

# Lecture 3 Dermatology

Disease	Diagnosis		Infectious & transmission	ttt	Prevention
herpes simplex -1	location				
	presentation				
	PPT factors				
	<b>Please complete for other disorders in dermatology course</b>				

# Differential Diagnosis

Unlike chickenpox, measles shows fever, often **greater than 40 °C (104.0 °F)**, **cough, runny nose, and red eyes**. A **red, flat rash** on the body three to five days after the start of symptoms. Measles rash is classically described as a **generalized red maculopapular rash**



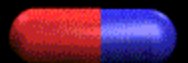
# Herpes zoster (shingles)

- - Chicken pox and herpes zoster are caused by the same virus.
- - Following an attack of chicken pox, the virus remain dormant in **dorsal root ganglia** for many years before some reactivation and causing an attack of shingles.
- In Arabic its name means "belt of fire"
- Reactivation by stress or by the loss of natural immunity as we get older (**more incidence after 50 year**).
- **One attack of shingle generally protects you from a second attack and gives lifelong immunity.**
- Diagnosis depend on location and presentation

# Herpes zoster (shingles)

- a **painful skin rash with blisters** involving a limited area. Typically the rash occurs on **either the left or right of the body (chest, and abdomen) or face in a single stripe**. Two to four days before the rash occurs there may be pain or tingling in the area.
- **The pain may be mild or severe “knife-like”**
- The eruption consists of unilateral, grouped clear or turbid vesicles on **erythematous area**.
- The vesicles dry and forms crust, **then it fall of within 2 weeks**. but may leave scars.
- nerve pain which may last for months or years, a condition called postherpetic neuralgia

# herpes Zoster



# Treatment (not OTC)

1- Topical antiviral as acyclovir

2-topical soothing like calamine .

3- Systemic antiviral acyclovir 800 mg five times a day for five days. It reduces the severity and duration of disease if started within 72 hours of the appearance of the rash.

4- Analgesic: Paracetamol, and NSAIDs may be used to help with the acute pain.

5-rest is recommended

## Prevention:

**The shingles vaccine:** It contains the same material as the varicella vaccine but at a higher dose.



# Parasitic skin infections

# 1-Pediculosis

Pediculosis is an infection by lice

Lice are parasites that depend on frequent blood meal for survival

Female lice put egg at the junction between hair shaft and scalp attaching them to hair by strong glue

Transmission by **direct contact with infected head, fomit, comb, brush, and head wears.**

Egg (nits) hatch within 6 days, mature into adults in about 10 days and live for about a month.

It is more common in **overcrowded living conditions**  
8 **(close contact).**



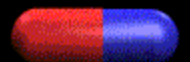
# Diagnosis

Diagnosis depends on location (head hair) and presentation and may add **age (children 3-12)**

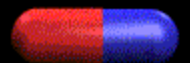
## Presentation

- presence of attached nits
- finding lice under strong light or natural day light
- scalp pruritis with the presence of small red papule on head, scratch for these papules may cause secondary infection like impetigo
- regional lymphadenopathy may be found

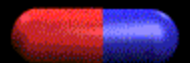
# Pediculosis rash on neck back



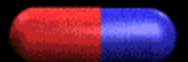
# Pediculosis lice and nits



# Pediculosis lice under microscope



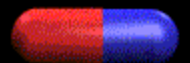
# Pediculosis with regional lymphadenopathy



# Pediculosis rash on head



# Pediculosis nits



# Treatment (OTC)

1- lice removal (pediculocide):

- Malathion (prioderm®, quick®)

-bioallethrin (item)

-Pyrtherin

-Permtherin (Ectomethrin®)

-synthetic pyrethroid (Ligid® or no lice®)

-The hair does **not have to be cut short** if the medication is properly and thoroughly applied.

-Drug preparation should massage well into wet hair.



# Treatment (OTC)

Side effects:

- **Toxicity** (burning for eye and skin, so keep away from nose and eye)
- **Resistance** if the drug dose decrease below the killing threshold. resistance can be avoided by
  - using drug once daily for 3 days then repeat after one week for another 3 days to kill any new hatched egg
  - Apply **shampoo or lotion** for 5-10 minute then remove with water to remove any drug residue below threshold level which may cause resistance

# Treatment (OTC)

2- nit removal:

- Comb with small teeth space

- Cut hair under nit if nit cannot be removed with comb

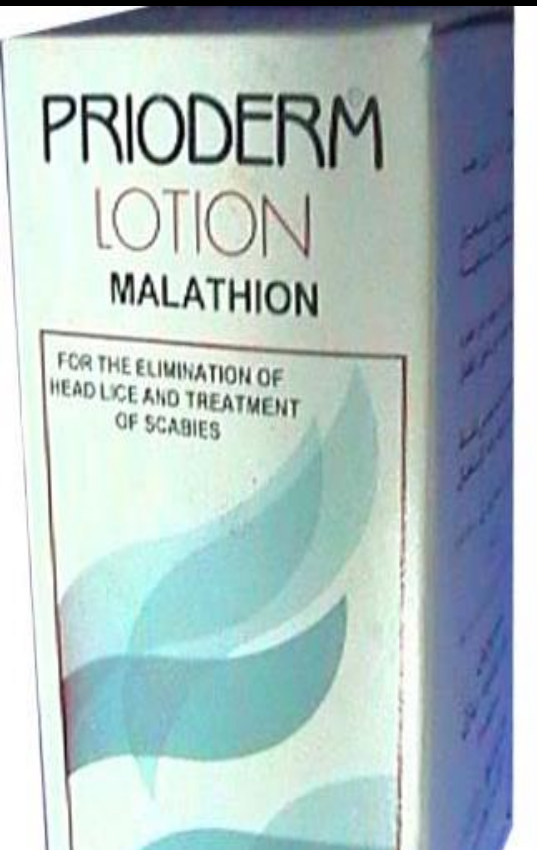
- vinegar (diluted acetic acid) or gasoline are not recommended due to skin burning and inflammation despite they detach nits from hair by dissolving the glue

# Prevention

- Never share comb, hats, brushes with other
- separate children in sitting in school and sleeping in home
- wash fomit and head tools with hot water to kill insect

## **Important concepts for patient education:**

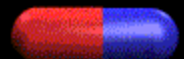
- Head lice are *not* associated with lack of cleanliness.
- Ordinary hair washing cannot prevent or cure it.



