

Skin disorders

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Skin disorders

Histology of skin

■ Layers of skin

- | | | |
|--------------|---|----------|
| ▪ Epidermis | ↓ | Ectoderm |
| ▪ Dermis | | Mesoderm |
| ▪ Hypodermis | | |

Epidermis: Stratified keratinizing Squamous Epithelium.

Melanocytes, Langerhans cells, lymphocytes, Merkel cells are present in it .

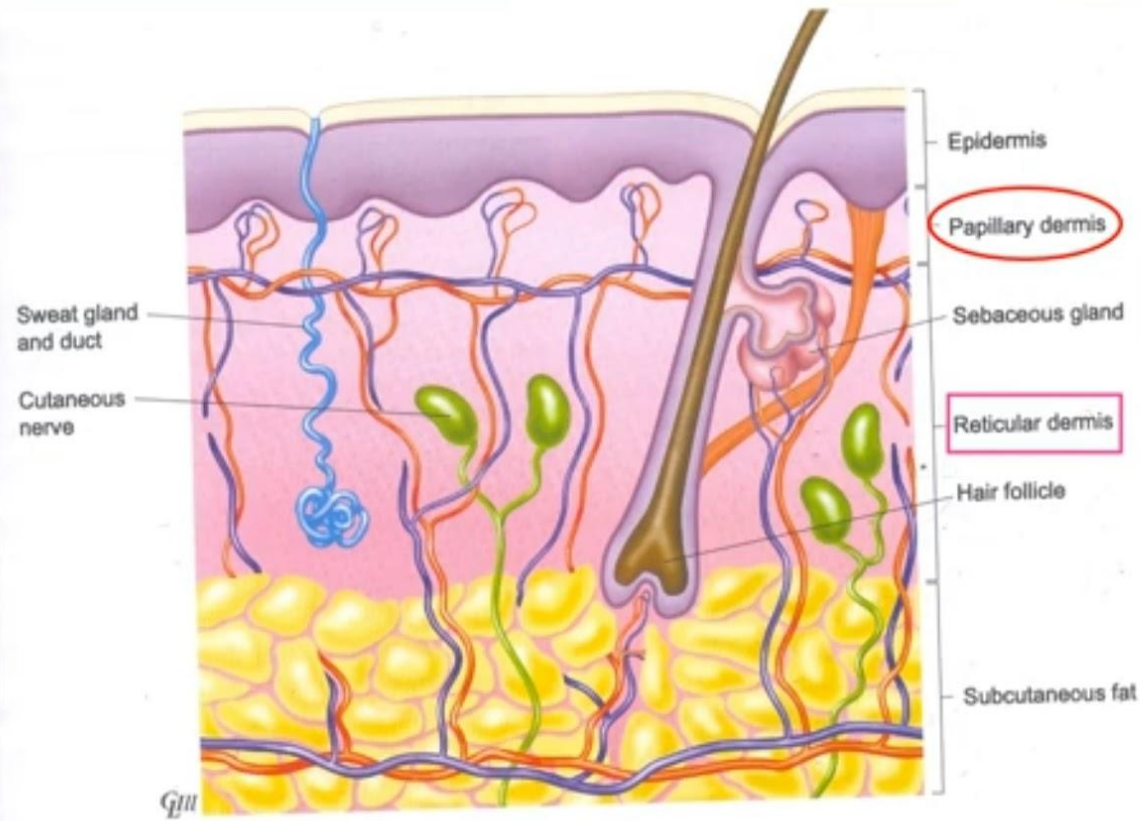
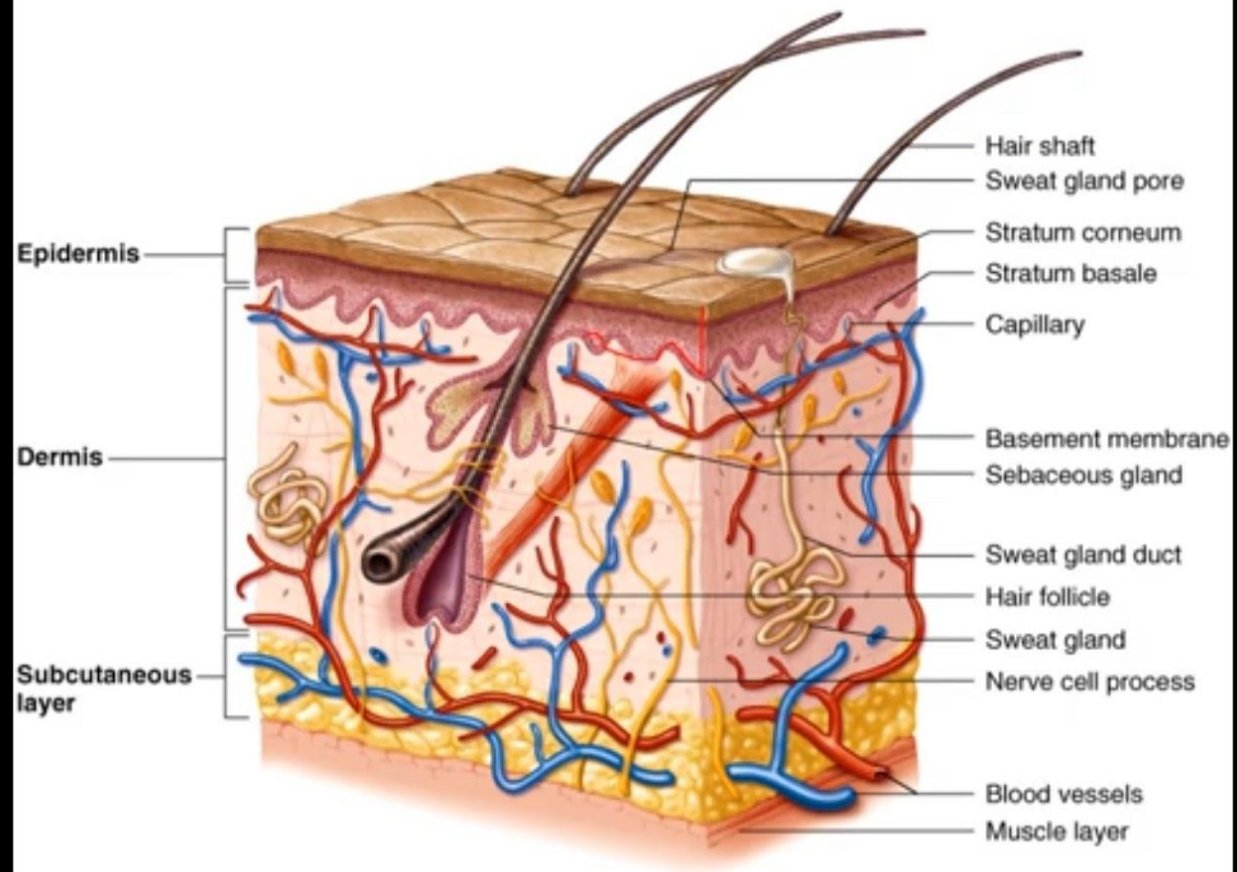


