Derma Team 436

Acne and acne related disorders

Objectives:

- To To know the multiple pathogenetic mechanisms causing acne
- To recognize the clinical features of acne.
- To differentiate acne from other acniform eruptions such as rosacea.
- To know the different types of treatment
- To recognize the clinical features of rosacea, it's variable types, differential diagnosis and treatment
- To recognize the features of hidradenitis supprativa and treatment.

dr said the slides are enough for the exam

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Before you start.. CHECK THE EDITING FILE

Sources:doctor's slides and notes

[Color index: Important | 435 notes | gold | doctor notes | Extr]

ACNE

Is a chronic inflammatory skin disease affecting the pilosebaceous unit. Affect the approximately 85% of the population at some point in their lives. Occurs mostly during adolescence.

ETIOPATHOGENESIS:

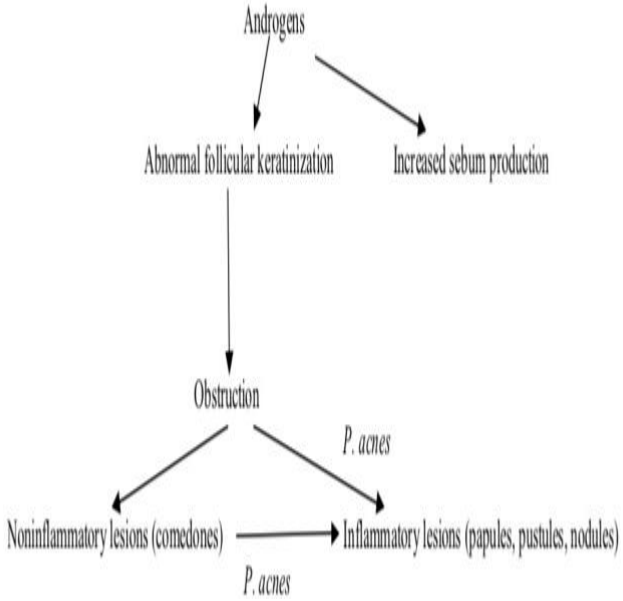
Four key pathogenic processes lead to the formation of acne lesions:

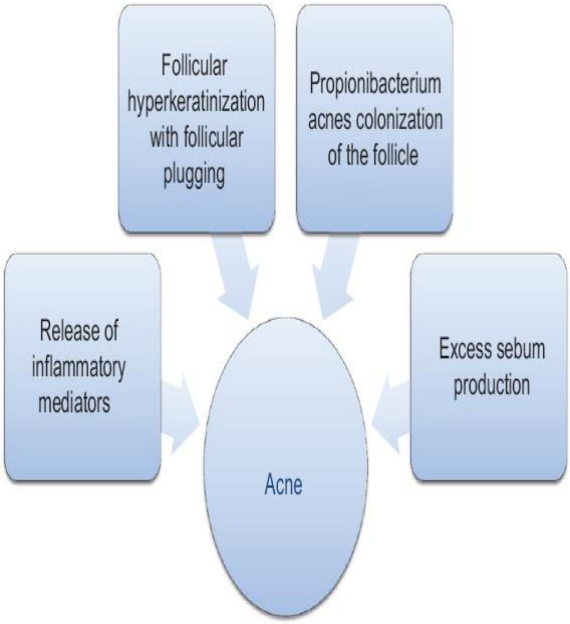
1-Alteration of follicular keratinization that leads to comedones.

2-Increased and altered sebum production under androgen control

3-Follicular colonization by game -ve Propionibacterium acnes

4-Inflammatory mechanisms





Other factors which can contribute to the pathogenesis of acne:

1-Association of severe acne with genes of the transforming growth factor-β (TGFβ)-mediated signaling pathway

2-Family history of severe acne (early disease onset and a severe clinical course.)

3-Diet (hyperglycemic diet) 4-Environmental factors (smoking)

5-Occlusive cosmetics. Eg comedogenic materials. Putting oil on hair will cause occlusion then acne

TYPES OF ACNE ACCORDING TO THE ONSET: from neonate to age of 50

ACNE VULGARIS (ACNE OF THE ADOLESCENT)

Epidemiology:

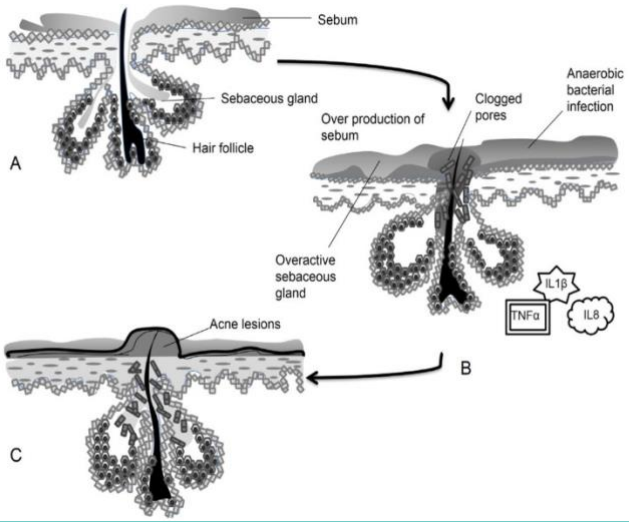
-Most common type of acne -85% prevalence rates in those aged 12-24 years
-Has a peak incidence in 14-17-year-old girls and in 16-19-year-old boys
-Women have a high prevalence and incidence when compared with men, especially after 25 years of age
-Acne often persists into adulthood, with 26% of women and 12% of men reporting acne in their 40s.(late-onset acne)
-About 20% of the affected individuals develop severe acne which results in scarring.
-Asians and Africans tend to develop severe acne