**Malathion**

**bioallethrin**

**Pyrethrin drv**



# 2-Dandruff

**Not serious but itching disorder in which Scalp shows flakes** of dead skin.

It does not cause baldness

Dandruff is a common scalp disorder affecting almost half of the population at the post-pubertal age and of any sex and ethnicity

Mild Dandruff is a common, normal condition in case and carries no risk to health.

# 2-Dandruff

Common causes or precipitating factors:

- fungi or hyper proliferation which lead to keratin accumulation giving flake

fungus exerts lipase activity reducing TGs to free fatty acids which induce scaling.

- Sever dandruff is associated with seborrhoeic dermatitis and *psoriasis*

**Other possible causes include:**

- emotional stress
- poor hygiene (including rarely washing or shampooing the hair)
- cosmetics applied to the scalp (non medicated jels)

# Notes

## **Black Pepper**

Black pepper contains the **dandruff fighting minerals zinc and selenium**. In Indian powdered black pepper has been used to treat dandruff.

**Inflammation and extension of scaling** outside the scalp differentiate the diagnosis of dandruff from seborrhoeic dermatitis.



Dandruff is not attached to hair shaft easily

Removed by pushing the hair (differentiate from nits)

# Treatment (OTC):

antifungal shampoo like ketconazole (Nizoral<sup>®</sup> or Zakan<sup>®</sup>) or Selenium sulfide (Selsun blue)<sup>®</sup> which have antifungal activity than reducing cell turnover rate.

Zinc pyrithione heals the scalp by normalizing the epithelial keratinization or sebum production or both (head&shoulder<sup>®</sup>).

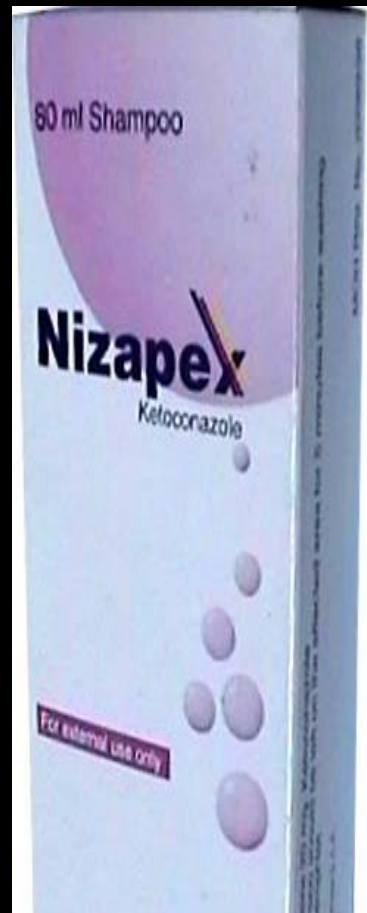
Apply 2-3 time weekly for about 1-2 months, Improvement is gradually, If cause hair dryness, apply hair balsam or conditioner for softening the hair (may be formulated as shampoo and balsam combination

\* Shampoo is used twice a week but other products (crams) 1 – 4 times/day.

\*Shampoo is preferred to lotion & creams as only bathing for 5-24 minutes then removed during bath.



# dandruff



# Scabies

Scabies is infection by parasites called mites. This mite burrow beneath skin by producing chemical that dissolve stratum corneum and remain under the skin epidermis

**Common between camps and military residence (poor hygiene “low water supply”)**

Female mites make a burrow under skin to put egg at night. After putting eggs, female mites dies. The eggs hatch into small mites, which spread out over the skin and live for about 30 days only.

Transport by contacting human, animal (common),  
26 objects (beds, underwear)

# Diagnosis

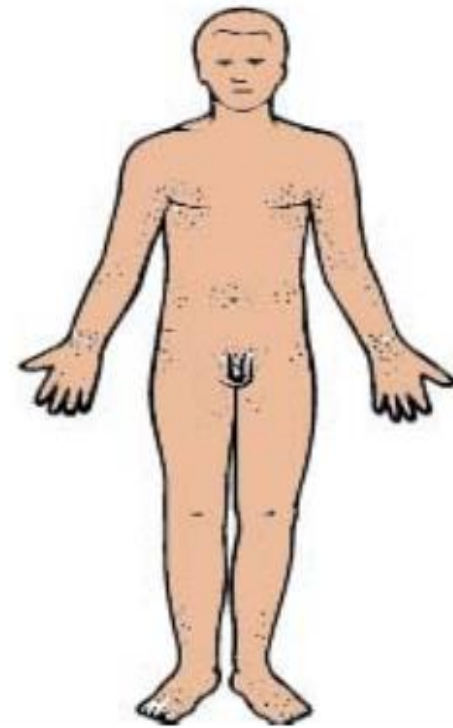
Depend on location and presentation:

- Occur in hand, feet, groin, abdomen, fingers webs, auxiliary folds, nipples in females

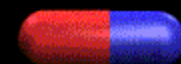
- Appear as papule or vesicle on **dry skin**

- nocturnal pruritis (disturb sleeping), sever scratch marks which may cause skin berakdown, thickness, and secondary bacterial infection,

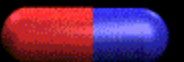
- Burrow only in 10% of cases 1 cm length with bluish color (small wavy bluish lines) To detect the burrow, the suspected area is rubbed with ink from or a topical tetracycline solution, then wiped with an alcohol pad.