Fig 38.2 Structure of normal skin.



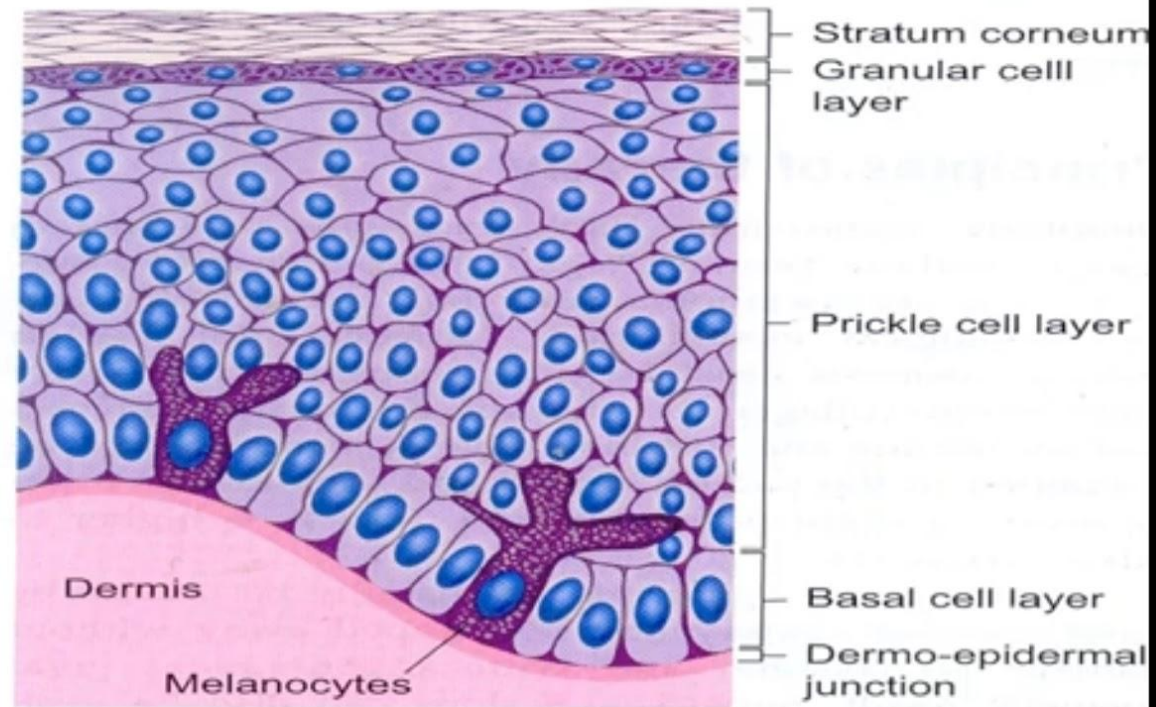


Fig 38.1 **Structure of normal epidermis.**

Dermis

- Major component is CT rich in collage fibers.
- Blood vesseles, nerves, and lymphatics
- Sweat glands, sebaceous glands, hair follicles
- Dermal collagen is responsible for elasticity, and produced by fibroblasts.

