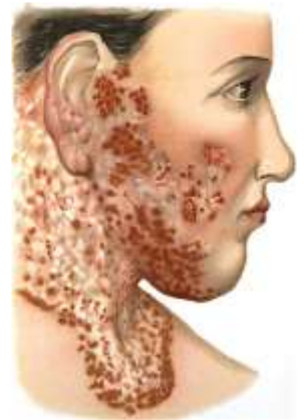
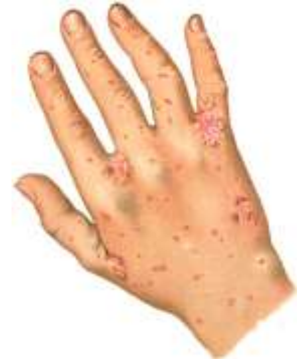
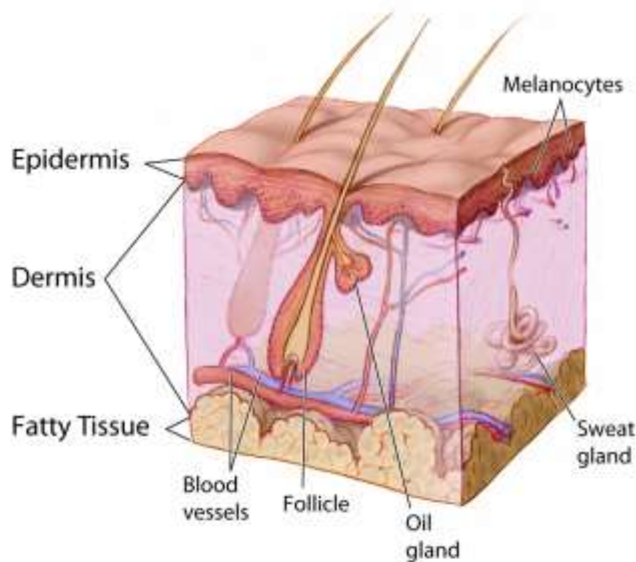
King Saud University

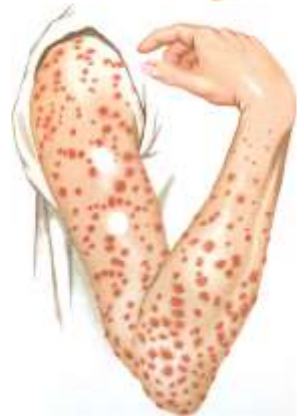
432 Teams

Dermatology









Common Skin Infections

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

Done by: Alanoud Alyousef

Reviewer: Lama ALtawil

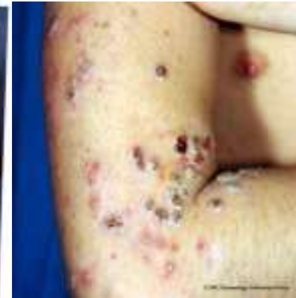
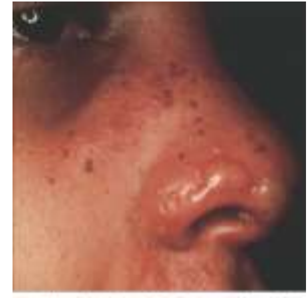
Team Leaders: Lama AlTawil and Basil Al Suwaine

12

Objectives

Not provided

Bacterial

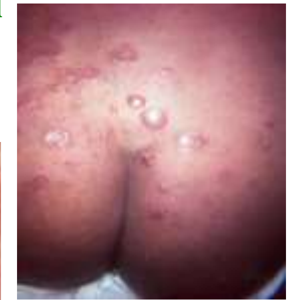
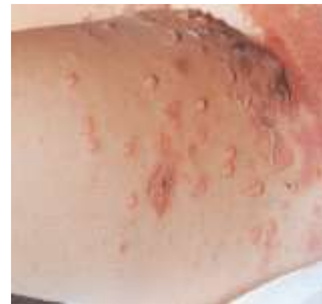
Impetigo:

- Acute superficial cut. Inf.
- Staph, gp A strept or both
- Children (more common), Adult

few papulovesicular eruptions with "yellow gold" crust + few erosions on arm and elbow

Bullous Impetigo (acute, superficial)

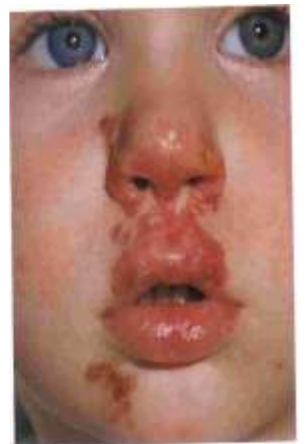
- Due to staph aureus. Phage group II
- New born and old children
- Face, hands (areas exposed to trauma)
- Bullae(thin,fragile) because it's superficial on grossly normal skin
- **Staphylococcus aureus**:
  Found on normal skin.
  Associated with nasal or perianal carriage.s

Bullous impetigo, because of acute eruption

Non Bullous

- more common form
- Due to S.A ,Strept pyogenes(GABHS), both transient vesicles or pustules later
- golden yellow crust→ characterized for impetigo
- The problem in non-bullous is that the infection is due to strep, certain strep strains "nephrogenic strains" can cause acute post streptococcal glomerulonephritis especially if there was a history of sore throat rare yet serious



Predisposing factors:- (for impetigo in general)

Warm, humid climate, poor hygiene, trauma, insect bites and immunosuppression.

Prognosis:

Scarring is unusual, but post-inflammatory hyperpigmentation or hypopigmentation

Complications:

APSGN:

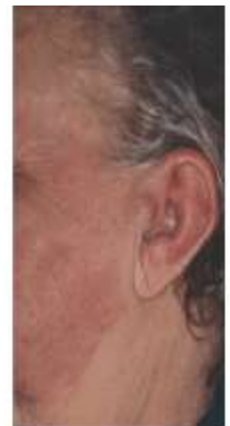
- Follows strept. infection (impetigo)> URTI
- Latent period : 10 days if associated with pharyngitis, 3 weeks if associated with pyoderma
- Nephritogenic pyoderma associated strains 49,55,57, 59
- Rare

Mx: (Mx= management, in the exam includes investigations)

- Swab :Gram, stain show gram positive cocci
- Culture
- Remove crust (We remove it for good wound healing by **wet dressing** (antiseptic or bactroban or fucidin ointment on gauze within a week it will resolve don't use manual technique)
- Localized: Topical Abx (bactroban) (start topical first unless below conditions)
- Severe , bullous or Strept (prevent post strept. Glomerulonephritis): we give systemic here .the same applies in immunocompramised patients
  1st generation cephalosporin
  semisynthetic Penicillin 7-10 d

Erysipelas:

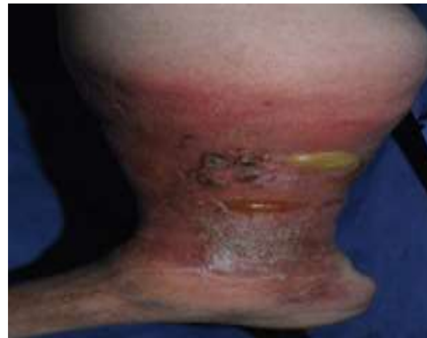
- Superficial infection with marked lymphatic involvement.
- **Sharply demarcated unilateral, red edematous (**the edema is dermal, meaning if you touch the skin you wont feel it elevated . and there is warm skin)
- Infants, young children, & elderly patients (most commonly..)
- Face, leg
- Beta hemolytic gp A Strept.
- Minor abrasion / → turns to lymphatic dysfuncion - sup. Lymph vessels
- Leucocytosis & fever
- Ddx →cellulitis

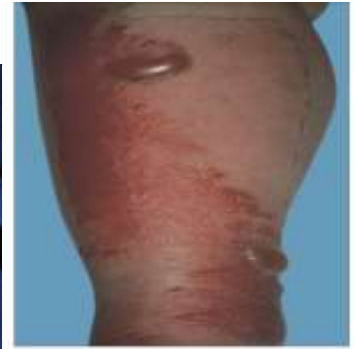


Mx

- Smear for gram stain and culture (fluid from the vesicle , blood is always better)
- Cold compressor
- Oral anti biotics or I.V. for severe infection no topical here
- Oral penicillin for 10 days
- Erythromycin if allergic to penicillin

- **Cellulitis**
- Deeper involvement of the SC
- Acute, raised, hot, tender, erythematous (leg)
- Strept. Pyogenes, staph.aureus (has more causative agents)
- Cut , abrasion or ulcer
- Palpable, tender LN always check reactive lymph node i.e. leg → inguinal , face→cervical
- Fever, leucocytosis
- Risk factors:
  DM (always check between their toes for tenia pedis , as it acts as a source of entry to the bacteria), HTN, obesity, immunodef, venous stasis "lymphatic dysfunction".
- Complicated by lymphedema if recurrent





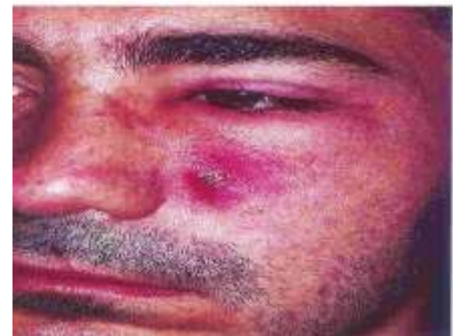
Not well demarcated, vesicles since its deep , hot, tender

Mx

- Swab from the bulla not skin + blood culture
- acetaminophen
- IV penicillinase-resistant penicillins
- 1st generation cephalosporin

Furuncle (boil)

- Inflammation of deep portions of hair follicle
- Deep seated nodule about hair follicle
  S. aurius
- **MX:**
- ✓ Swab : Culture and GS(gram +ve cocci)
- ✓ Antibacterial soap
- ✓ Antistaph antibiotics topical like bactroban or oral cefalix

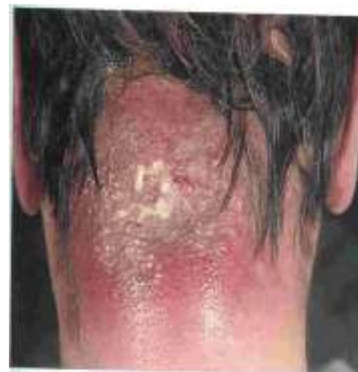


Carbuncle:

- Infection of multiple hair follicles
- Larger more deep seated
- Drainage through multiple points in the skin
- S. Aureus

Mx

- Swab : Culture and GS
- Screen for carrier state (they get recurrent infections , for screening we do a



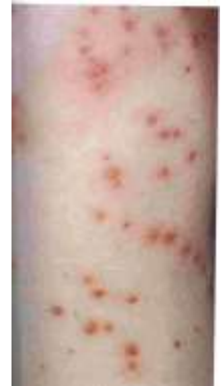
If it was a severe infection it can cause a temporary "non-scarring" alopecia
And here you can see puss and discharge
n.b. Bacterial skin infection doesn't cause scarring alopecia

swab for nose, axilla, and perianal because they have a store there and they need topicals to eradicate it .It also contributes to weight reduction for some reason)

- Antistaph antibiotics

Folliculitis:

- Inflammation of hair follicle
- S. aureus
- face, scalp, thighs, axilla, & inguinal area.
- multiple small papules / pustule on an erythematous base (must be there to dx)
- Heals without scarring
- Ddx → Acne but here no comedons → scenario young male age of acne after shaving develops this picture whats the dx ? look for the word comedon is it there vs.absent to estabish the dx



Pustule or papule in a "hairy" area

Mx

Swab: culture, gram stain

- Antibacterial soap
- Topical and systemic Abx (Certain patients who know that they Get this condition post hair removal like post waxing they usually use prophylaxis Abx "Clinda or dermaT" pre and post removal)
- For a carrier he/she gets treated by → topical Abx

Viral

Warts

Multiple localized Hyerkeratotic plaque

HPV (DNA)

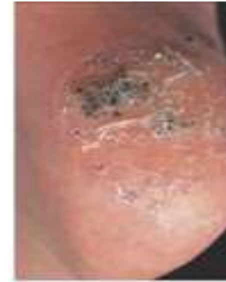
Common wart:

- Hand
- Children
- Koebner phenomenon
- Autoinfection for one's self and also others (immunity/haven't been exposed to it before)
- Can be skin colored or brown hyperkeratotic leasions and multiple usually
- Most are asymptomatic , yet the complaint in mainly cosmetic
- Warts can spontaneously heal without treatment in children , but adults have to be treated

1- Face, back of

1- Plane warts: Flat warts in form of papule (on the face mostly)
2- Plantar wart: hyperkeratotic or black dot

2- Sole, Painful on pressure (u can see black dot sign here)



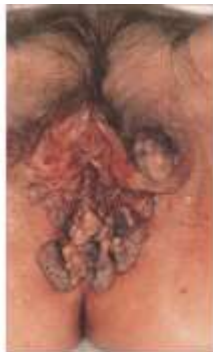
The black dot is the place of blocked capillaries due to the virus
→ DDx for these dark lesions on the soles could be Corns which are painful on walking (pressure related) and no black dots on shaving

Mx :

- Involute spontaneously
- Cryotherapy
- Topical: SA, TCA
- Electrocautary, curettage
- Laser

Genital wart:

- Most common STD
- Condylomata accuminata
- Cauliflower like
- Penile, vulvar skin, mm, perianal area , usually submucusal not on the labia
- Sexual partner must be screened and other STDs too
- Child→ sexual abuse (need to make sure it's an STD type by PCR if not available do papsmear for atypical cells this is for medico-legal purposes)
- Oncogenic: 16, 18 (risk of cervical neoplasm) there is an available vaccine now



Severe pedunculated mass with an associated destruction. its really painful must surgically excise

Table 79.1 Clinical manifestations and associated HPV types.