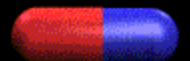
# Scabies papules on abdomen



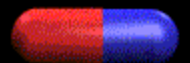
# Scabies scratch marks



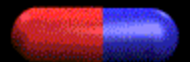
# Scabies Tunnel



# Scabies between fingers

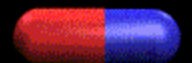


# Scabies on axillary folds

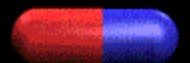




# Scabies between fingers



# Scabies with pustules on hand



# Treatments (not OTC)

1-Topical insecticidal drug for 7 days apply to all body areas except neck and head.

-Benzyl benzoate (benzani<sup>®</sup>) irritant in nature

-permethrin (ectomethrin<sup>®</sup>)

-Gamabenzene (scabine cream<sup>®</sup>)

-crotamiton (Eurax<sup>®</sup>)

Ivermectin (Iverzine<sup>®</sup>) is the only accepted oral therapy for killing mites in human after common use in animal. Available as both lotion and tablets.

# Treatments (not OTC)

2- oral antihistaminic to relieve sever itching

Fexofenadine, loratidine, chlorophenramine

Taken once daily before sleep

3- sulfur soap after daily shower with hot baths  
and hard brush

4- boil underwear daily

# Prevention

- Infected people should be isolated
- avoid sharing bed or underwear with others
- All families should be treated at the same time to control infection
- Improve personal hygiene by taking shower daily



**Benzyl Benzoate**

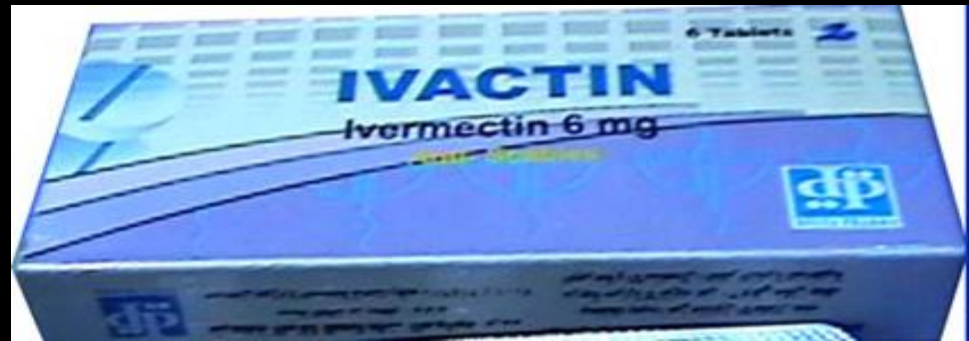


**Permetherin**



**Crotamiton**

# Ivermectin





## Oral Antihistaminic





# Acne

Acne in Greek means puberty due to its interlink with young age.

the **most common** disease treated by dermatologists

When untreated, acne usually lasts for several years until it spontaneously remits. After the disease has ended, scars are common permanent.

Environmental factors play a major role in determining the **severity and extent of acne**. Stress and food (fatty and glycemic food), **menstruation** may also play a role

**Genetic factor (family history)** play a role in Acne

# Acne

Occur in pilosebaceous unit (hair follicle and sebaceous gland) under the effect of bacteria and androgen hormone with narrowing in the opening “hyperkeratinization of hair follicle cells” leading to acne manifestation.

Acne **requires long-term control**. This must be stressed with the patient to encourage adherence.

## (Acne medicamentosa) or Drug induced Acne

1- testosterone use and Anabolic.

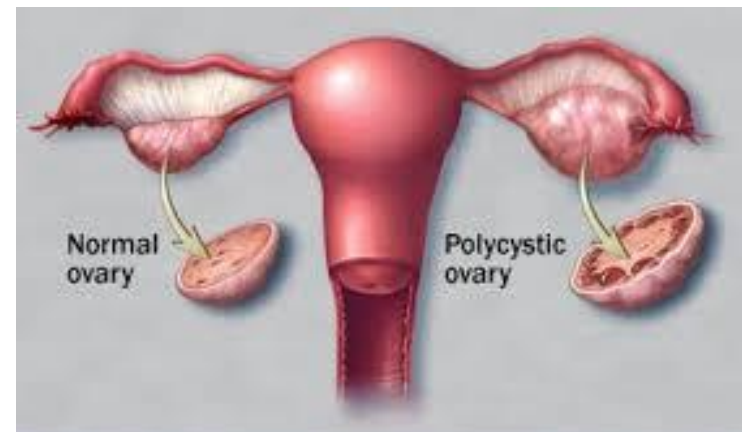
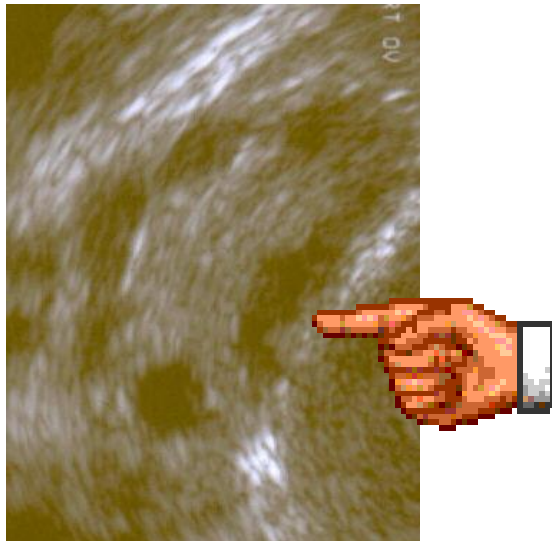
2-**Systemic** corticosteroids (with potent topical steroids not with hydrocortisone) can cause a pustular inflammatory form of acne, especially on the trunk. **Onset is abrupt at 2 to 6 weeks** after initiation of therapy.