Ageing of skin

- Is a natural process
- Accelerated by exposure to UVR (A)
- Epidermis becomes thinner because No of melanocytes & Langerhans decrease.
- Dermal collagen content decreases.
- Skin appendages decrease in No & function.
- The result is sagging, stretched and wrinkled skin of the elderly .

ULTRAVIOLET RADIATION

UVA RADIATION

- ***95 % of the UV rays that reach earth are UVA***
- Relatively equal intensity of UVA rays during all daylight hours throughout the year
- can penetrate clouds and glass
- Penetrates skin more deeply dermis.
- Leads to wrinkling and aging of skin.
- Considered a carcinogen.
- Tanning beds have 10-13x higher amount of UVA than sun.

UVB RADIATION

- ***Most blocked by ozone 5% reach***
- Highest intensity during mid-day and during April-September in northeast.
- Somewhat blocked by clouds does NOT pass through glass
- Does not penetrate deep only epidermis .
- Leads to sunburn.
- Considered a carcinogen.

Examination of skin

- **Pinch test** : If you can pinch the skin over swelling the swelling is not in skin
- If there is **Irregularity** of skin surface or **Elevation** the swelling is Epidermal.
- If swelling is **Pigmented** means melanocyte activity.
- Always examine **Entire Skin** even if lesion is solitary.
- Examine draining **LN.**



INFECTIONS

- Furuncle (Boil) , Stye ,paronychia
- Cellulites & Erysipelas (leg and face) CS.
- Hidradenitis suppurativa
- Carbuncle.
- Necrotizing fasciitis
- Impetigo
- Herpes simplex.
- Herpes zoster.



Carbuncle



Hidradenitis suppurativa



Impetigo

- Contagious flaccid blisters in the face of children due to staff Aureus.
- Rupture gives raw eroded base.



Herpes



Herpes simplex

■ "Cold Sores"



Herpetic Whitlow

Herpes Zoster.



Shingles

Streptococcal Infections





Cellulites



Erysipelas



Cellulitis

- In cellulitis the skin is Red, Hot, and Painful.
- Cellulitis can exist alone, with no pus, or it can surround an area of pus. Pus is commonly called "An Abscess".
- A large area of cellulitis can involve a whole area of the body, such as the face, an arm or a leg, etc.
- What's happening in a cellulitis.

Cellulitis

Features:

Red (Rubor)

Swollen (Tumor)

Warm to touch (Calor)

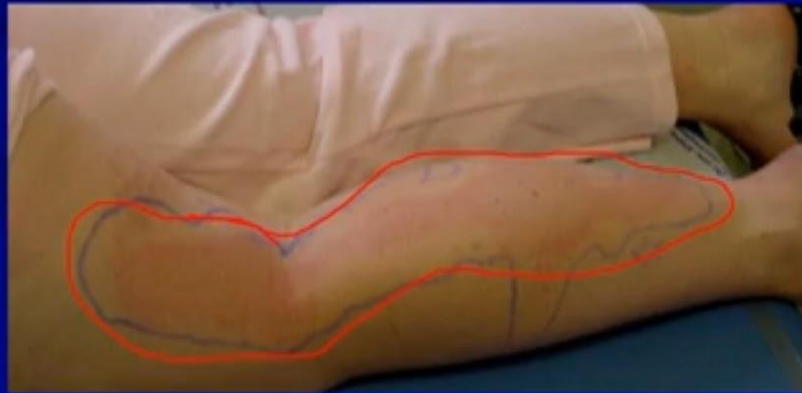
Painful (Dolor)