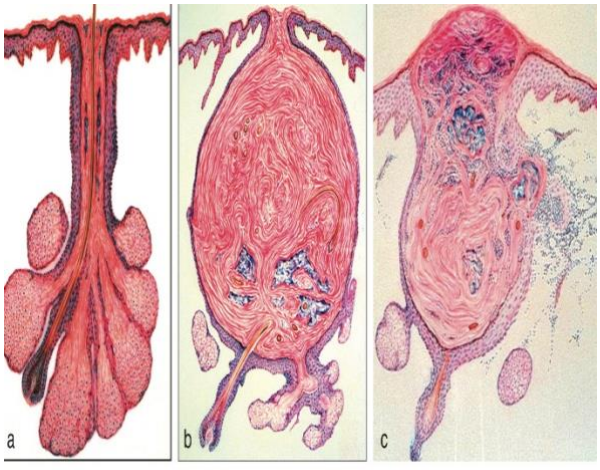
CLINICAL FEATURES:

Acne commonly affects: 1- face 2-shoulders 3-upper part of the chest and back These sites have larger and more active sebaceous glands. The more involved area the more recurrent times.
- has pleomorphic appearance: 1-primary skin lesions 2-secondary skin lesion
primary: non-inflammatory and inflammatory lesions
clinical features of primary lesions: hyperseborrhea, open and closed comedones, papules, pustules and nodules

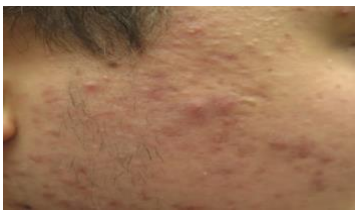
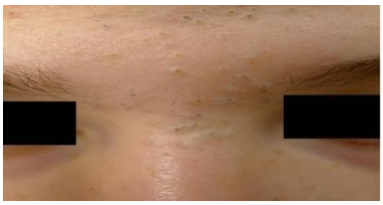
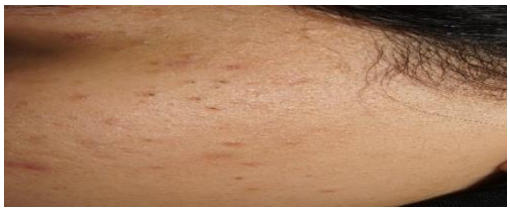
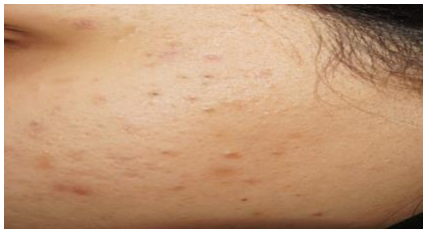
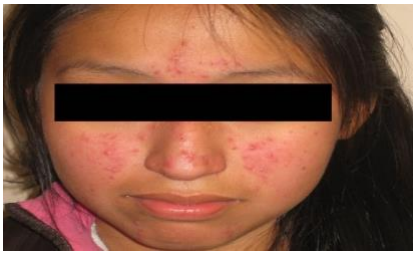
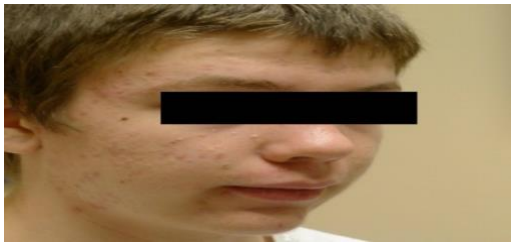
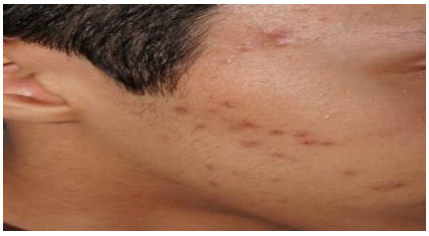
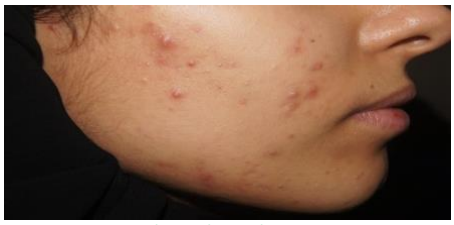
1-Comedones: Hyperkeratotic plug made of sebum and keratin in follicular canal.
A-Microcomedone: 1-Closed Comedo (Whitehead):Closed follicular orifice, accumulation of sebum and keratin 2-Open Comedo (Blackhead):Opened follicular orifice packed with melanin and oxidized lipids
B-Macrocomedone:
2-Papules and pustules
3-Nodules