3-Less common: Antiepileptics, tuberculostatics, cobalt (in vitamin B<sup>12</sup>)

# Polycystic ovary syndrome

In women, over production of testosterone hormone in some disorders may **potentiate acne like polycystic ovary syndrome which require antiandrogen therapy.**

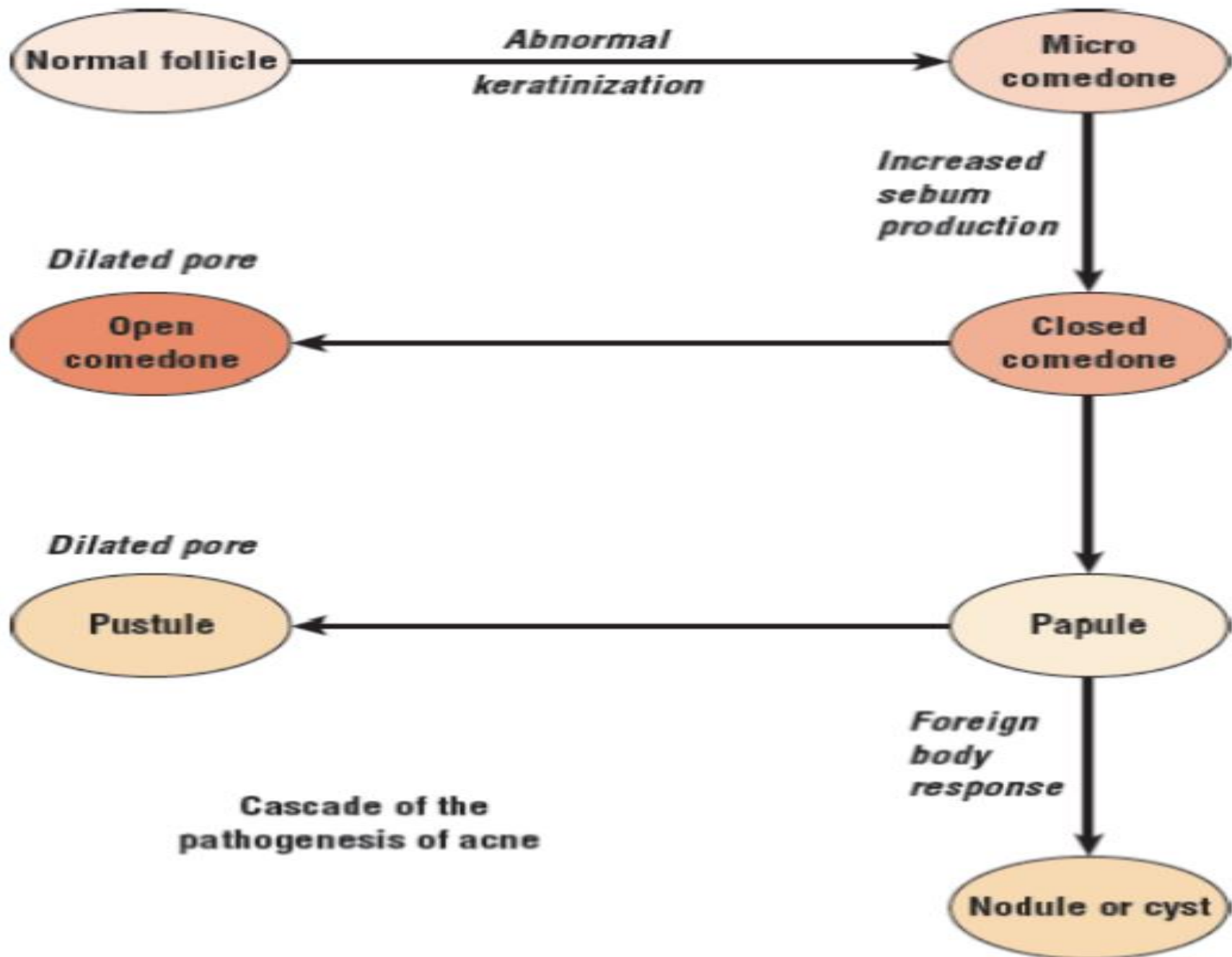
Diagnosis is based on two of the following three findings: no ovulation, high androgen levels, and ovarian cysts. Cysts may be detectable by ultrasound



# Diagnosis

Depend on age, location and presentation

- Acne occur mainly between 12-18 years and usually end by the mid 20s
- Occur on face, neck, chest and upper back
- Presentation involve the following order:
  - White head (closed comedon): white spot plug into the skin
  - Black head (open comedons): lipid are oxidized to dark color
  - Red papule and Pustules
  - nodules
  - Cyst if inflammation is sever and deeper in the dermis with  $\geq 1$  cm long
  - Scare (permanent change of skin color): occur after relieving the acne



# Stages of Acne

Sebaceous gland



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Normal Follicle



© 2000 Maria Hartsock, CSM

Blackhead  
(Open Comedo)