Tender

No areas of pus



Cellulitis

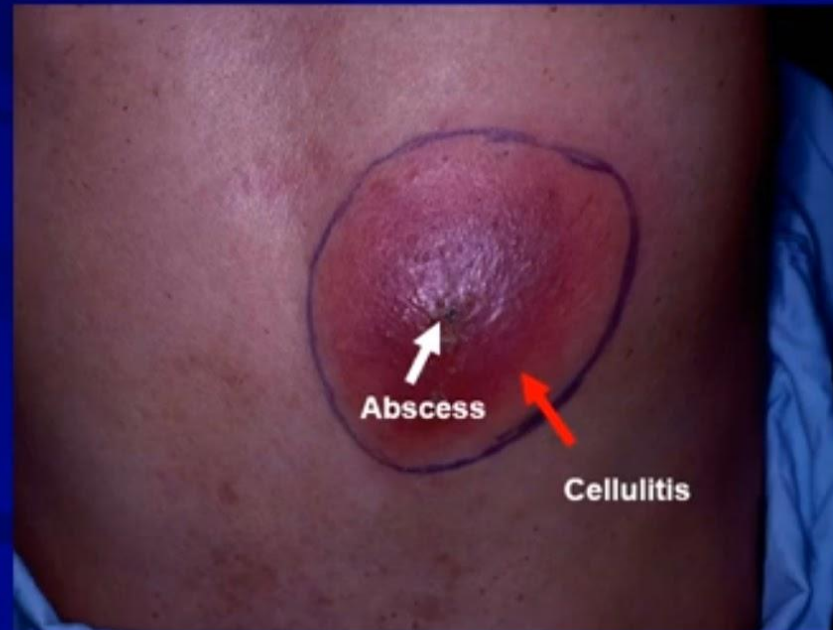


Describe the features that make this cellulitis

Abscess

- Pus under the surface of the skin, the collection of pus is termed an "Abscess"
- The pus in the abscess consists of dead, liquefied tissue, billions of white blood cells (the infection fighting cells).
- The most common bacteria in the abscess is "staph", or Staphylococcus Aureus.

Abscess



Features:

Cellulitis
present

Swollen

Soft center,
feels like fluid
underneath

Painful

Tender

Abscess



- Large abscess.
- Possibly up to a cup of pus when opened.
- wrinkling of the skin suggests the swelling is going down.



Abscess



Large abscess about to be incised (cut open) and drained of pus. This is too large to drain in the office.





The result of "skin popping"
Multiple injection site abscesses

Necrotizing Fasciitis

- When the bacteria in a cellulitis or abscess start spreading quickly between the fat layer and the muscle underneath it is termed Necrotizing Fasciitis.
- Necrotizing means turning living flesh to dead flesh.
- Fasciitis means the infection is spreading along the space between the fat and the muscle underneath.
- The infection cuts off the blood supply to the tissue above it and the tissue dies.
- The bacteria also enter the bloodstream and cause severe systemic illness called “sepsis” **Mortality 30%.**

Indications of Necrotizing Fasciitis

- If the area of redness is spreading rapidly (*This Means about ½ Inch or More Per Hour*) this may be “Nec Fasc”.
- If the area is extremely painful.
- If the person shows signs of bacteria getting into the bloodstream (fever, change in mental function such as delirium, profound weakness).
- Draw a line around the red area with a pen, then watch for spreading beyond the line
- If spreading ½ inch or more per hour, go to a hospital.
- 70% have comorbidities.



Cellulitis
with abscess

If rapid spreading beyond this line
occurs, this may be necrotizing
fasciitis, and requires surgery



Necrotizing fasciitis



Necrotizing Fasciitis after Debridement



Danger Signs for “Nec Fasc”

- Very painful
- Spreading rapidly (1/2 to 1 inch per hour).
- Systemic toxicity
 - Fever
 - Chills, sweats
 - Profound weakness
 - Altered mental status
 - Low blood pressure

**Person Must Go To
Hospital Immediately Or
Die!**

Dercum's Disease



Keratoses

Seborrheic keratoses

- Very common, trunks, elderly.
- Multiple, brown-black, Waxy, flaky plaques.

Solar keratoses (Actinic)

- Raised, Red, Hard.
- Sun exposed areas face, hands, forearms
- 20% change to SCC in one year

Bowen's Disease SCC in situ

- Poorly defined scaly, erythematous plaques
- Head and neck, ultraviolet A-B exposure

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Actinic keratosis



- **Pre-cancerous lesions**
Caused by photo-damage
Can become skin cancer
- **Highly prevalent, chronic condition**
Affects 50% of Caucasians >40 yrs
58 million North Americans
8.2 million treatments annually ⁽¹⁾
- **78% of cases have multiple lesions**
- **Surgical**



