule

Pustule

Cysts



Several comedones, papules, and partially inflamed pustules are localized to the right cheek.



**On resolution, it leaves deeply pitted or hypertrophic scars, sometimes joined by keloidal bridges**

Keloids from acne



# Variants of Acne

## Androgenic-related

## Obstruction-related

### Infantile acne

1. Soon after birth
2. More common in males
3. Lasts up to 3 years
4. Predisposes to severe acne in adolescence



### Acne associated with virilization

Example:

1. Acne **accompanying the polycystic ovarian syndrome**
2. Androgen-secreting tumour of the adrenals, ovaries or testes
3. Congenital adrenal hyperplasia caused by mild **21-hydroxylase** deficiency.



### Drug-induced

1. Expect if acne is dominated by **papulopustules** rather than comedones
2. Appears suddenly in **nonteenagers**
3. Coincides with the prescription **Corticosteroids, anabolic steroids, gonadotrophins, oral contraceptives, lithium, iodides, bromides, antituberculosis and anticonvulsant therapy** can all cause an acneiform rash.



### Acne due to cosmetics

1. Expect if **comedones predominate**
2. Suspicion should be raised if the **distribution is odd**



### Mechanical

Excessive scrubbing, picking, or the rubbing of chin straps or a fiddle) can rupture occluded follicles