© 2000 Maria Hartsock, CSM

Whitehead  
(Closed Comedo)

Plug



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Papule

Inflammation



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Pustule



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Nodule/Cyst

# Acne stages (recent guidelines)

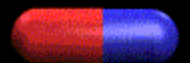
Mild if comedon and papules or pustules only with number below 10 and only found on face (non inflammatory type)

Moderate: if no more than one nodule is found, or the number increase to  $\geq 25$  or the lesion spread to trunk (chest or the back) with scarring (inflammatory type)

Sever : if nodules with sever scarring with cyst (inflammatory type)

# Acne presentation

Adult facial acne





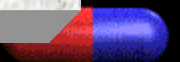
# Acne Stages



**mild**

**moderate**

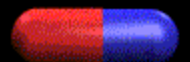
**severe**



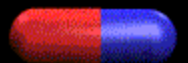
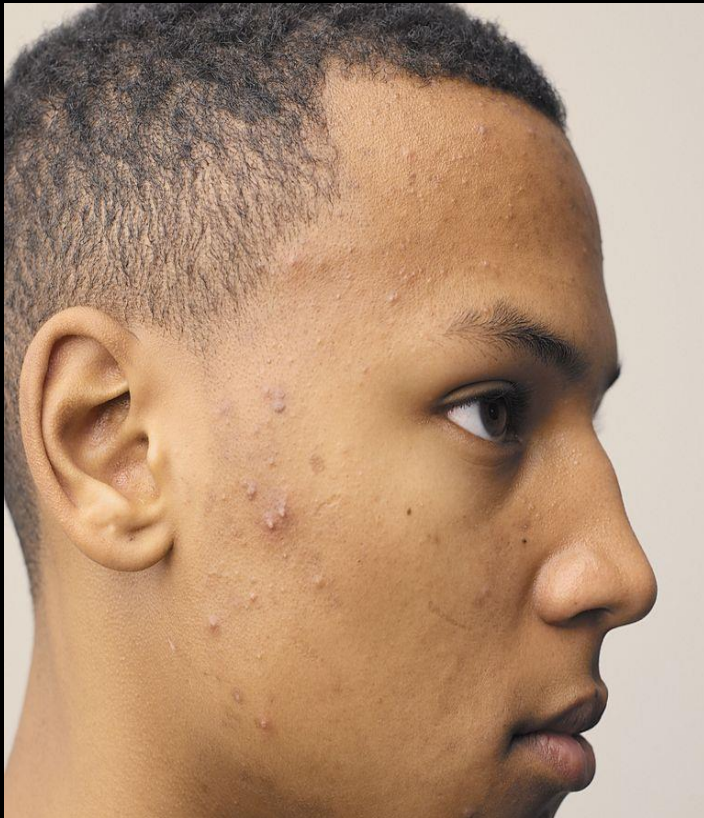
# Mild Acne papule



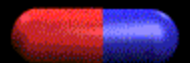
# Black heads



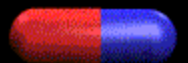
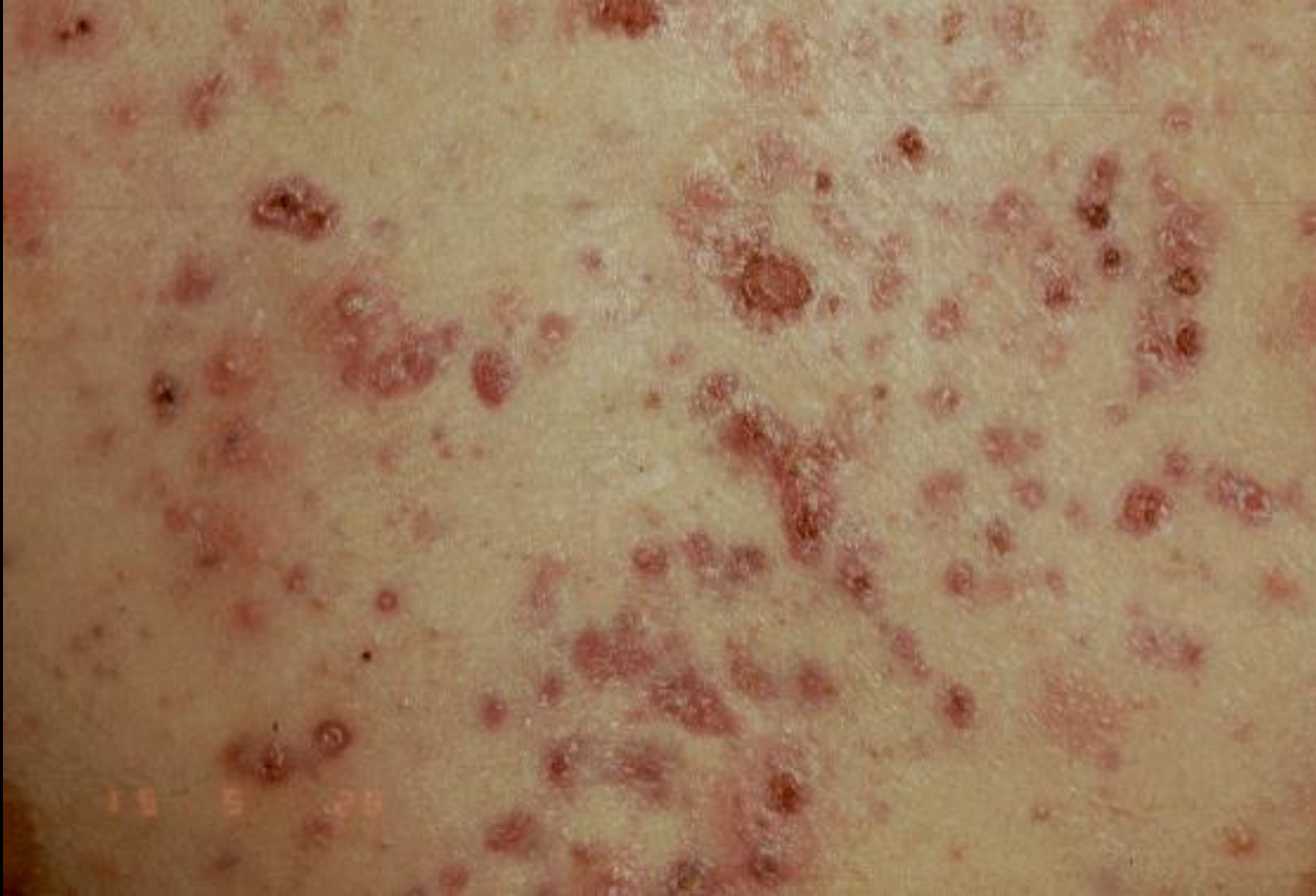
# moderate Acne