Actinic keratosis



Seborrheic keratosis



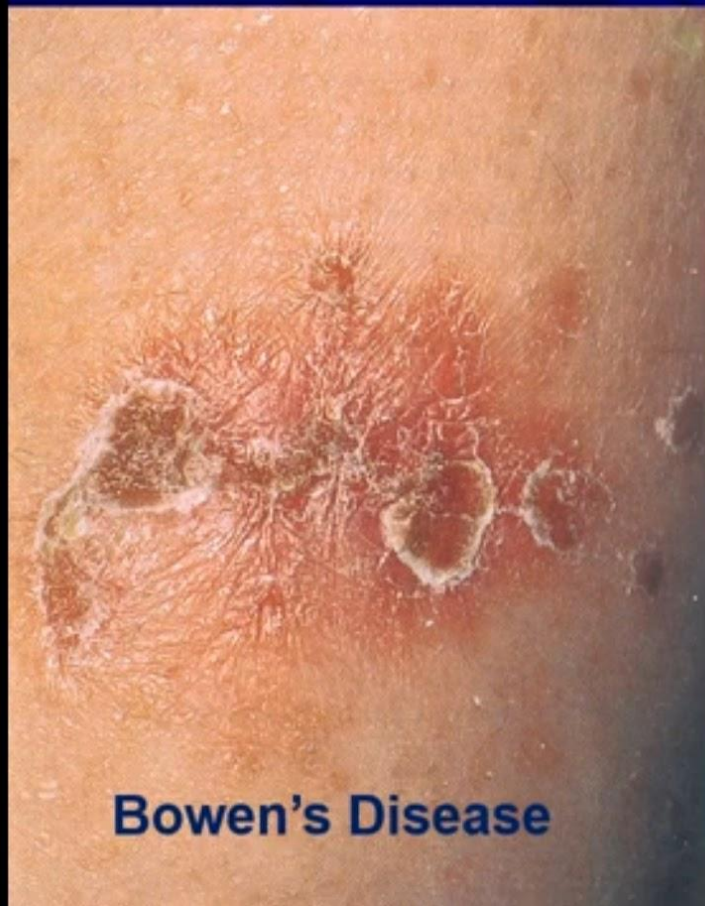
Actinic keratosis



Actinic keratoses

Seborrheic keratosis





Bowen's Disease



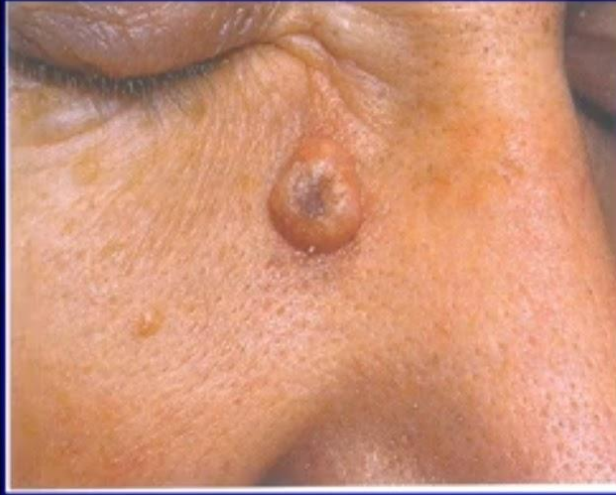
Squamous Cell Carcinoma

- **Bowen's Disease: is**
Squamous Cell carcinoma In
Situ
- Well-circumscribed , slowly enlarging erythematous scaly patch with irregular border, present with pruritus.
- Chronic Solar Damage.
- Up 3-11% progress to SCC.



Keratoacanthoma

- Benign, self limited epithelial neoplasm.
- Keratoacanthoma arises from hair follicle skin cells for unknown reasons.
- Usually on face elderly men 60-70y.
- Sun exposed areas , trauma , virus infection.
- Painless , firm, solitary , raised nodule.
- Shiny color fleshy, depressed keratin center.
- Rapid growth (1-3)cm in 6-8 weeks, stationary 6-8 weeks, regress 6-8 weeks.
- May progress to invasive SCC 6%.

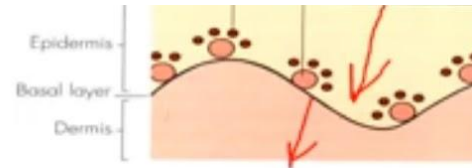


- Low grade SCC.
- Rapid growth over weeks
- Trauma, sun exposure, HPV 11 and 16.
- May progress to invasive SCC

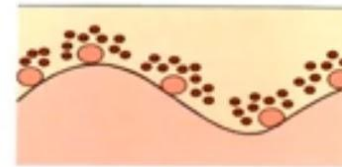


Pigmented lesions

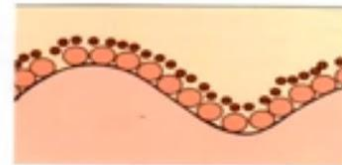
- **Freckle**: Excess production of melanin by normal number of melanocytes in Normal position.
- **Lentigo**: Increase number of melanocytes in there Normal position, producing Normal quantity of melanin.
- **Nevus**: Increase number of melanocytes in Abnormal position, producing Normal or increase number of melanin.