CLINICAL MANIFESTATIONS AND ASSOCIATED HPV TYPES		
	Frequently detected	Less frequently detected
Skin lesions		
• Common, palmar, plantar, myrmecial and mosaic warts	1, 2, 4	26, 27, 29, 41, 57, 60, 63, 65
• Flat warts	3, 10	28, 29
• Butcher's warts	7, 2	1, 3, 4, 10, 28
• Digital squamous cell carcinoma and Bowen's disease	16	34, 35
• Epidermodysplasia verruciformis (EV)	3, 5, 8	9, 12, 14, 15, 17, 19–25, 36–38, 46, 47, 49, 50, etc.
• EV – squamous cell carcinoma	5	8, 14, 17, 20, 47
Mucosal lesions		
• Condylomata acuminata	6, 11	42–44, 54, 55, 70
• High-grade intraepithelial neoplasias (including cervical condylomata plana, bowenoid papulosis, erythroplasia of Queyrat)	16	18, 31, 33–35, 39, 40, 51–59, 61, 62
• Buschke–Löwenstein tumor	6, 11	
• Recurrent respiratory papillomatosis, conjunctival papillomas	6, 11	
• Heck's disease (focal epithelial hyperplasia)	13, 32	

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Table 79.2 Management of anogenital warts with grading of recommendations. Grading of recommendation: (1), based on randomized, controlled trials of good quality and consistency; (2), well-conducted clinical studies but no randomized clinical trials[67].

MANAGEMENT OF ANOGENITAL WARTS WITH GRADING OF RECOMMENDATIONS
Cytotoxic agent
• Podophyllotoxin 0.5% solution, 0.15% cream (1)
Physical destruction
• Cryotherapy (liquid nitrogen, cryoprobe) (1) • Trichloroacetic acid (TCA) 80–90% solution (1) • Electrosurgery (1) • Scissors excision (1) • Laser vaporization (2)
Immunomodulatory
• Imiquimod 5% cream (1)

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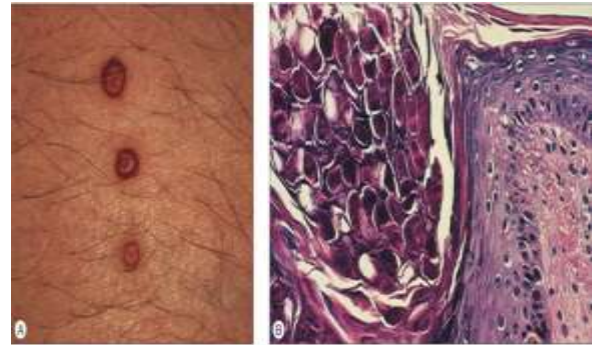
Podox is cytotoxic
Imiquimod → Used to be only for the genital, but now can be used for common warts and flat warts →enhances internal interferon → better fighting for virus
Best method of genital warts treatment is → **combination treatment**
(***ex***. Cryotherapy + Imiquimod)

Molluscum contagiosum



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Similar to a flat wart but has umbelication, histo path is distinct virus inside macrophages(mcq)

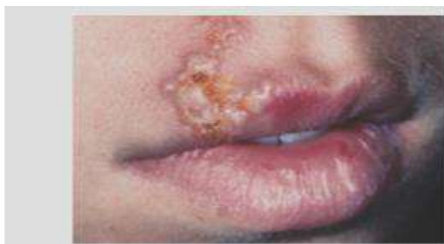
- Pox virus
- Children
- Face, neck
- Central punctum (umbilication) single or few pearly shiny papules
- H/P: **Hunderson-patterson bodies**

Mx:

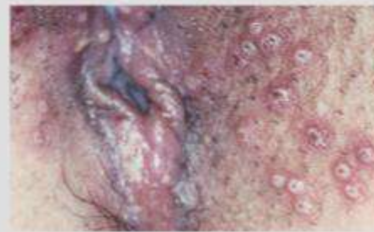
- Involute spontaneously
- Curettage, cryotherapy

Herpes simplex

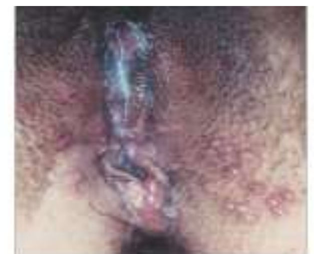
- Group of small blister
- HSV-1(Herpes labialis)
- HSV-2(genital herpes) STD
- Herpetic whitlow (seen in physicians who deal with patients)
- Eczema herpeticum: Infection with HSV in patients with previous skin disease (e.g. atopic dermatitis, pemphigus, burns)
- Latent within the ganglia



HSV-1 (Herpes Labialis) "cold sore": Recurrent. Resolves spontaneously.

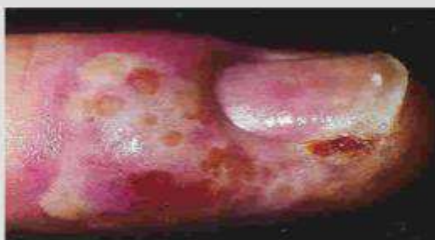


HSV-2 (Genital Herpes): Extremely painful. High association with cervical cancer

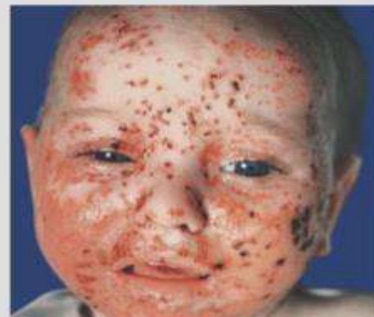


Herpes:

- Groups of vesicles
- Mucocutanous "on the boarder"
- Painful
- Recurrent

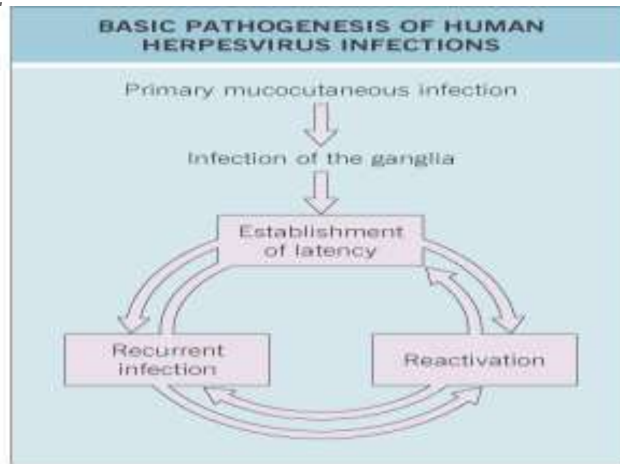


Herpetic Whitlow: Inflammation of the proximal nail folds "paronychia"



Eczema Herpeticum: Infection with HSV in patients with previous skin disease (e.g. atopic dermatitis, pemphigus, burns)

- Groups of vesicles
- Background of eczema



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Mx:

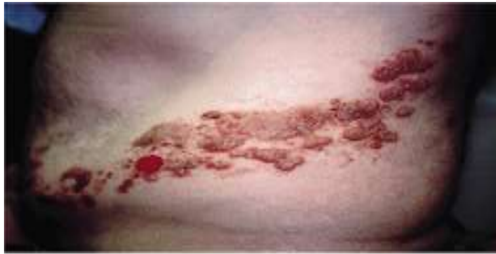
- Tzanck Smear---viral particles
- Serology (1gG, 1gM) antibodies
- Direct fluorescent antibody(DFA) commonly used in real practice on fluid or serum and tells you the type . Indirect is the biopsy one we don't do it
- Viral culture- most definitive
- Oral / IV acyclovir don't give topical its useless
- Genital, Recurrent (you may need a daily suppressive (valcyclovir) treatment to reduce the virus), immune suppressed, neonatal, Ecz.H. these need addition and I.V.

Herpes zoster (one of the most painful dermatological disorder)

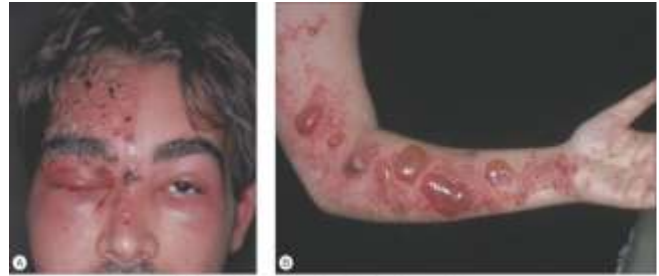
- Chickenpox virus → reactivation
- Adult
- Prodromal pain—dermatomal (blisters)—post-herpetic neuralgia(even though eruption resolved , they are referred to neuro and receive anti-convulsion therapy and scar formation risk
- Remember when she says herpes zoster affects whom? adults

Mx:

- Tzanck Smear---viral particles
- Direct fluorescent antibody(DFA)→ better option
- Analgesia (strong), drying agent
- Acyclovir: immune suppressed→ hemorrhagic and multiple dermatomal involvement, larger and more painful , wide spread



Vesicular eruption in groups running along the dermatome and highly painful



Eye involvement → due to dermatomal spread in this disease you need to refer the pt to ophthalmology

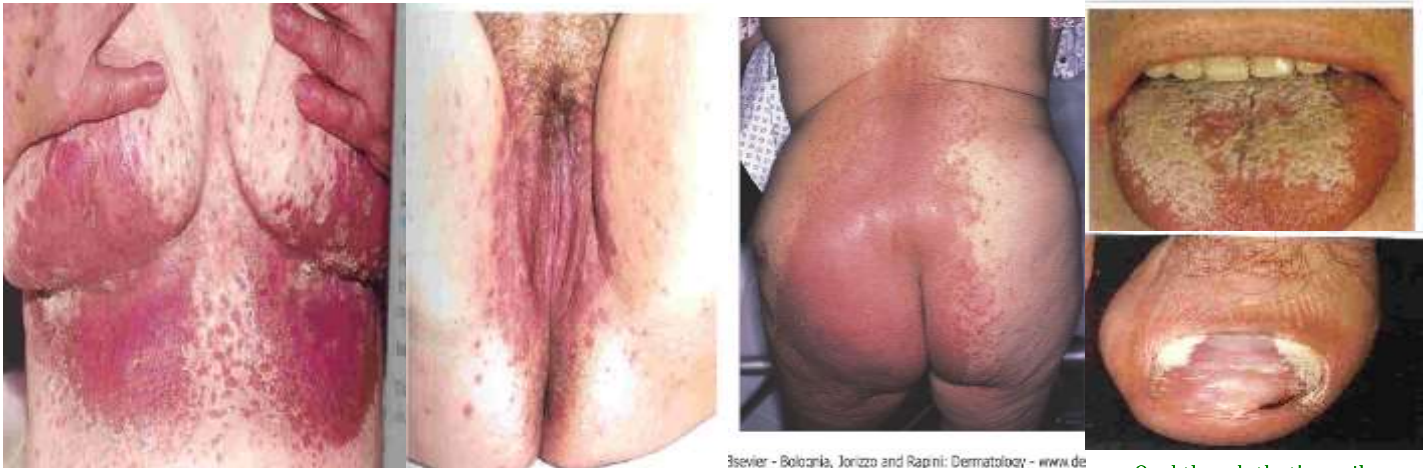
Fungal (superficial mycosis, Deep mycosis)

- The deep group is like the mycetoma and is usually seen in immune suppressed , lymphoma ,leukemia pts

Candidiasis

Candida albican (normal commensal of GIT)

- Napkin candidosis & Intertrigo(beneath the breast and is in moist areas , satellite lesions pustules on the site of the lesion and away from it) abdominal folds
- Paronychia
- mm---oral, urogenital (common in pregnancy) and oesophagus.
- Vulvovaginitis---irritation, discharge
- *Candida* folliculitis
- Generalized Systemic infection→ in immune-suppressed it's in internal organs and blood
- Chronic mucocutaneous candidiasis → and nail involvement indicates problem in the immunity "in immunosuppressed patients"
- General description→ shiny , wet and moist , erythema , pustules within and around the involved area and since fungal it has to be itchy



Oral thrush that's easily removed unlike premalignant leasions / Paronychia in the lower picture

Mx:

- Swab and KOH
- Alter moist warm environment → educate to dry themselves well after washing or ablution to avoid fungal infection in between the toes
- Nystatin-containing cream
- Imidazole (Daktarin, canastein) → topical
- Oral antifungal (itraconazole): used in immune suppressed, persistent infection "failed topical"

Dermatophyte infection

- Skin
- Hair
- Nails

Table 77.9 The four major types of 'tinea pedis' (including dematiaceous and dermatomycoses). *Because of the thickness of stratum corneum on plantar surfaces and the inability of *T. rubrum* to elicit an immune response sufficient to eliminate the fungus[16]. ‡Often *Pseudomonas*, *Proteus* or *Staphylococcus aureus*. †Allergic reaction to fungal elements presenting as a dyshidrotic-like eruption on the fingers and palms (culture-negative for fungus). CMI, cell-mediated immunity.