Secondary acne lesions: 1-Abscesses 2-Cysts 3-Post-inflammatory hyperpigmentation 4-Excoriations 5-Scars





Normal sebaceous follicle (a), closed comedo (b), and ruptured follicle (c). From [1] with permission.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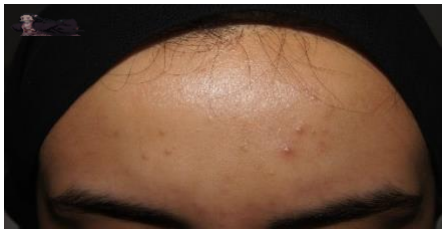
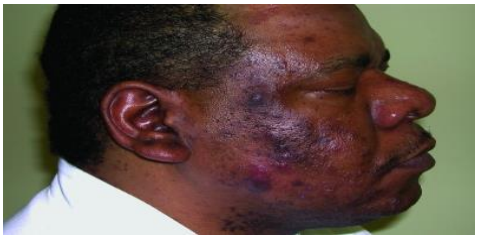
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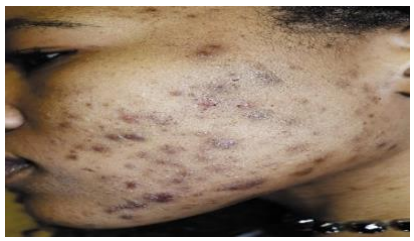
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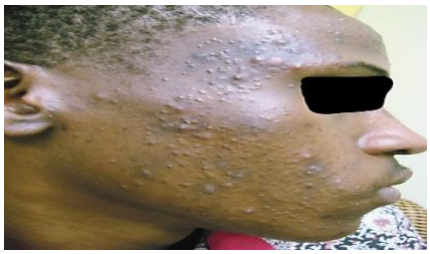
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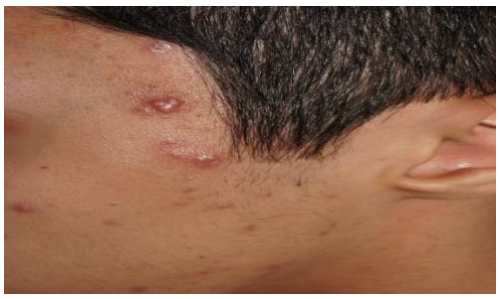
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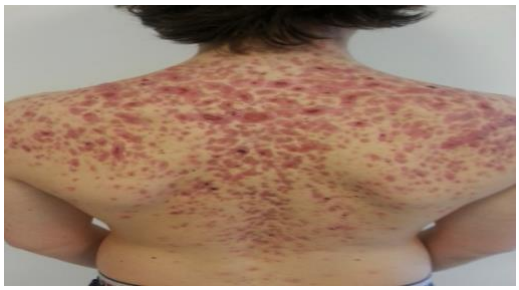
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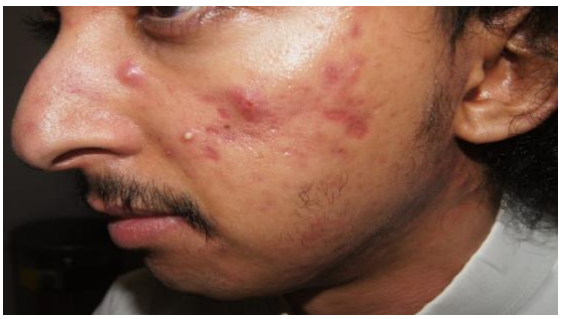
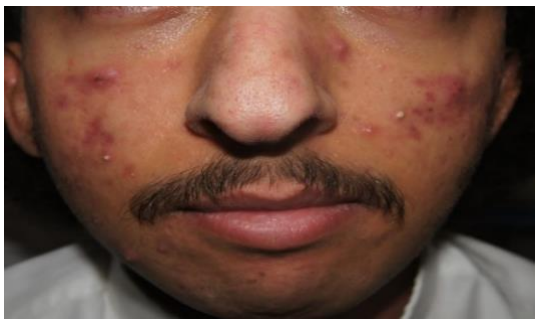

Nodules and atrophic scar


SCORING SYSTEMS IN ACNE VULGARIS:

-Grading versus lesion counting:

-simple grading system:

Grade 1: Comedones, occasional papules.

Grade 2: Papules, comedones, few pustules.

Grade 3: Predominant pustules, nodules, abscesses.

Grade 4: Mainly cysts, abscesses, widespread scarring. And excoriation

-mild, moderate ,severe: the doctor focused on AAP

General Classification	AAD[a]	Global Alliance	EDF	AAP
Mild	–	Comedonal or mixed and papular/ pustular	Comedonal or mild to moderate papulopustular	Comedonal or inflammatory/mixed lesions
Moderate	–	Mixed and papular/ pustular or nodular	Mild to moderate papulopustular	Comedonal or inflammatory/mixed lesions
Severe	–	Nodular or conglobate	Severe papulopustular/ moderate nodular or severe nodular/ conglobate	Inflammatory/mixed and/or nodular lesions