Normal skin



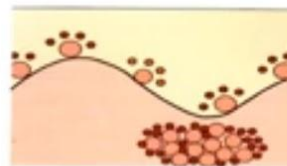
Freckle (ephelis)
Normal number of melanocytes,
in normal position producing
excess melanin



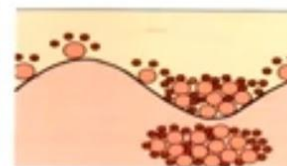
Lentigo
Excess melanocytes, in normal
position, producing normal
amount of melanin

Pigmented naevus/mole

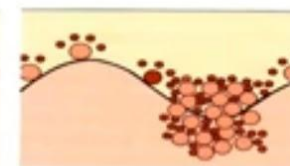
Excess melanocytes in clusters variable but usually excess
melanin production



Intradermal naevus



Compound naevus



Junctional naevus



Freckle



Lentigo

Pigmented lesions

■ Melanocytic lesion (Nevus):

Is Defined as Benign Proliferation of Melanocytes

TYPES

- Junctional nevus
- Compound nevus
- Intra-dermal nevus
- Dysplastic nevus



Clinical characteristics- DN



Diameter >6mm

**Tan color with darker brown
or black**



Elevated center

Irregular border

Malignant Skin Cancer

- **Most common cancer over all .**
- **50% of all cancer.**
- **1/5 in the USA is affected by skin cancer.**
- **Melanoma versus NMSC.**
- **Incidence is rising.**
- **95% of skin cancer is due to UVR.**

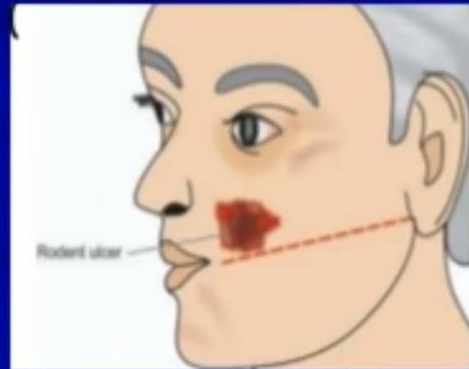
Malignant lesions

Basal cell carcinoma BCC

- Most common skin malignancy.
- Arise from Basal Layers of the epidermis.
- Face 90% scalp ,ear ,nose , periorbital region.
- Chronic ultraviolet A-B radiation.

Types

- Nodular BCC .
- Superficial.
- Micronodular,infiltrative BCC
- Sclerosing BCC.
- Pigmented BCC





- BCC is the most frequent skin cancer 80%
- BCC is 4x more frequent than SCC
- 86% are in the head.
- Metastasis are rare (<1% of cases)
- Local destruction of tissue

Basal Cell Carcinoma



Nodular BCC



- Chronic lesion.
- Commonest type.
- Easy bleeding.
- Pearly border.
- Central depression(umbilication)
- Surface telangiectasia.
- Head and neck, trunk, and extremities.

Superficial BCC



Erythematous
scaly plaque

Slow growth

Asymptomatic

Trunk,
extremities, face



Morpheaform BCC



Resembles scar

**Asymptomatic and
slow growing**

Ill-defined margins



**Marked subclinical
extension**

Pigmented BCC



- Similar to nodular but with **Black Discoloration**
- Melanin deposits
- Pigmented races
- Face, trunk, and scalp

Differential diagnosis- BCC

Nodular BCC



Squamous cell carcinoma



Pigmented BCC



M. Melanoma



Superficial Basal Cell Carcinoma





Fig 38.10 Cystic basal cell carcinoma on temple showing central breakdown and ulceration.



Fig 38.13 Sclerotic basal cell carcinoma on forehead showing depressed white plaque.



Fig 38.11 Pigmented basal cell carcinoma showing pigmentation of lesion.

Squamous cell carcinoma

2ND, Commonest Skin Cancer

- Sun exposed areas upper face, trunk, neck
- Marjolin's Ulcer: (High grade SCC develop in long standing ulcer from its edge, painless) .
- Ultraviolet A-B exposure .

Prognostic Factors For Recurrence And Metastasis

- Size 2 cm Thickness 4mm.
- Perineural invasion.
- Aetiology, and differentiation.
- Site (Muco-cutaneous region) Perianal-Penis, lower lip.
- Ear Digit back of hands.

Squamous Cell Carcinoma





Invasive SCC



Erythematous nodule

Indurated lesion



Sun-exposed skin

Men > women

Slow growth

Invasive SCC





SCC is locally invasive
and destructive

Metastases in 1-3% of
cases



To lymph nodes 50-73%
survival

Distant sites (lungs

Incurable



SCC



Actinic Cheilitis

Differential diagnosis- SCC



Squamous cell carcinoma



Basal cell carcinoma



Squamous Cell Carcinoma

Table 2: Indicators of Metastatic Potential

Size > 2cm	Poorly differentiated (Broders 3 or 4)
Thickness > 2mm	Perineural invasion.
Invasion of Reticular Dermis or Subcutaneous Tissue	Immunosuppression
Invasion of muscle, bone, or cartilage	Marjolin's Ulcer
Anatomic site: Ear, lip.	Locally recurrent

Merkel cell carcinoma

- **Arise from Mechanoreceptors in Basal layers of epidermis**
- **Head and neck most common site.**
- **Aggressive tumor.**
- **Metastasis to lymph nodes in 20% at presentation.**

40 % will develop dis metz, and die from their tumor.