THE FOUR MAJOR TYPES OF 'TINEA PEDIS '(INCLUDING DEMATIACEOUS AND DERMATOMYCOSES)

Type	Causative organism	Clinical features	Treatment considerations
Moccasin	*T. rubrum* **E. floccosum** *S. hyalinum* *S. dimidiatum*	Diffuse hyperkeratosis, erythema, scaling, and fissures on one or both plantar surfaces; frequently chronic and difficult to cure*; may be associated with fungal CMI deficiency	Topical antifungal plus product with urea or lactic acid; may also require oral antifungal therapy
Interdigital	*T. mentagrophytes* (var. interdigitale) *T. rubrum* *E. floccosum* **S. hyalinum** *S. dimidiatum* *Candida* spp.	Most common type; erythema, scaling, fissures, and maceration occur in the web spaces; the two lateral web spaces are most commonly affected; associated with the 'dermatophytosis complex' (fungal infection followed by bacterial invasion‡); pruritus common; may extend to dorsum and sole of foot	Topical antifungal; may require topical or oral antibiotic if superimposed bacterial infection
Inflammatory (vesicular)	*T. mentagrophytes* (var. *mentagrophytes*)	Vesicles and bullae on the medial foot; associated with the dermatophytid reaction†	Topical antifungal usually sufficient
Ulcerative	*T. rubrum* *T. mentagrophytes* *E. floccosum*	Typically an exacerbation of interdigital tinea pedis; ulcers and erosions in the web spaces; commonly secondarily infected with bacteria; seen in immunocompromised and diabetic patients	Topical antifungal; may require topical or oral antibiotics if secondary bacterial infection

Dermatophytes / Non-dermatophytes

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Source:
Human to human
Animals to human
Environment

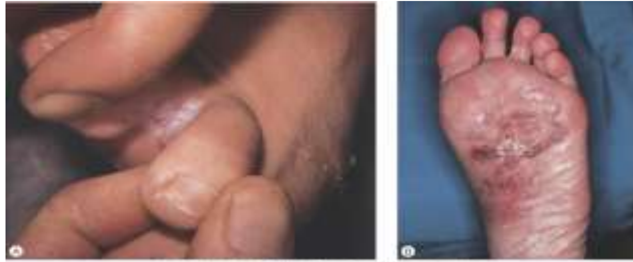
Tinea pedis

Adult (athlete's foot)

Toe webs (last 3-4 , 4-5 toes mostly), instep

T. rubrum, T. mentagrophytes

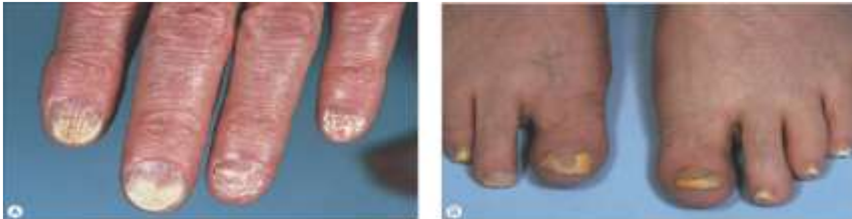
Topical and then oral if no improvement →if left untreated secondary cellulitis may occur



On the left interdigital (more common) erythema scales fissuring and Whitish maceration /Scaly ill-defined plaque that's vesicular .. others may present diffuse on the foot (more acute and itchy as opposed to its ddx psoriasis)

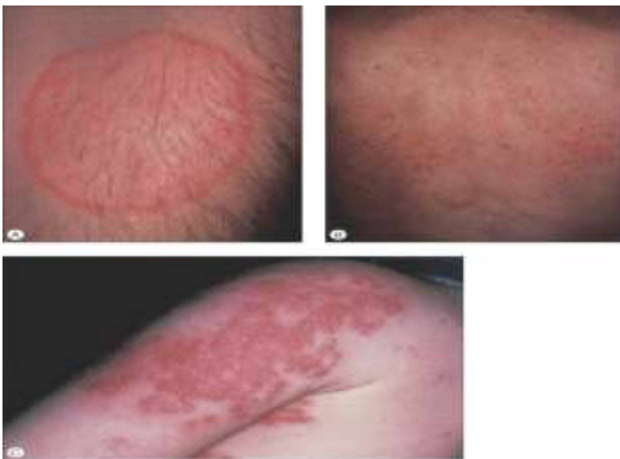
T. ungum

T. rubrum, T. mentagrophytes



Fungal signs in nails: (T. ungum/onychomychosis

- Onycholysis
- Sub-ungal Hyperkeratosis
- Nail yellowish discoloration
- Total destruction as and end result



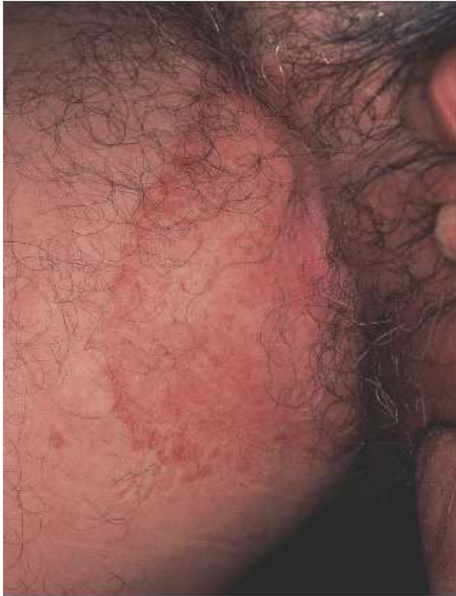
Tinea corporis:

Trunk ,Active edge,T. rubrum

Well-defined annular erythematous lesion with inflammatory active border and clear center and scaly .

Acute itchy with scales plaque.

Can occur at any location in the body **except** the hand, feet, scalp, and nails. "they have other names"

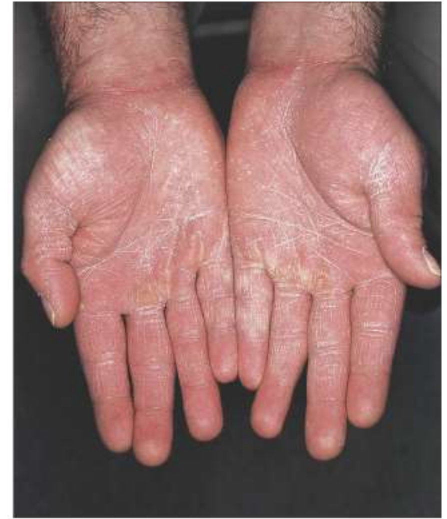


T. cruris

The difference here is the location "at site of sitting" but it's the same lesion as Tinea corporis .

