Lecture (4)
Acne vulgaris and acne related disorders

1. Objectives: not given.

Done by:
- Faisal altwaijri
- Abdulrahman alharbi

Reviewed by:
Faisal Abunohaiah

Color index: slides, doctor notes, extra explanation.

derma434@gmail.com

Acne Vulgaris

- 85% of adolescents experience it.
- Prevalence of comedones (lesions) in adolescents approaches 100%.
- Acne vulgaris is the most common cutaneous disorder in the U.S.
- 10 percent of all patient encounters with primary care physicians.
- Patients can experience significant psychological morbidity and, rarely, mortality due to suicide.
- It's a disease of the Pilosubeceous glands, Pilosubeceous glands are units consist of hair follicle and the associated sebaceous glands.They are connected to the skin by a duct(infundibulum) through which the hair shaft passes.

Pathogenesis:

Acne develops as a result of interplay of the following four factors:

- Hormonal rule: Androgens are the main stimulants of sebum production by making sebaceous glands bigger and by increasing sebum production.
- Portal occlusion: some cosmetic products (MAKE UP) block the portal cause the epithelium overgrow the follicular surface (Follicular Keratinization).
- Bacterial: P. acne causes two things:

1- it contains lipase, which converts the sebum to free fatty acid, which is irritant to the skin.

2- produces proinflammatory mediators (ILT1 TNF).

- Dermal inflammation. As a result of releasing the sebum due to destruction of the comedones.

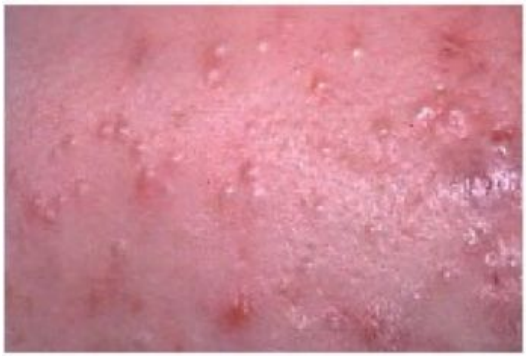
The cause of acne is an increase in the activity of the sebaceous glands and the epithelial tissue lining the infundibulum and the factors associated with are;

- Retention hyperkeratosis.
- Increased sebum production.
- Propionibacterium acnes within the follicle.
- Inflammation.

Types of acne vulgaris:

Non inflammatory:

Microcomedone: (small papule) which is a hyperkeratotic plug of keratin and sebum occluding the The follicular canal and there's two type:



- Whiteheads are closed comedones.
- Blackheads are open comedones.

Maturation of comedones takes about 8 weeks (So the duration of therapy must be more than 8 weeks

Inflammatory:

Is characterised by inflammation surrounding the comedones and other lesions associated with acne such as papules and pustules, nodulocystic lesions.
or rupture of the inflamed follicle results in the formation of Papule, pustule and nodule in cysts type.

Normal sebum does not contain free fatty acids and is nonirritating, however, in the presence of **biolytic enzymes** produced by Propionibacterium Acnes) , triglycerides of the sebum are split and release fatty acids which are irritating to the tissue.
Scarring can occur due to the presence of cysts or a sterile abcess, and its a bad sign.

Severity of Acne:

- Typical mild acne: comedones predominate.
- More severe cases: pustules and papules predominate, heal with scar if deep.
- Acne Conglobata: suppurating cystic lesions predominate, and severe scarring results.

Factors That Aggravate The Acne:

- Change in sebaceous activity and hormonal level (e.g. before or during premenstrual cycle).
- High humidity conditions.
- Local irritation or friction.
- Rough or occlusive clothing.
- Cosmetics(having greasy base).
- Diet; chocolate, nuts, fats colas, or carbohydrates.
- Oils greases , or dyes in hair product.

Acne caused by Medications

- ACTH
- Azathioprine
- Barbiturates
- Isoniazid
- Lithium
- phenytoin Disulfiram (Worst)
- Halogens
- Iodides
- Steroids(Commonest)
- Cyclosporine
- Vitamins B2,6,12

Treatment:

The key of acne treatment is to treat early.

Depends on type of clinical lesions.

Considerable heterogeneity in the acne literature, and no clear evidence based guidelines are available.