Skin Cancer

- You must Review the patient.
- Overall – 2/3 will develop a New skin cancer within 5 years.
- The risk is higher the greater the number of skin cancers a patient has had removed.
- Patients with skin cancer have an increased risk of developing Non-Hodgkins lymphoma.
- Regular review enables the doctor examine for cancers and to re-enforce the message about protection from sunburn .

You must review your patients



A Recurrent Skin Cancer

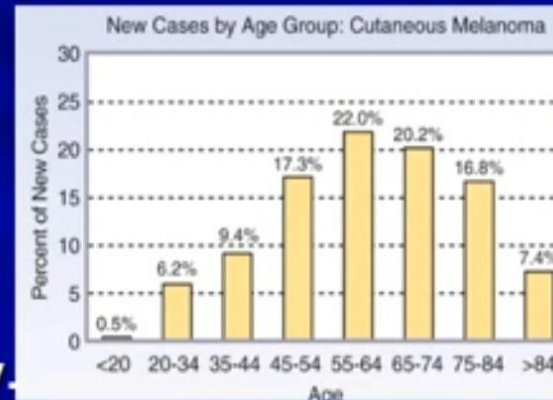
Malignant melanoma

- The incidence increased over last 4 decades.
- 5TH cancer in men, 1 in 74 in US will develop M.
- 90% are Cutaneous.
- 5 % of Malignant Skin Cancer.
- 20 time more common in whites.
- MC site in men is Back and Trunk
- MC site in female is LL.



Malignant melanoma

- 40 % arise from Benign nevus.
- 60 % are present above 60y.
- 1% less than 20 y,3-5% have another primary.
- 10% are familial.
- 4% metastasis no primary.
- 5-10% are Non-Pigmented.



Common features of melanoma

- **A** Asymmetry
- **B** Border irregularity
- **C** Color changes
- **D** Diameter > 6 mm
- **E** Evolving
 - Enlarge
 - Itch
 - Ooze
 - Elevation



Melanoma

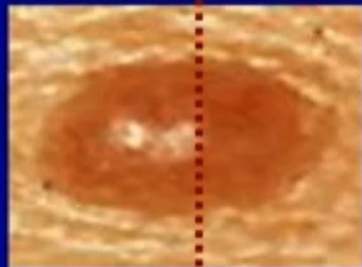
- When you see a pigmented lesion
- Draw a line down the middle
- If one half does not look like the other half -
- TAKE A BIOPSY