T. manun

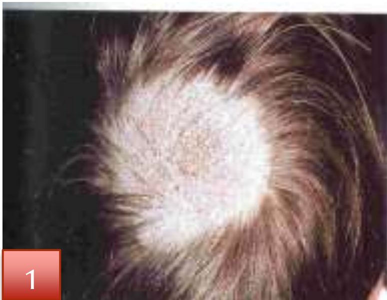
Manum= manual = hand worker.

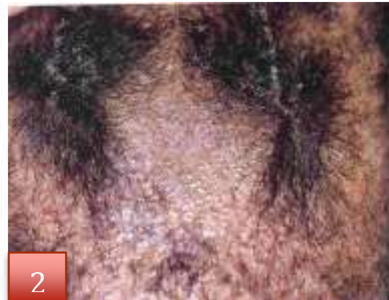


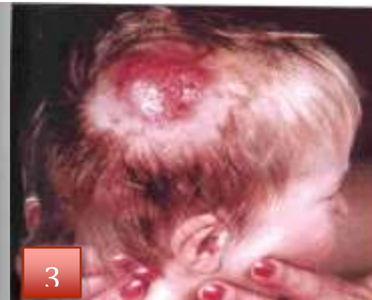
Tinea capitis

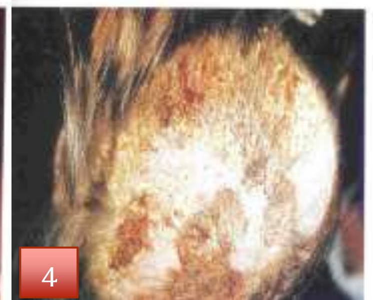
Well circumscribed pruritic scaling area of hair loss "non scaring"

- Gray patch (M. audouinii), animals (1) ask about cats
- Black dot (T. tonsurans) small scaly plaques, from human to human (2)
- Kerion (T. verrucosum) animals/environmental (scarring if not treated promptly)(3)
- Favus "golden crust non scarring alopecia patch" pic 4(T. schoenleinii) (4)









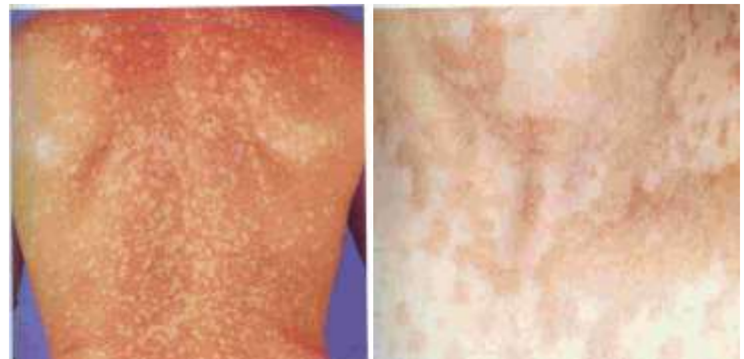
1- Well defined non scarring well demarcated alopecia with white scales this is the gray type → if it becomes like a mass and boggy and red→kerion

Green yellow on WL

Mx:
Education (don't use public swimming pools,..)
Scraping, hair plug, nail clippings---KOH and culture
Wood's light tenia capitus distinct in scalp
Topical (terbinafine, daktarin)
Oral (Griseofulvin, terbinafine, itraconazole (increases liver enzymes): extensive, Hair, nail (6months of treatment of hands and foot up to one year) capitus = systemic

Pityriasis versicolor

→ the same organism can cause **fungal folliculitis**, in dark ppl it may appear white and mistaken for vitiligo , and it white ppl it appears as brown and there has to be scales whether clear or not but its asymptomatic



- *Malassezia furfur* (hyphea)
  Pityrosporum orbiculare (yeast)
- Trunk
- Asymptomatic
- Yellowish- brown(in white skin)
- Hypopigmented. (in dark skin)

***Mx*:**

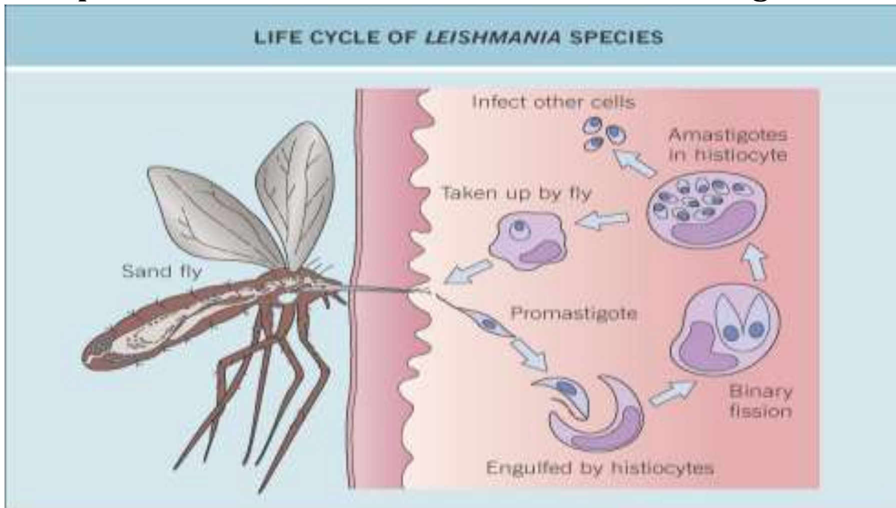
- Wood's lamp (coppery-orange fluorescence in white ppl) green light yellow hue in dark ppl less brighter than dermatophyte
- Scraping
- Topical imidazole (nizoral) also available as shampoo for skin and scalp
- Recurrence

Leshmaniasis

- Includes a spectrum of chronic infections in humans and several animal species.
- It is caused by over 20 species of Leishmania → the carrier is the Sand fly
- There are four major clinical patterns:
  (1) Cutaneous, which is restricted to the skin and is seen more often in the Old World. In world war times Americans got it and it wont become visceral
  (2) Mucocutaneous, which affects both the skin and mucosal surfaces and occurs almost exclusively in the New World. In brazil and south America →Destruction of the nose can occur
  (3) Diffuse cutaneous, which occurs mainly in the New World.