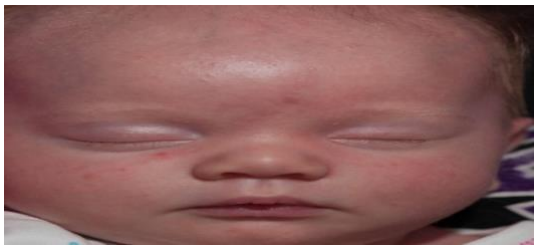
ACNE SUBTYPES:

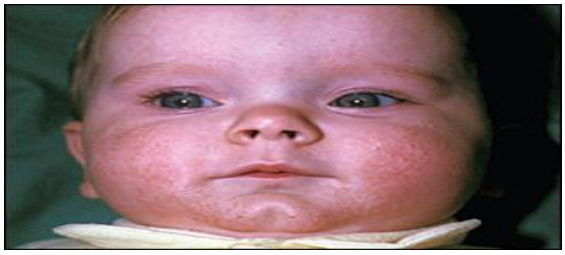
A-NEONATAL ACNE:

-Onset between 0-6 w of age. -Most commonly in boys -Affect up to 20% (not rare) of newborn Presents as comedones and small papulopustules on the cheeks and nasal bridge.

Treatment: Due to the self- limited and benign nature of neonatal acne and acneiform eruptions, the use of a gentle daily cleanser and water is all that is required therapeutically.

Topical retinoid with or without benzoyl peroxide





small transient papules

B- INFANTILE ACNE: Trunk usually spared

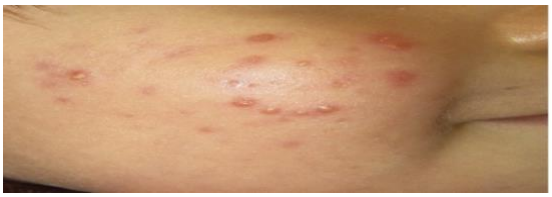
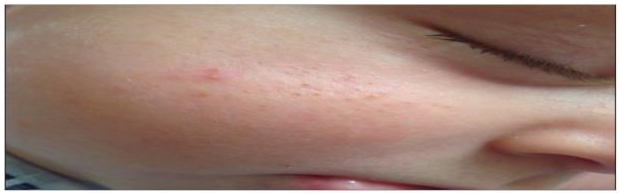
-Affects less than 2% of infants anytime between 6 weeks and 12 months

-Male predominance

-Genetic predisposition and heightened sebaceous gland activity in response to normal levels of circulating androgens

-In rare cases, infantile acne can be a sign androgen-secreting (or corticosteroid-secreting) disorder.

-Closed and open comedones, papules, pustules, nodules, and cysts commonly over face

Treatment: Have a moderate course at best requiring no treatment, resolving within 6 to 12 months

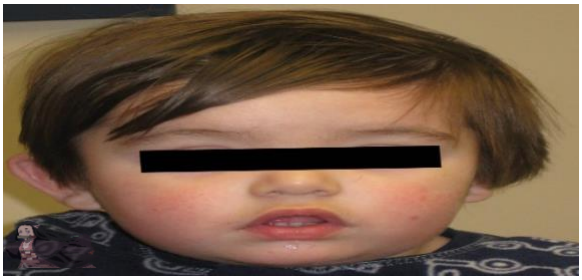
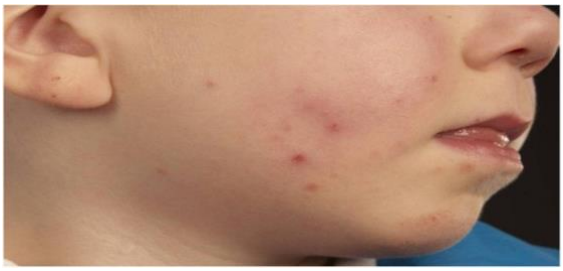
-Topical retinoid or benzoyl peroxide with topical antibiotic (e.g., erythromycin or clindamycin) In sever cases:oral erythromycin. If the patient has a resistant strain of Propionibacterium acne, then we can used sulfamethoxazole-trimethoprim.

C-CHILDHOOD ACNE:

-Between the ages of 1 and 8 years -More in boys, May be the first sign of puberty.

-Consider possibility of underlying condition such as polycystic ovary syndrome or late onset congenital adrenal hyperplasia

-Clinical features and Treatment are similar to adult algorithms

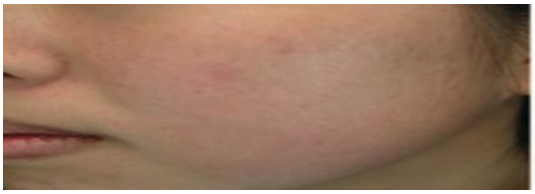
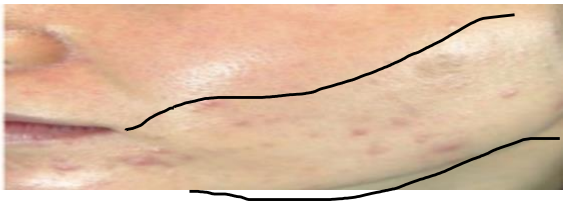
D-ADULT ACNE:

More in females, 35.2 percent, 26.3 percent, and 15.3 percent among women:30 to 39 years, 40 to 49 years, and 50 years and older. Smoking has strong relation with late acne onset

-IF associated with hirsutism, irregular periods evaluate for hyper secretion of ovarian androgens (e.g. Polycystic ovary syndrome).