# Moderate Acne



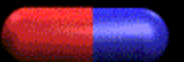
# Sever acne on back



# Sever acne



# Sever acne

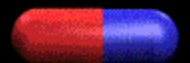


# Acne on chest





# Sever acne on back with many scares



# Goal of therapy

There are **two governing principles**:

1-the chronic nature warrants **early and aggressive** treatment

2-**maintenance therapy** is needed for optimal outcomes. As, microcomedones significantly decrease during therapy but may rebound almost immediately if therapy is discontinued.

**Basic goals of treatment:**

1- alleviation of symptoms by reducing the number and severity of lesions (objective and subjective grading).

2-slowing progression, limiting duration and recurrence,

3-prevention of long-term disfigurement associated with scarring and hyperpigmentation **by hydroquinone** , and avoidance of psychologic suffering.

# Non-pharmacologic measures

- eliminate aggravating factors or medications
- maintain a balanced, low-glycemic load diet
- avoid stress.
- Cleanse twice daily with medicated soap cleanser
- use only oil-free cosmetics.
- **Shave infrequently as possible or use electric razor.**
- the UV practice is no longer advisable because of the well-established carcinogenic and photoaging effects of ultraviolet exposure.

# Principals of drug therapy

1. Treatment regimens should be **tapered over time**, adjusting to response.
2. Combine the **smallest number of agents at the lowest possible dosages** to ensure efficacy, safety, avoidance of resistance.
3. **Motivate the patient** to continue long-term therapy through empathic and informative counseling.
4. To reduce new lesion development, they require **application to the whole affected area** rather than individual spots.
5. Recommend only once daily **at night** (to avoid irritation on sun exposure)
6. If **peeling** occur, reduce the amount applied

# Mild cases treatment (OTC)

- 1-topical benzoyl peroxide (Akneroxide<sup>®</sup>): **keratolytic** and **antibacterial** but cause severe irritation so only apply small quantity
- 2-Tretinoin (vitamin A acid) 0.5% cream or lotion( Eudyna<sup>®</sup>)
- 3- Adapalene( Adapalene) <sup>®</sup> is tretinoin drv. That normalize hair follicle life cycle preventing blocking of hair follicle by hyperkeratinization layer, reduce inflammation. Adapalene is generally regarded as the topical retinoid of first choice for both treatment and maintenance therapy, as it is as effective but less irritating than other topical retinoid
- 4-tazaritene (Zarotex <sup>®</sup>) tretinoin drv. With **low systemic absorption**
- 5-azelic acid (Azaderm<sup>®</sup>) is **comedolytic and antibacterial**

# Mild cases treatment

6-sulfur or salicylic acid soap: **keratolytic and antibacterial**  
(Kapritage<sup>®</sup>)

7- topical antibiotics: erythromycin (Acnebiotic<sup>®</sup>), Clindamycin  
(Dalacin T<sup>®</sup>), Tetracycline

8-benzoyl peroxide and erythromycin (Acnebenz<sup>®</sup>)

The duration of treatment is about 6-12 weeks

# Moderate cases treatment

1- Systemic Antibiotic :

Erythromycin (Erythrocin®)

Doxicycline (Vibramycin ®, Doxy 100MR®)

Clindamycin (Clindam®)

Taken twice daily for about 6 weeks

Doxicycline (Doxy 100MR®) **Side effects:** hepatotoxicity, photosensitization, (a sun protection plan should be used), teeth discoloration (avoid in children and pregnancy)

2- Topical therapy as mentioned in mild cases

# Sever cases treatment

1-Isotretinoin(Netlook<sup>®</sup>): oral vitamin A derivatives used for 4-6 months

-teratogenic so avoid use in pregnant (Category X)

-It's the most effective sebosuppressive agent, causes atrophy of sebaceous glands with decrease in sebum production, inhibition of inflammation.

**Monitoring:** lipid profile (increase TGs), and liver function tests, blood glucose.



# Sever cases treatment

1- systemic hormonal therapy by progesterone drv. That antiandrogenic drug (**Cyproterone actate, Androcure®**) mainly for female with hormonal disorders may be combined with estrogen like (Diane35® is cyproterone and **ethinyl estradiol**) or **Spiroinolactone (antihirsutism)**.