(4) Visceral, which affects the organs of the mononuclear phagocyte system, e.g. liver, spleen ,and blood

- Transmit: sand fly
- Painful papule **slowly** enlarge over several weeks into a nodule or plaque then become ulcerated (deep with prominent border that's red and inflamed) or veracious. It leaves a bad scar
- Exposed sites such as face, neck, arms, and legs are most commonly involved



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- Carried by fly in form of promastigote→then change to amastigote in the macrophage
- Human to human via sand fly

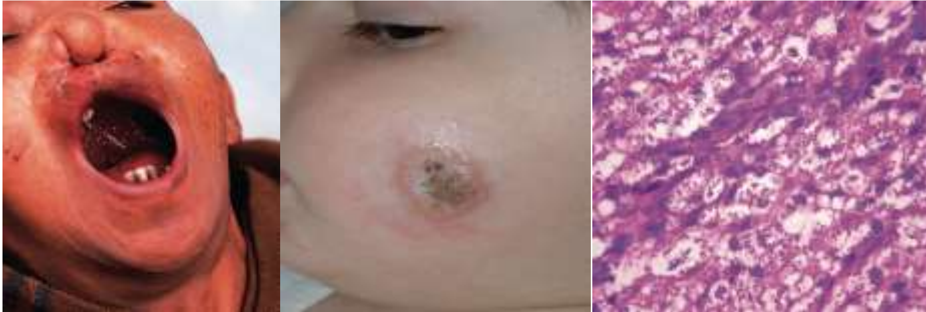
Dx:

- Confirmed by demonstrating the presence of amastigotes in dermal macrophages within skin biopsy specimens, tissue impression smears (touch preparations that's taken from the ulcer), and smears of dermal scrapings
- Giemsa, Wright or Feulgen stains are used to identify the organisms in smears and tissue: the cytoplasm appears blue, the nucleus pink and the kinetoplast a deep red.
- **The edge** of a relatively new ulcer is the location of choice for dermal scrapings, a biopsy specimen or a needle aspirate; the latter two types of samples may be used for culture and PCR
- Leishmanin test take dead leishmania and put intradermal and read after 48 hrs for type 4 hypersensitivity→ problem is risk or scarand not that helpful
- PCR-based methods are the most sensitive & specific diagnostic tests,
- Dx is mainly clinical

Mx:

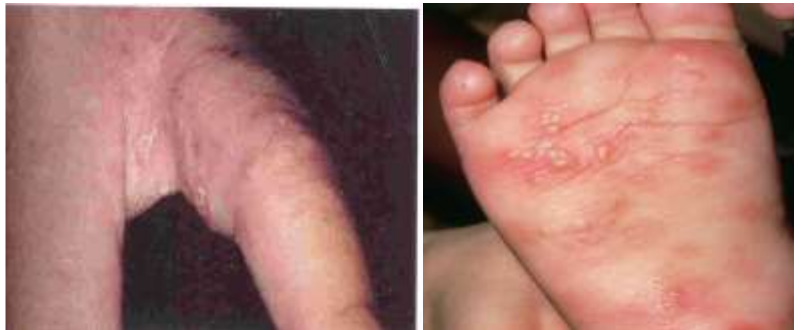
- Intraregional pentavalent antimony in the borders , it's a little painful
- Parenteral pentavalent antimonials (Sodium stibogluconate) are the treatment of choice for cutaneous and mucocutaneous leishmaniasis (directly systemic, but cutaneous you may try topical) .

- Liposomal amphotericin B for visceral leishmaniasis
- Topical Paromomycin → not available here in KSA
- Fluconazole
- Cryotherapy



Scabies

- Mite: ***Sarcoptes scabiei var. hominis***
- Sever and persistent itch
- Worse after bathing and at night
- Sites: finger webs, flexor of the wrist, axillae, areolae, umbilicus, lower abdomen and scrotum
- Linear burrow → the primary lesion, not always found
- Small erythematous papules are present in association with a variable degree of excoriation Vesicles, indurated nodules.
- Eczematous irritant dermatitis and secondary bacterial infection (pustule, crust)



When to suspect scabies ?

1.pruritus mainly at night
2. Other member of the family also having severe pruritus (highly infective)
3. Pruritus and skin eruption is more severe in the flexors

Ix:

- India ink or gentian violet then removed by alcohol to identify the burrows
- A drop of mineral oil on the lesion then scraped away with a surgical blade
- Demonstration of the mite under the microscope

Mite and fecal particles all causing a severe itch

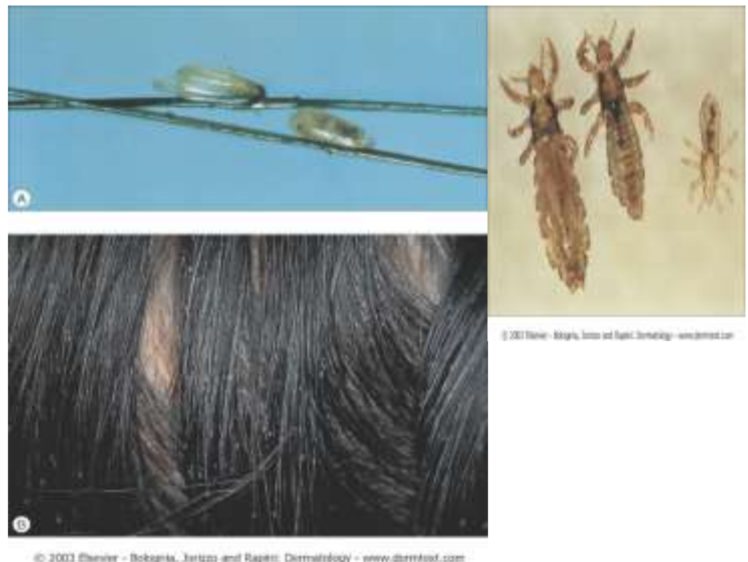
Mx:

- Treatment of family members and contact even
- if asymptomatic!

- Washing clothing and bed linen close in bag for 10 days (life cycle) to ensure death
- Permethrin 5% cream (standard topical scabicide) ***(1st line) from head to toe over night if pt is still itching an add on of antihistamines and steroids may be used***
- Lindane(gamma-hexachlorocyclohexane)
- Crotamiton 10% cream for 5 days
- 2.5% Sulpher preparation