-Two subtypes of adult acne are recognized: persistent(70%) and late-onset(30%)

The classical presentation of adult acne consists of inflammatory papulopustular lesions in the lower half of the face specially jawline

E-ACNE CONGLOBATA:

A rare but severe form of acne -Men > women -Second and third decade of life

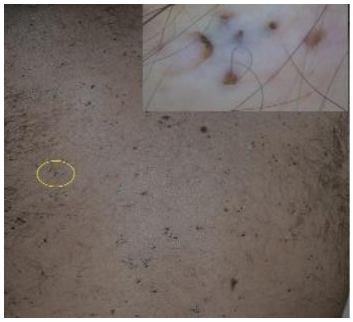
Believed that Propionibacterium acnes may play an important role in the disease by changing its reactivity as an antigen. The hypersensitivity to this antigen induces an intense immunological reaction that presents with a chronic inflammatory state.

Paired or aggregates of blackheads on the trunk, neck, upper arms, and buttocks.

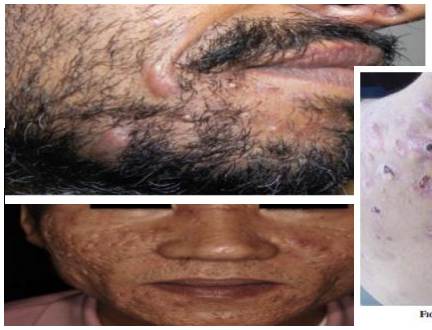
Highly inflammatory lesions: nodules, abscesses, draining sinuses, over the back and chest. -Heals with scars (Depressed or Keloidal).

Treatment: Isotretinoin for 20 to 28 weeks or in some cases even longer. Some experts even recommend the use of oral prednisone (1 mg/kg/d) for 14 to 28 days.

multiple comedones at the same hair follicle



ends with scarring



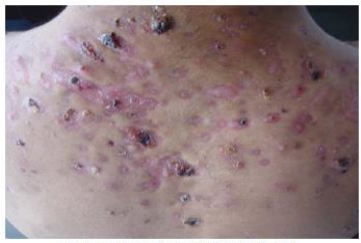
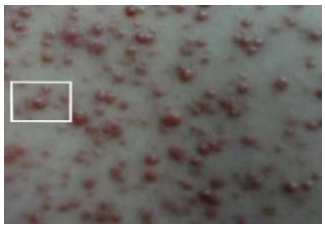
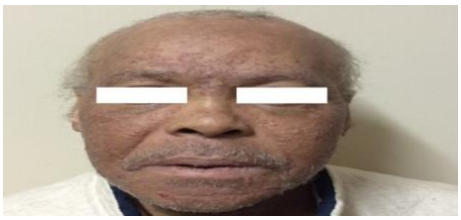


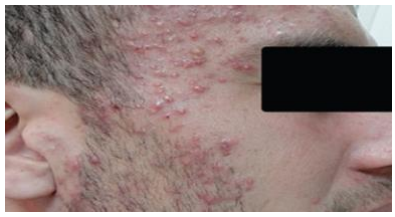
FIGURE 2: Ulceronecrotic lesions on the back

F-DRUG INDUCED ACNE:

The characteristic feature: absence of comedons and monomorphic lesions as small pustules and papules. There is a long list of drugs in dr's slides but he didn't explain it click to see the list







Monomorphous comedones

G-Others rare acne subtypes: not important

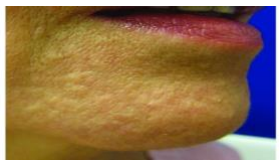
1-Acne Fulminans 2-Chloracne 3-SAPHO(Synovitis, acne, pustulosis, hyperostosis and osteitis) 4-Acne excoriée 5-Acne Aestivalis

acne complications:

A-Quality of life: significant association between severity of acne and QOL

B-Hyperpigmentation: skin-colored patients

C-Scars: types of acne scars 1-Atrophic acne scars: icepick, rolling, and boxcar scars 2-Hypertrophic or keloid scars



1-icepick scar difficult to treat 2-box scar 3-rolling scar
4-papular scar (cobblestone-like papules)

ACNE MANAGEMENTS:

A-**Education about**: course, diet Obeisity related to recurrence, smoking

B-**Cleansing**:

-Washing Frequency: -Soaps bars keratolytics (Benzoyl Peroxide, Salicylic Acids, Alpha Hydroxy Acids)

-Gentle Liquid Cleansers

C-topicals:
-Retinoid(trifarotene, Adapalene,tretinoin,tazarotene)
-Benzoyl Peroxide (anti inflammatory, antibacterial,keratolytic .best for mild acne ,best for children)
-Azelaic Acid
-Topical Antibiotics: erythromycin, clindamycin. minovycline and Dapsone Gel, 7.5%
Dont give antibiotics without keratolytics
D-Systemic Treatmens:
1-Oral antibiotics (in moderate to severe acne) dont use it until isoteritoin is contraindecated:
-Tetracycline group (GI side effects): minocycline (less resistant but can cause hyperpigmentation , GI side effects and pseudomembranous collitis),doxycycline, Oxytetracycline, Lymecycline, Sarecycline(1.5 mg/kg)
-Erythromycin, Roxithromycin, azithromycin
-Trimethoprim -Clindamycin -Antimicrobial Resistance and Antibiotic Use in Acne Vulgaris