A. Ingredients in OTC products:

1- **Sulfur** 2-10 % other forms, such as zinc sulfide or sodium thiosulfate. sulfur presents a paradox in that it helps resolve formed comedones but may promote the formation of new ones. Due to this comedogenic effect, the use of salicylic acid or resorcinol is preferred.

2- **Benzoyl peroxide**;(5 to 10%)a primary irritant.

3- **Salicylic acid** is used in concentration of o.5 to 2%.

Applied at night after washing the affected area with soap and water.

4- **Resorcinol** (1 to 4%) may produce a dark brown scale on some black skinned people.

They work as anti infalmmatory , antibiotic , keratolytic.

B. Tretinoin Transe Retinoic Acid(topical):

The acid form of vitamin A, is a strong primary irritant.

The products are applied at night. They cause a feeling of warmth or slight stinging.

Care should be taken to avoid touching with eyes, nose, and mouth with tretinoin.

Exposure to strong sunlight should be avoided because of the increased sensitivity of the skin.

Does not cause the toxic effects of a large doses of vitamin A.

Results occur in3 to 4 months.

C. Antibiotics:

1- **Tetracycline** (doctor says that he uses doxycycline instead) and some other antibiotics orally administered reduce bacterial population **and** the concentration of the fatty acids in the sebaceous follicle.

Topical antibacterial agents generally are ineffective, because acne is not an infection.

Worry about the patient teeth as tetracyclines cause permanent teeth discoloration the child must be older than 13 yo, also its teratogenic.

2- ERYTHROMYCIN : Erythromycin reduce level of fatty acid of the follicles.

It is lipid soluble antibiotics which can penetrate the sebaceous follicle
It's the antibiotic of choice in pregnancy , but normally it is not used due to resistance.
Antibiotics also act as an Anti-inflammatory.

Management:

Mild To Moderate Acne:
Treatment is by topical agents only, Contains the following ingredients that help in limiting the progression of Acne,treatment Categorized into either inflammatory or comedonal (with no inflammation).

Comedonal acne:
These Medications are indicated when retinoids are not tolerated and they're lipid soluble:

- Salicylic acid (promotes desquamation)
- Azelaic acid (good for pregnant women) (antimicrobial, reduces hyperpigminetation)
- Gycolic acid
- Sulfur in OTC rx (keratolytic)

Mild to moderate inflammatory acne:
Benzoyl peroxide: (antimicrobial, anticomedonal, pregnancy risk)
Topical antibiotic
Combination of both (Combination is more effective than mono in increased inflammatory lesions.)
Combination therapy is best, using benzoyl peroxide–erythromycin gels plus topical retinoids

Moderate To Severe Acne

Oral Isotretinoin: Final weapon to be used against Moderate to severe acne And only drug altering the course of Acne Vulgaris, Indicated in cystic acne Or failure of systemic antibiotics, and works by :

- Reducing sebaceous gland size/sebum production.
- Regulation of cell proliferation and differentiation.

Isotretinoin effects last 1 year after cessation, side effects includes;

Teratogenic, bone marrow suppression, hepatotoxicity, top 10 drugs for suicide/depression reports
Dryness and Hyperlipidemia as well as hypercholesterolemia
Cheilitis (dryness of the lips): lip balm to prevent this

- FDA practice rules:
- 2 negative pregnancy tests before rx
- Pregnancy test each month (bring pt in)
- Pregnancy risk pts must use 2 contraceptive for at least 1 mo prior to rx.

Oral Systematic Antibiotics:

-Tetracycline - erythromycin
- minocycline - TMP-SMX
- doxycycline - clindamycin

Given daily over 4-6 mo, with taper (gradually and slowly weaning off a medication)

acne related disorders

Neonatal acne:

Due to placental transformation of the hormones.

First four weeks of life .

Develops a few days after birth.

Facial papules or pustules .

Cases that persist beyond 4 weeks or have an onset after.

R/O acne cosmetic, acne venenata, drug-induced acne.

Treatment: mild topical (clindamycin lotion), if its resist we give retinol vit-A.

SAPHO Syndrome:

Synovitis, Acne, Pustulosis, Hyperostosis, and Osteomyelitis.

Acne fulminans, acne conglobata, pustular psoriasis, and palmoplantar pustulosis.

Chest wall is most site of musculoskeletal complaints.

Acne Conglobata:

Conglobate: shaped in a rounded mass or ball.

Severe form of acne characterized by numerous comedones, large abscesses with sinuses, grouped inflammatory nodules.

Suppuration.