Pediculosis capitis

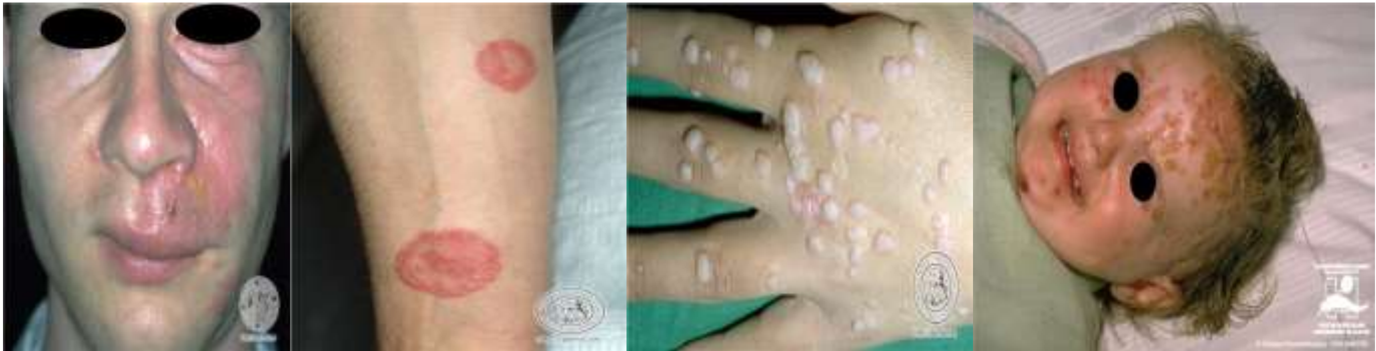
- Common in school children
- Head louse(*pediculus humanus var capitis*)
- Sever itching of the scalp
- Post cervical LN
- 2nry impetigo, nits
- Differentiate from dandruff by vibration test



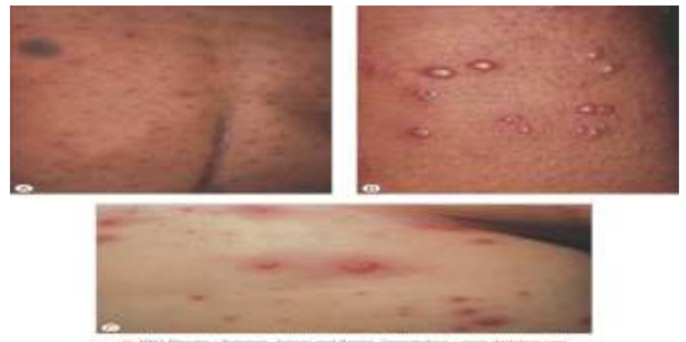
Mx:

- Identification of the nit or adult head louse
- Its highly adherent and smaller than dandruff and proximal to scalp
- Examination of other family members and treated simultaneously
- Combing with a metal nit comb (mechanical removal of nits)
- Permethrin cream 1% and 5% for 10 min then rinsed off
- Malathion 0,5% lotion
- Lindan(neurotoxicity)→ avoid in children and pregnancies

CLINICAL CASES



From the Males



1- Varicella (Chicken pox):

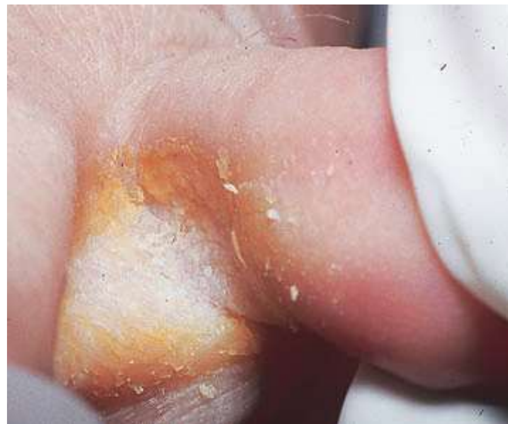
- Varicella is a highly contagious disease of childhood & occasionally adulthood caused by a primary infection with the VZV
- Transmitted by close contact and droplet infection
- **90% of cases occur by the age of 15 yr**
- **Clinical Features**
  - **Prodrome**: respiratory coryza followed by disseminated red macules with central vesicles.
  - Successive crops of pruritic lesions on the trunk, face and scalp
    - macule > papule > vesicle > crust
    - “dew drop on a rose petal”
  - All stages of development in the same anatomic area at the same time
  - **Infectivity**:1-2 days prior to the rash up to 5-7 days after the rash
- **Varicella in adults**
  - Prodrome, extensive rash
    - constitutional symptoms
  - Predisposition to more sever complications
- **Complications**
  - Secondary bacterial infections
  - Viral pneumonia/ encephalitis
  - Reye’s Syndrome
  - Congenital/ neonatal Varicella

- **Diagnosis**
  - Usually made on clinical findings alone
- **Management**
  - Symptomatic
  - Children
    - Benign disease
    - Avoid aspirin
  - Early high-dose systemic anti-viral
    - Controversial in uncomplicated childhood varicella
    - Immunocompromized
    - Varicella pneumonia
  - VZIG
  - Live attenuated vaccine: available

2- Erythrasma (431 Teams):

- Organism: corynebacterium minutissimum (weak bacteria**) (normal in human).**
- Site: flexor surfaces e.g. axilla, feet web spaces, groin, submammary.
- Lesion: well demarcated, red-brown, asymptomatic (non-itchy) patch.
- Asymptomatic except for subtle discoloration. Patches, sharply marginated. Tan or pinkish; postinflammatory hyperpigmentation in more heavily pigmented individuals.

Risk factors:	Management
Excessive sweating	Swab
obesity	**Wood's lamp: coral-red fluorescence**
Immunocompromised	Topical: imidazoles (miconazole) or erythromycin
DM	Oral erythromycin for 7 days



Questions:

1- Impetigo is more common in:
A. Elderly
B. Children
C. Adult

2- which of the following have an Oncogenic potential:
A. (HPV 1,3)
B. (HPV 16,18)
C. (HPV 31,33)
D. B&C

3- The initial symptom suggestion of herpes zoster is:

A. Dermatomal ulceration
B. Fever
C. Headache
D. Lymphadenopathy
E. Pain in dermatological distribution

4- Leishmaniasis is transmitted by:-

A. Food.
B. Mosquito.
C. Dust.
D. Flea.
E. Sand fly.

5- 18 years old male presented to the dermatology clinic complaining of asymptomatic rash for few weeks over his trunk. On examination, there were multiple brownish hyperpigmented scaly patches over his upper chest and back.
What is the quickest test to prove diagnosis?

A. Skin scrapping for KOH and microscopy
B. Direct immunofluorescence test
C. Patch Test.
D. Tzanck Smear

1- b 2- d 3- e 4- e 5- a

Dear Reem Aljubab , Hind Al Muhaya, Jawaher Enani, May AlOrainy, Rawan AlQuaiz ,Arwa Almashaan ,Reem Alotaibi, Shaikha Aldossari, Abrar Al Faifi, Fatima Ghazwani, Ghadah Alharbi, Ala'a Baghazal , Lama AlFaraidi , and Alanoud Alyousef,

Thank you for the time and effort you spent on these lectures, for if it wasn't for your hard work and commitment this team wouldn't have existed.

I wish you and all the batch all the best and most importantly A^{+}'s

Regards ,

Lama AlTawil

The End …