2-ISOTRETINOIN (first line treatment):
-Isotretinoin works to normalize all four key pathogenic features of acne vulgaris.
-If patients have very severe acne, scarring acne or significant acne that has not responded to therapy within 3 – 4 months, isotretinoin treatment should be considered.
-Standard dose : 0.5-1mg/kg with a total cumulative dose between 120mg-150mg/kg if you reach the Cumulative dose you stop the treatment however maintain the dose for people with high recurrence chance
-Side effects:
A recent meta-analysis of 31 controlled studies demonstrated that:
- No evidence of increased depression or suicide rates with acne treatment using isotretinoin
-Not associated with the occurrence of hypertrophic scars or keloids
Lab abnormalities: Dryness xerosis ,Teratogenic effects ,Headache Pseudotumor cerebri

3-HORMONAL espicially in PSOS: (FOR FEMALE)
-Combined oral contraceptives (cocs) are effective in the treatment of both noninflammatory and inflammatory acne
- they are suitable for long-term therapy because they have no potential to induce bacterial resistance and represent an alternative to systemic antibiotics.
- recommended in the following situations:
Presence of severe seborrhea , worsening in the premenstrual period presence of endocrine changes , persistent recalcitrant inflammatory acne in which standard treatments have failed.
-cyproterone acetate, spironolactone, drospirenone and flutamide.

ROSACEA (ACNE ROSACEA)

Is a common chronic inflammatory skin disease of the central facial skin and is of unknown origin

Epidemiology:

Affecting approximately 10% of the population ,More in Fitzpatrick skin type I or II and from northern European or Celtic ancestry ,Females = males

Pathogenesis:

The pathogenesis of rosacea is a complex interplay of genetic, immunologic, and neurovascular factors

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

TRIGGERS:

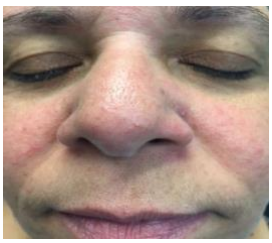
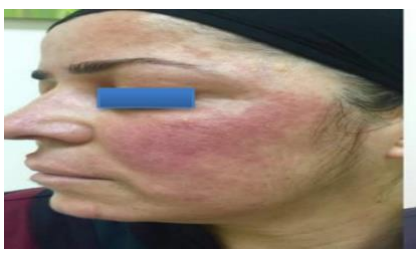
-Hot or cold temperatures or Wind, sun, Hot drinks, Caffeine, Spicy food, Alcohol. Exercise, Emotions, Topical products that irritate the skin and decrease the barrier, Medications that cause flushing and photosensitivity (amiodarone, nicotinamide).

clinical features:

Patient history -Does the patient describe experiencing a warm sensation over the face, or flushing?
-Does the patient recognize his or her own redness, or erythema?
-Burning or stinging in association with skin care products.
-History of acne diagnosis and failed acne treatments -Triggers, such as heat, spicy foods, and stress. -Family history. -Recognition of signs and symptoms of rosacea

Examination: classification of rosacea:

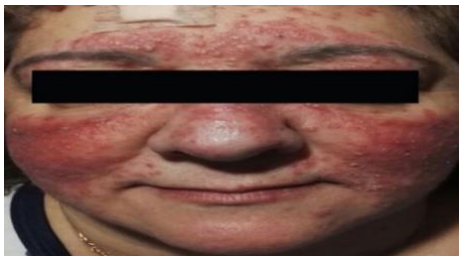
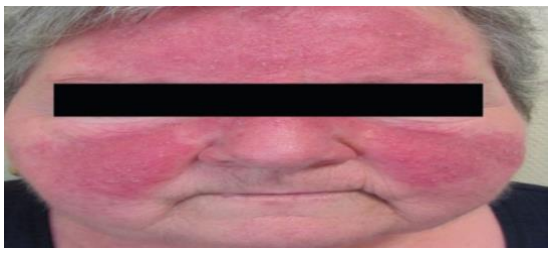
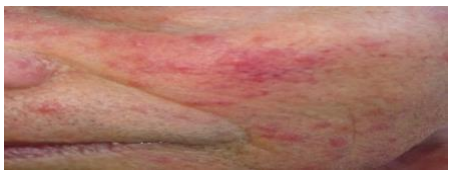
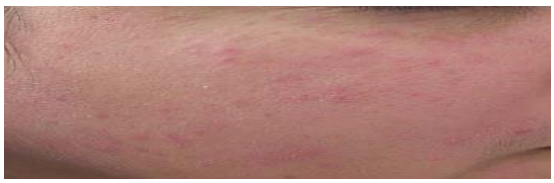
A-Erythemato-telangiectatic rosacea: -Flushing -Persistent redness of the central face -Telangiectasias -Very sensitive skin, and may feel as if their skin stings or burning sensation