**Excoriated acne** is most common in young girls due to Obsessional picking or rubbing leaves discrete denuded areas.

### Tropical Heat and humidity

1. Mainly on the **trunk**
2. A cause of **Acne Conglobata**

# Zoom onto virilization disorders



**POLYCYSTIC OVARIAN SYNDROME**

**↑ ANDROGEN HORMONE LEVELS**

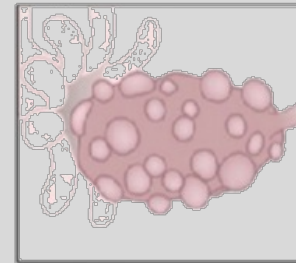
↓  
**↑ SEBUM**

↓  
**↑ ACNE**



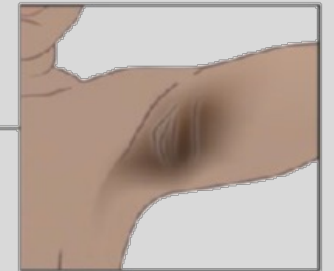
Hirsutism  
Acne

Nonalcoholic  
fatty liver disease



Polycystic ovary

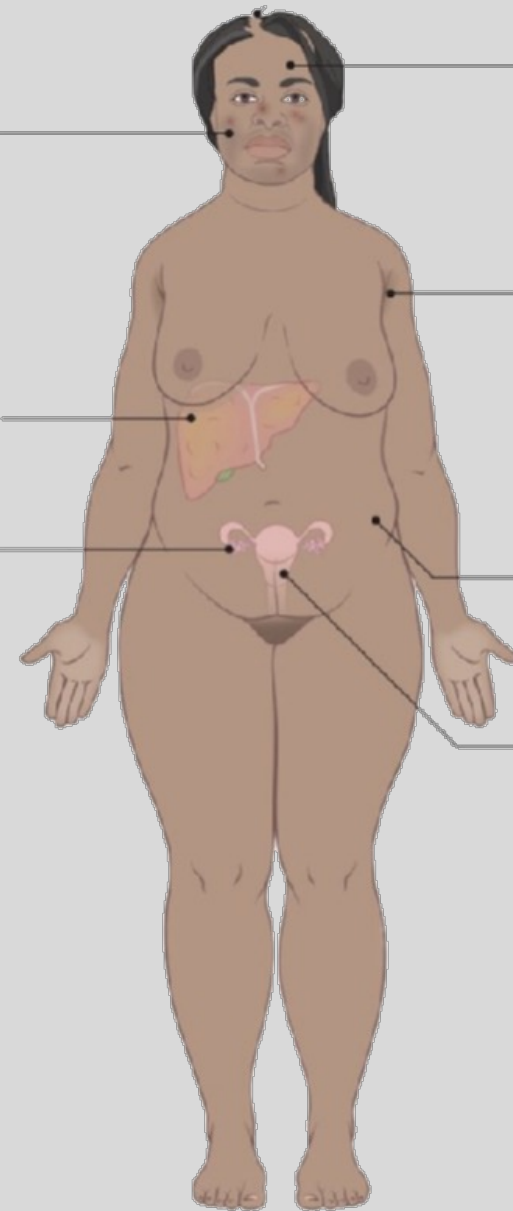
Depression  
Anxiety disorders



Acanthosis nigricans

Obesity  
Hyperglycemia  
Metabolic syndrome

Infertility  
Menstrual irregularities



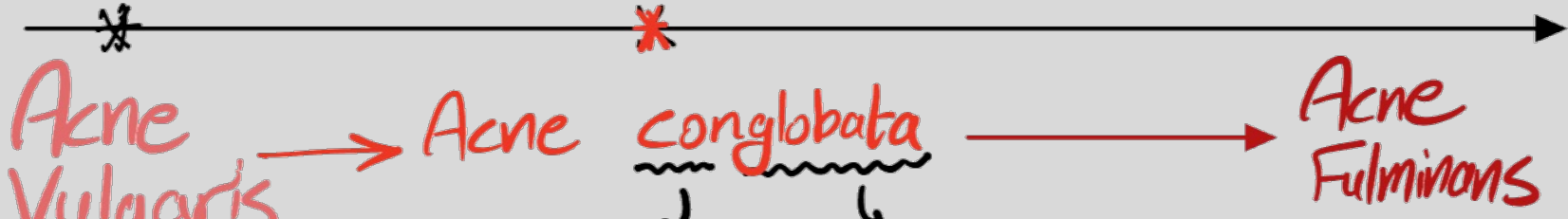
## **Congenital adrenal hyperplasia**

1. Hyperpigmentation
2. ambiguous genitalia
3. history of salt-wasting in childhood
4. Jewish background are all clues to this rare diagnosis.

## **Androgen-secreting tumours**

These cause the rapid onset of virilization (clitoromegaly, deepening of voice, breast atrophy, male-pattern balding and hirsutism) as well as acne

# Acne based on Severity



Acne Vulgaris

- ↳ comedones
- ↳ Papular
- ↳ Papulo-pustular

Acne conglobata

"Confluence"      "Globular"

Acne Conglobata is the name given to a severe form of acne with all of the above features as well as abscesses or cysts with intercommunicating sinuses that contain thick serosanguinous fluid or pus.

- ⊕ Fever
- ⊕ Constitutional symp
- ⊕ High ESR
- ⊕ Possible organ failure

Cystic acne conglobata



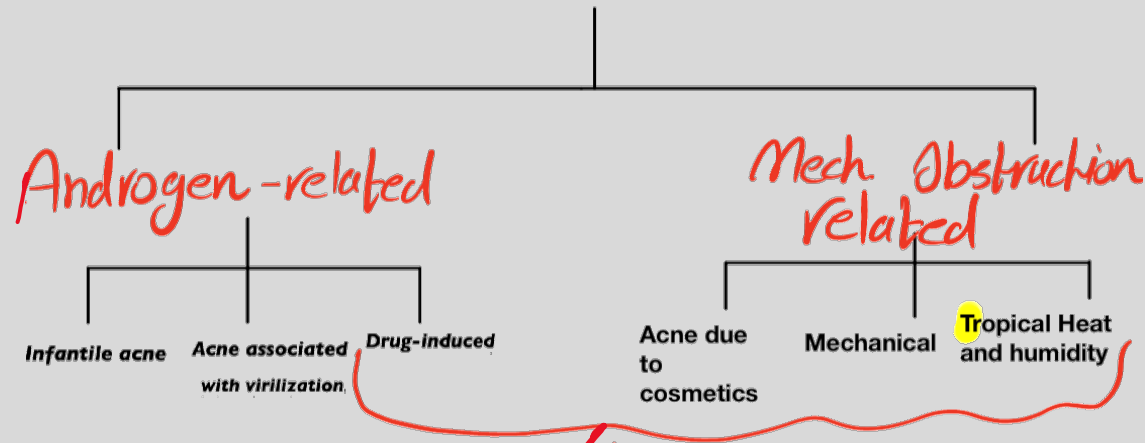
Conglobate acne with inflammatory nodules, pustulocystic lesions and depressed scars

Acne fulminans



This healthy adolescent with severe nodulocystic acne developed ulcerations and crusts shortly after starting oral 13-cis retinoic acid. Oral corticosteroids were added to his regimen and slowly tapered over two months.