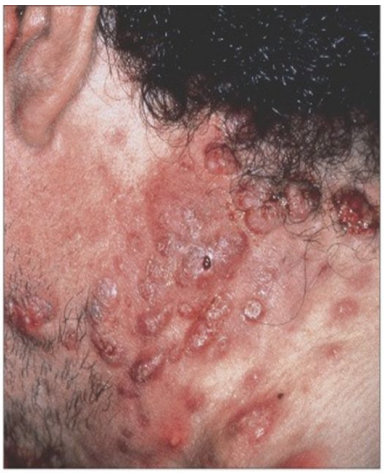
Cysts on forehead, cheeks, and neck .

Occurs most frequently in young men.

Follicular Occlusion Triad: acne conglobata, hiradenitis suppurva, cellulitis of the scalp.

Heals with scarring.

Treatment; oral isotretinoin for 5 months .



Acne Fulminans:

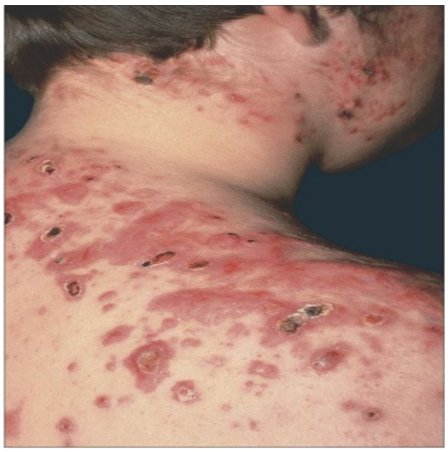
Rare form of extremely severe cystic acne.

Teenage boy's, chest and back.

Rapid degeneration of nodules leaving ulceration.

Fever, leukocytosis, arthralgias are common.

Tx; oral steroids, isotretinoin



Tropical Acne: (doctor didn't talked about it)
Nodular, cystic, and pustular lesions on back, buttocks, and thighs
Face is spared.
Young adult military stationed in tropics.

Acne Venenata: (doctor didn't talked about it)
Contact with acnegenic chemicals can produce comedones.
Chlorinated hydrocarbons, cutting oils, petroleum oil, coal tar.
Radiation therapy.

Whenever you had a middle aged women in the clinic, first thing you should ask her about her COSMETICS.

Acne Cosmetica:
Closed comedones and papulopustules on the chin and cheeks.
May take months to clear after stopping cosmetic product.
Pomade Acne; blacks, males, due to greases or oils applied to hair.

Acne Detergicans:
Patients wash face with comedogenic soaps.
Closed comedones.
TX; wash only once or twice a day with non-comedogenic soap.

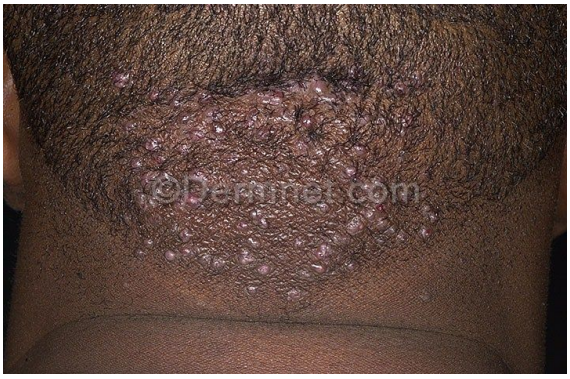
Acne Aestivalis:
Aka; Mallorca acne.
Rare, females 25-40 yrs.
Starts in spring, resolves by fall.
Small papules on cheeks, neck, upper body.
Comedones and pustules are sparse or absent.
Tx; retinoic acid, abx don't help.

Excoriated Acne:
Aka; picker's acne
Girls, minute or trivial primary lesions are made worse by squeezing.
Crusts, scarring, and atrophy.
TX; eliminate magnifying mirror, r/o depression, isotretinoin to stop their problem.