B-Papulopustular rosacea:

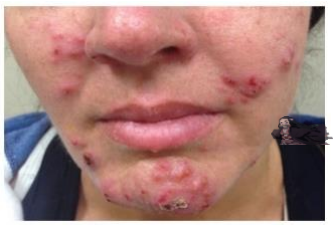
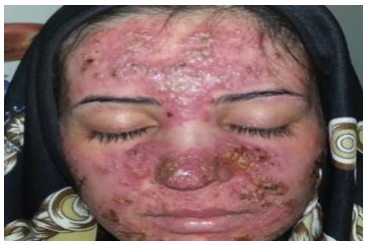
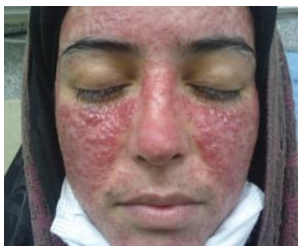
-May occur along with the facial redness and flushing of rosacea subtype
-Papules and/or pustules that come and go, combined with transient or persistent facial redness

-On the central face: burning and stinging; small visible blood vessels (telangiectasia); raised, scaly red patches known as plaques

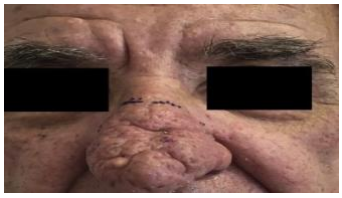
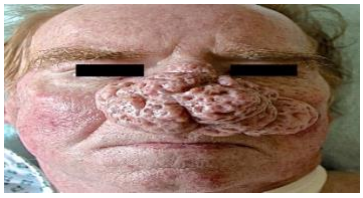
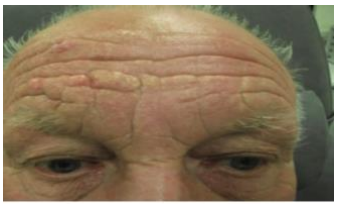
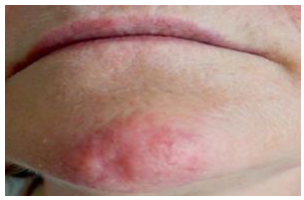
C-granulomatous rosacea:

-Rare immunological reaction -Characterized by erythematous papules and plaques -Histological examination showed granulomatous dermatitis with the presence of Demodex folliculorum

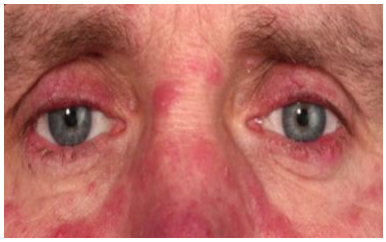
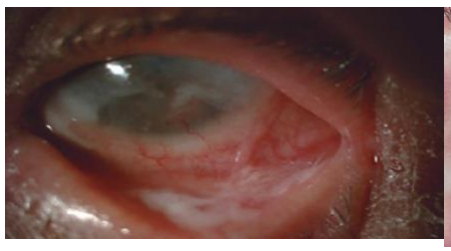

D-Phymatous rosacea:

-Phymatous rosacea can affect nose (rhinophyma), chin (gnatophyma), forehead (metophyma), ears (otophyma) and eyelids (blepharophyma).
-shows marked skin thickenings and irregular surface nodularities, Telangiectasia, Fibrosis and increased volume of sebaceous glands

E-Ocular rosacea:

-Ocular rosacea range from minor irritation to sever inflammatory keratitis. -Ocular findings include: -lid margin and conjunctival telangiectasias -Blepharoconjunctivitis -Eyelid thickening, eyelid crusts and scales -Chalazion -Punctate epithelial erosions, corneal infiltrates, corneal ulcers, corneal scars, and vascularization.


Management:

A-General measures:

-Chronic relapsing nature -Avoid recognized triggers -Change work(sailars)
-Gentle skin care regimen to maintain skin hydration and barrier function
-Gentle, nonalkaline, fragrance-free, emollient cleanser once per day in the evening
-Light, water-based cosmetics (but powders are preferable to creams)
-photoprotection

B-Topical therapies:

-Metronidazole 0.75% (gel, cream, and lotion; twice-daily application), metronidazole 1% (gel and cream; once-daily application). Metronidazole safe for pregnant female (category A)
-Azelaic acid 15% gel (twice-daily) -Ivermectin1% cream (once-daily application)
-Brimonidine tartrate 0.33% gel(MIRVASO Gel): topical treatment of persistent facial erythema associated with rosacea, Brimonidine gel is a selective α2-adrenergic receptor agonist with vasoconstrictive activity.
-Permethrin -Topical calcineurin inhibitors eg. Tacrolimus

C-Systemic therapies if severe:

-Doxycycline:40mg daily -Oral isotretinoin therapy:(0.3 mg/kg daily)

D-Physical modalities:

-Pulsed dye laser (PDL 585–595 nm) for telangiectasia -CO2 laser therapy for rhinophyma

HIDRADENITIS SUPPURATIVA (HS) (ACNE INVERSUS)