But side effects may include **irregular menstruation, weight gain, increase appetite, melasma, breast tenderness.**

2- systemic antibiotic as mentioned

3-Topical therapy as mentioned

4- laser and mesotherapy (microinjection in the mesoderm layer (derm) Intralesional corticosteroid injections are effective in the treatment of individual inflammatory acne nodules



# Maintenance Therapy for Acne

- In general, maintenance therapy is begun after a 12-week induction and continues for 3 to 4 months.
- **For**, the most recommended agents are topical retinoids. Mainly adapalene regimens and Other published options include tazarotene or tretinoin.
- Topical azelaic acid is an alternative to topical retinoids for acne maintenance therapy.
- To minimize antibiotic resistance, long-term therapy with antibiotics is not recommended as an alternative to topical retinoids.

# Acne prevention

- avoid stress and educate patient about the psychological concepts.
- avoid anabolic drugs
- avoid face cosmetics (specially containing oils)
- remove face cosmetic including moisturizing creams at bedtime
- avoid **facial scrubbing agents**
- decrease fatty food (chocolate, nuts, fried foods, milk)
- Blackhead removal: This is not recommended; **avoid picking and squeezing**

# Monitoring and evaluation

**Every 2- 3 weeks to determine progress.**

- Lesions Decrease by 10-25% within 4-8 wk, or more than a 50% decrease within 2-4 month
- Comedones resolve by 3-4 month
- Inflammatory lesions resolve within a few weeks.
- If Dermatitis, increased dryness, gastrointestinal upset, photosensitivity occur contact physician.



# Acne Treatment





# Acne Treatment



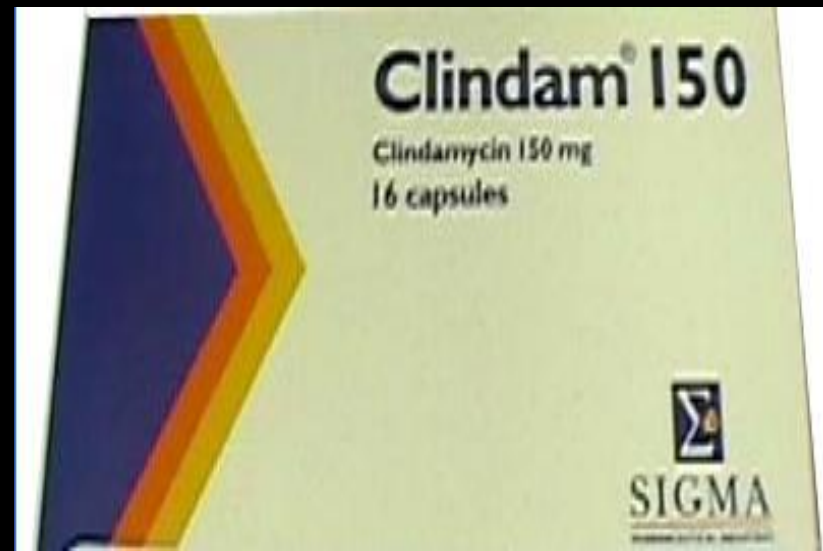


Topical drug for acne





**Systemic antibiotics for acne**





# Androgenic alopecia

Alopecia include scaring and non scaring alopecia

-Non scaring types (OTC) are divided into :

-Androgenic alopecia

-Alopecia areata

Androgenic alopecia is mainly **genetic** under the direct effect of androgen hormone

Androgen cause the **production of fine and shorter hair** until follicle lose activity (no hair of scalp)

# Diagnosis

Depend on location and presentation

In female (family history and testosterone test may be required in diagnosis)

Alopecia occurs in the scalp area and appear as **gradual hair loss** in the following pattern:

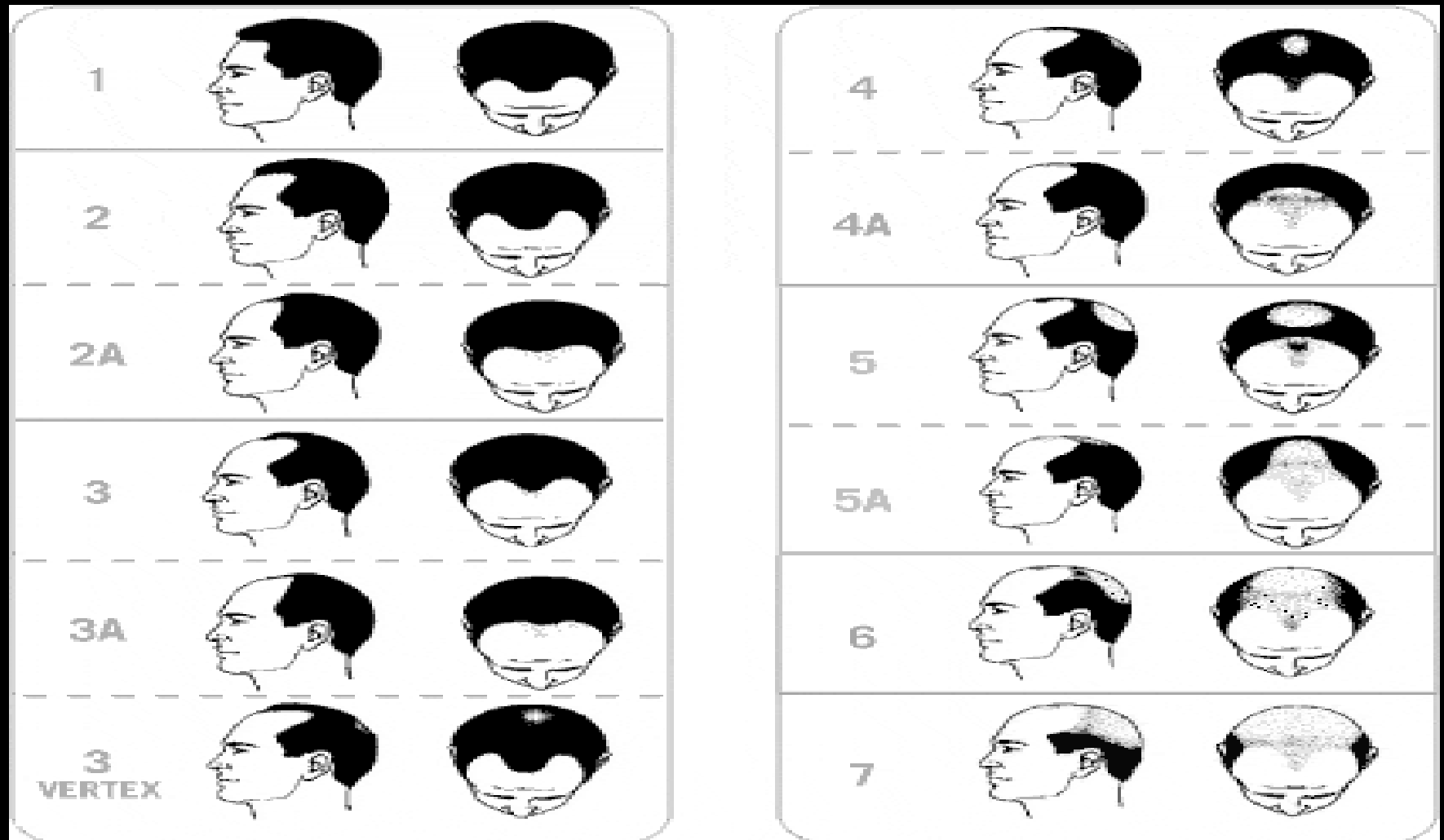
In male: M pattern, then on vertex then hair remain on only both sides then complete baldness