# Investigations ?



We need to know what is the cause of the elevated androgen:

1. Infantile acne, which is associated with virilization, needs investigation to exclude an androgen-secreting tumour of the adrenals, ovaries
2. Rule out congenital adrenal hyperplasia caused by 21-hydroxylase deficiency; Tests include the measurement of plasma testosterone, LH, FSH, DHEA-S, 17-hydroxyprogesterone, urinary free cortisol
3. Polycystic ovarian syndrome; reduced sex hormone-binding level and a LH:FSH ratio of greater than 2.5:1  
Pelvic ultrasound may reveal multiple small ovarian cysts

Logically, proper clinical history is enough (no need for more investigations)

# DDx of Acne



A1



Rosacea is characterized by persistent erythema, telangiectasia, erythematous papules and pustules, but no comedones, **especially at the nose**

May be associated with facial flushing in response to external stimuli (alcohol, heat).

In chronic rosacea the nasal skin can become coarse in texture, eventually resulting in gross thickening and hypertrophy – known as rhinophyma. (from the Greek, 'rhis' nose, 'phyma' growth)



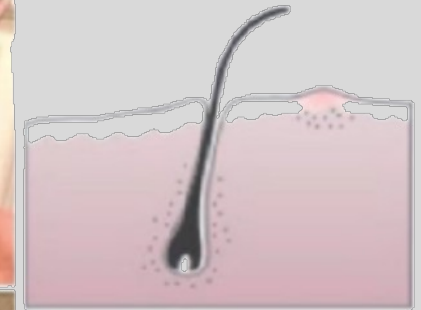
13



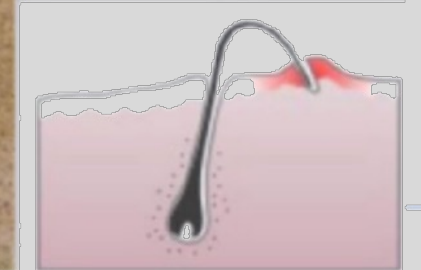
**hidradenitis suppurativa**

Hidradenitis: sweat gland  
Suppurativa: pus

14



Razor Bump



**pseudofolliculitis**

Mild  
(Comedonal)



Moderate  
(Papular/  
pustular)



Severe  
(Conglobata)

1. comedones: keratolytic agents (retinoid family)  
– adapalene: no sun exposure, may cause dryness and irritation.  
- benzoyl peroxide: bactericidal agent and comedolytic, It is most effective for inflammatory lesions.  
- - optimal (tretinoin gel)  
NOTE: Patients should be warned about skin irritation (start with small amounts) and photosensitivity with retinoids.

- 
- ? -topical antibiotics (clindamycin solution twice daily )  
lincosamide antibiotic , inhibit protein synthesis  
? - topical erythromycin with zinc (zinerit solution)  
macrolide antibiotic inhibit protein synthesis  
? Both have high rate of resistance when used as a monotherapy

? - Doxycycline 100 mg /day

Side effects :

- Irritation to the esophagus
- Increase intracranial pressure
- Discoloration of teeth and bone (never given to a child < 2 years or pregnant)

Don't lie down

---

13 -cis Retinoic acid (isotretinoin ) aka roaccutane :

(end of all spectrums)

- ? Indications :
- ? \* nodulocystic acne (severity)
  - ? \* acne with scarring tendency (Morphology)
  - ? \* acne refractory to other modes of treatment (+rx)
  - ? \* patients with psychological stress due to acne

❓ Dose : 0.5-1 mg/kg/day

A full blood count, liver function tests and fasting lipid levels should be checked, and then at 4 weeks after starting the drug.

It is routinely given for 4–6 months

Side effects :

1. Xerosis in skin and mucus membrane
2. Epistaxis due to xerosis
3. Increase sensitivity to the sun
4. Increase liver enzymes
5. Increase cholesterol and triglycerides
6. Increase ICP , don't use it with doxycycline

Pregnancy category x (contraception should be started 1 month before starting isotretinoin, throughout treatment and for 1 month thereafter)

- Post inflammatory hyperpigmentation: give azelaic acid
  
- Post acne scar treatment:
  - Subcision scar surgery
  - Ablation: Co2 laser
  - Dermal needling

**THANK YOU**