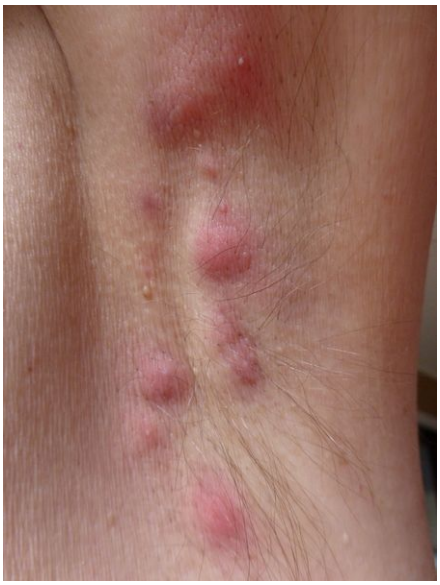
Acneiform Eruptions:
Originate from skin exposure to various industrial chemicals.
Papules and pustules not confined to usual sites of acne vulgaris.
Chlorinated hydrocarbons, oils, coal tar.
Oral meds that can cause Acneiform Eruptions; iodides, bromides, lithium, steroids (steroid acne)

Gram Negative Folliculitis: Folliculitis: inflammation of the hair follicles.
If you had a patient with a scaly papules it shouldn't be acne it might be Folliculitis. (قل! والله)
Occurs in patients treated with antibiotics for acne over a long-term.
Enterobactor, Klebsiella, Proteus .
Anterior nares colonized.
Tx; isotretinoin, Augmentin

Acne Keloidalis:
occurs on the occipital scalp and posterior neck.
Folliculitis of the deep levels of the hair follicle that progresses into a perifolliculitis.
Occurs at nuchal area in blacks or Asian men.
Not associated with acne vulgaris.
Hypertrophic connective tissue becomes sclerotic, free hairs trapped in the dermis contribute to inflammation.
Tx; usually intralesional steroid injection(Kenalog), surgery.



Hiradenitis Suppurativa:
Highly related to: male, smoker, obese.
Disease of the apocrine gland .
Axillae, groin, buttocks, also areola.
Obesity and genetic tendency to acne.
Tender red nodules become fluctuant and painful.
Rupture, suppuration, formation of sinus tracts.
Most frequently axillae of young women.
Men usually groin and perianal area.
Follicular keratinization with plugging of the apocrine duct; dilation and inflammation.
Very hard to treat.



treatment:
Oral antibiotics, culture S. aureus, gram-negatives
Intralesional steroids, surgery(Grafting).
Isotretinoin helpful in some cases.

Dissecting cellulitis of the scalp :
inflammatory disorder of the scalp characterized by painful nodules with purulent discharge and hair loss.
It's related to Hiradenitis Suppurativa.
Uncommon suppurative disease.
Nodules suppurate and undermine to form sinuses.
Scarring and alopecia.
Adult black men most common, vertex and occiput.
Tx; intralesional steroids, isotretinoin, oral abx, surgical incision and drainage

Pyoderma Faciale: (doctor didn't talked about it)
Postadolescent girls, reddish cyanotic erythema with abscesses and cysts.
Distinguished from acne by absence of comedones, rapid onset, fulminant course and absence of acne on the back and chest.
Tx; oral steroids followed by isotretinoin.

Rosacea

- facial flushing.
- Erythema.
- telangiectasia.
- coarseness of skin.
- inflammatory papulopustular eruption resembling acne.

Types:
1- Erythematotelangiectatic type:
Central facial flushing, often accompanied by burning or stinging.
Redness usually spares the periocular skin.
Skin typically has a fine texture that lacks a sebaceous quality characteristic of other subtypes.
Erythematous areas of the face at times appear rough with scale, likely due to chronic, low-grade dermatitis.

Frequent triggers to flushing include acutely felt emotional stress, hot drinks, alcohol, spicy foods, exercise, cold or hot weather, and hot baths and showers
Patients report that the burning or stinging is exacerbated when topical agents are applied.
2- Papulopustular rosacea:
This is the classic presentation of rosacea; features include the following:
Patients are typically women of middle age.
Patients usually present with a red central portion of the face containing small erythematous papules surmounted by pinpoint pustules.
Patient may describe a history of flushing.
Telangiectasias are likely present but may be difficult to distinguish from the erythematous background in which they exist.
3- Phymatous rosacea:
Marked skin thickenings and irregular surface nodularities of the nose, chin, forehead, 1 or both ears, and/or the eyelids.
4-Ocular rosacea:
Blepharitis
Conjunctivitis
Inflammation of the lids and meibomian glands
Interpalpebral conjunctival hyperemia
Conjunctival telangiectasias
Treatment:
control triggers
First line : Topical metronidazole
Topical azelaic acid
Sulfacetamide products
Topical acne medications
Topical and oral antibiotics