In female: hair become **thin and scalp appear in vertex around midline with sparing hair at head front**

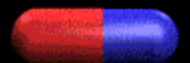
# Pattern of androgenic alopecia in male



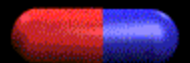
# Androgenic alopecia in male



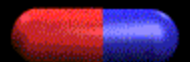
# androgenic Alopecia in male



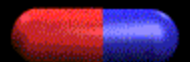
# androgenic Alopecia in male



# Pattern of androgenic alopecia in female

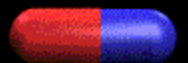


# androgenic alopecia in female

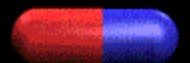




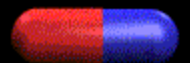
# androgenic alopecia in female



# androgenic alopecia in female



# androgenic Alopecia in female



# Treatment (OTC)

1-Minoxidil: 2% for male and female but 5% mainly for male

-Minoxidil increase blood flow and stimulate follicle to maintain long thick hair

-It give action on short period of hair loss or weak hair

-Improvement occur in **4 months** with maximum effect after about **8-12 months**

-if **stopped, hair loss** may occur again so advised to continue it but with low frequency

# Treatment (OTC)

-Indication of minoxidil (Hairback lotion®):

Once or twice daily and **leave for 4 hours** without washing to help good absorption

Side effects:

-**hypertrichosis** on skin so avoid contact with face or skin

-Mild hypotension

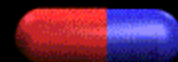
2- anti androgenic hormone : Finasteride (Androcure®) may be used only by physician specially in female with hormonal imbalance

# Prevention

- avoid hot combs (weaken hair)
- avoid non medicated chemical (lotions or shampoos) for scalp
- avoid using gel as break hair follicle
- avoid corn rowing for long period



# Minoxidil



# 5- Alopecia Areata

It is caused by autoimmune, stress, cosmetics, trauma, medications, or disease

Diagnosis depend on location and presentation:

It has **acute onset** appears as **oval patch with no inflamed scalp, at periphery there is thin week hair**

Also may occur **on chin** of male in some cases



# Treatment (not OTC)

-**Topical Corticosteroid** ex: betomethazone (Betnovate scalp lotion®). it act by increase blood flow to scalp and lower immunity

Systemic Cs may be required in progressive cases to affect immunity

-Irritant substance(**garlic extract**) also increase blood flow to scalp

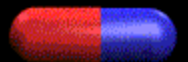
-**hair vitamins** as supportive (vitamin A, biotin, B5, B6, E and zinc )

- Minoxidil (only OTC drug by FDA) can be used but with low success rate

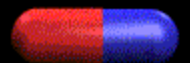
The duration of therapy about **3 weeks**

This disorder has good prognosis (hair follicle is still alive) and usually spontaneous recovery occur

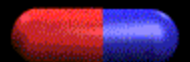
# Alopecia areata



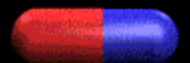
# Alopecia areata



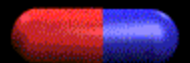
# Alopecia areata



# Alopecia areata below chin



# Alopecia Totalis



# Hair vitamin



# Topical corticosteroids



denvernative

# 6-Trichotillomania

Self-induced (neurotic) compulsive hair pulling/plucking.

**Circumscribed area of alopecia with irregular borders and broken hairs of different length.**

usually only one area (frontoparietal or frontotemporal) affected.

**Eyebrows and eyelashes may also be plucked.**





# Treatment ( not OTC)

- need referral to psychiatry (psychotherapy, behavior therapy, SSRIs).
- Ask about traumatic events (death, separation, school troubles) Difficult problems
- Most children outgrow condition, but can be difficult to manage in adults.