-Chronic inflammatory follicular occlusive disease predominantly involving the intertriginous areas

1-Epidemiology:

-Prevalence rates for HS range from 0.03 to 4.1 -These numbers are likely underestimated because of under-reporting and misdiagnosis
-Female predominance with a 3:1 - Onset is commonly between puberty and age 40 - Usually in adolescents (0.57%) and adults (0.47%) than in children

2-Pathophysiology of HS:

Terminal follicular hyperkeratosis, hyperplasia of the follicular epithelium and perifolliculitis.
-Cyst formation, followed by rupture of the hair follicle
-Induces an inflammatory response and subsequent formation of abscess, sinus tracts, fibrosis and scars.
-Worsened by biofilm formation and secondary infection
-Mediated by tumor necrosis factor (TNF)-α, IL-23/T-helper (Th) 17 and IL-12/Th1 pathways

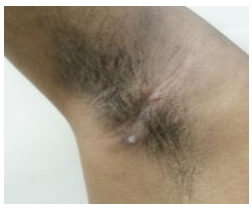
-Genetics: One-third of patients with HS report a positive family history,
-Smoking: More than 70 percent of patients with HS are smokers, and a strong association between smoking and HS has been demonstrated.
-Obesity: is a risk factor for HS

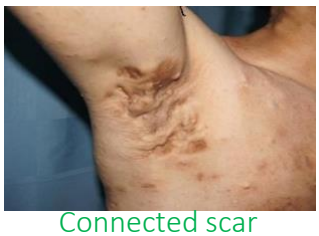
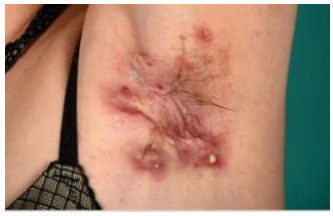
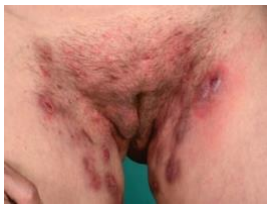
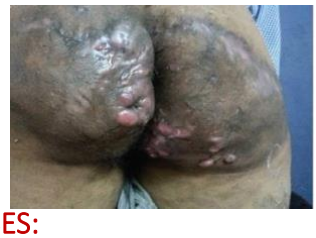
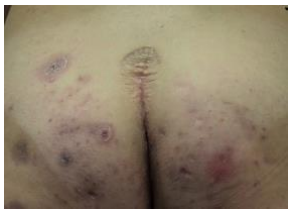
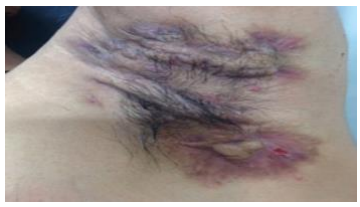
3-Clinical features of HS:

-The diagnosis of HS relies on the clinical features -Typically: recurrent, painful, inflamed nodules, most commonly in the axillae and/or inguinal areas
-**To diagnosed HS**: requires the following three criteria: **1) Typical morphology** (nodules, abscesses, sinus tracts, scars) **2) Characteristic distribution** or typography of lesions (intertriginous areas, axillae, inframammary folds, groins, buttocks, perianal and perineal areas) **3) A relapsing**, chronic disease course.

Hurley staging of HS

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




Connected scar






4-COMORBID DISEASES:

-high prevalence rates of cardiovascular disease risk factors: including metabolic syndrome and atherosclerosis
-Crohn's disease and pyoderma gangrenosum -Depression

5-COMPLICATIONS:

-Secondarily infections: Erysipelas and sepsis
-Extensive fibrosis and scarring -Lymphedema -Squamous cell carcinoma

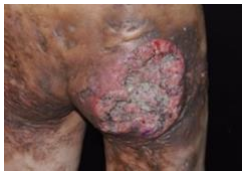
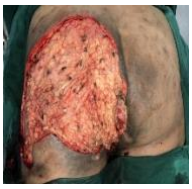
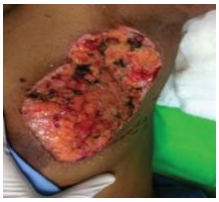
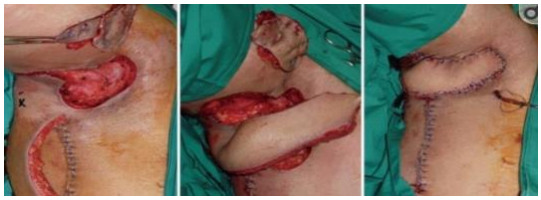
6-TREATMENT:

A-General measures: Weight reduction ,Smoking cessation ,Management of pruritus ,Friction, Local antiseptics.

B-Topical treatments for stage 1: Clindamycin -Fusidic acid -Benzoyl peroxide associated to clindamycin -Intralesional steroid

C-Systemic treatment: Antibiotics (minocycline , doxycycline and Rifampicin associated to clindamycin -Isotretinoin or Acitretin -Biologic treatmen third line(infliximab, adalimumab)

D-SURGICAL TREATMENT: Incision and drainage of abscess better avoided
-Excision of sinus tracts and chronic nodules -Complete excision of the area with or without grafting. -CO2 laser

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