It is Asymmetrical

ABCDEs of Melanoma Screening

“A” = ASYMMETRY



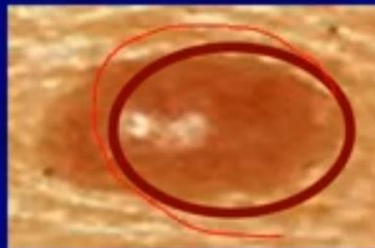
NORMAL



ABNORMAL

ABCDEs of Melanoma Screening

“B” = BORDERS



NORMAL



ABNORMAL

ABCDEs of Melanoma Screening

“C” = COLORS

Uniform
Color



NORMAL

Multiple
Colors

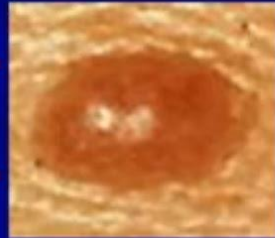


ABNORMAL

ABcDEs of Melanoma Screening

“D” = DIAMETER

<6mm



NORMAL

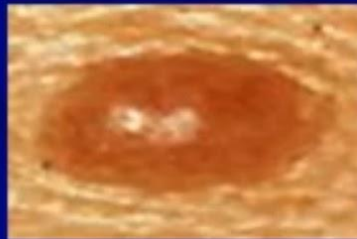
>6mm



ABNORMAL

ABCD**E**s of Melanoma Screening

“E” = Elevation



NORMAL



ABNORMAL

Raised
Area

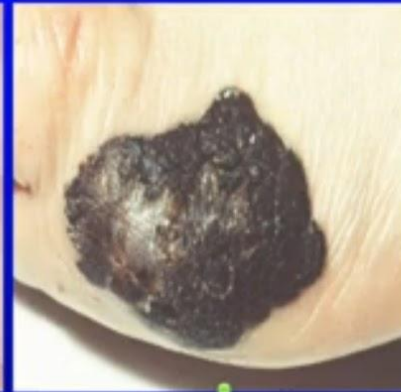
Flat
Area

Melanoma

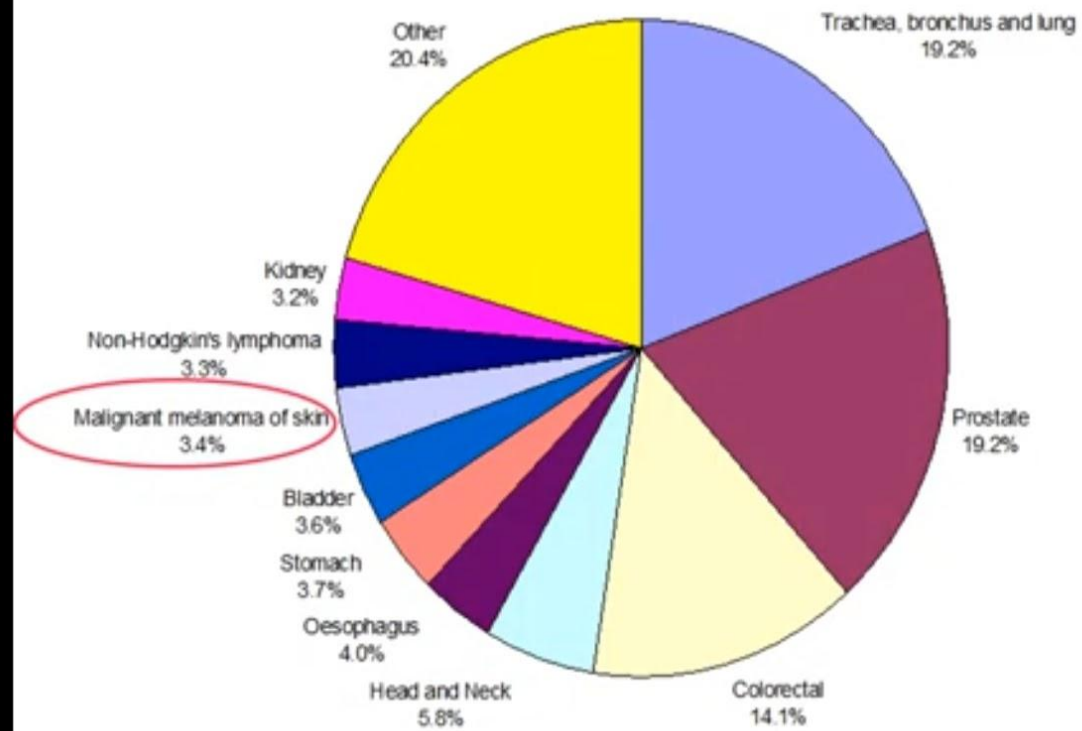
- This melanoma is thick – at the inferior end
- It is ulcerated.
- Thickness and Ulceration are the two most important prognostic factors



Melanoma



Ten most commonly diagnosed cancers in males, 2006



Prognostic factors

Clinical prognostic factors

- Age and Gender : Male , Old
- Anatomical Location :Scalp, Head, Neck, Trunk, Acral areas.
- Presence of ulceration.
- Vascular Invasion.

Histological prognostic factors.

Tumor Thickness .

Clark level Breslow's thickness

Melanoma

- Prognostic factors (a worse prognosis)

- Thickness

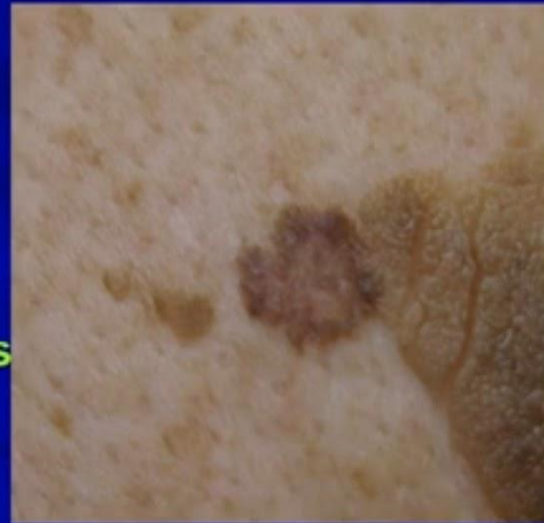
- Ulceration

- Male sex

- Site – Ear, Palms, Soles

- Old age

- Level IV in thin melanomas



Dermatoscope



Risk factors for developing MM

- **Acute sun exposure in young age.**
- **Blistering sun burns.**
- **Immunosuppression.**
- **Family history of melanoma 10%.**
- **Hereditary Dysplastic syndrome.**
- **Blue ,Green eyes, Blond red hair, Freckles .**

Clark's Staging

Level	Description
I	Lesions only involve epidermis
II	Invasion of papillary dermis, has not reached papillary-reticular dermal interface
III	Invasion fills and expands papillary dermis, but reticular dermis is not penetrated
IV	Reticular dermis penetrated, but subcutaneous tissue is not
V	Subcutaneous tissue invaded via reticular dermis

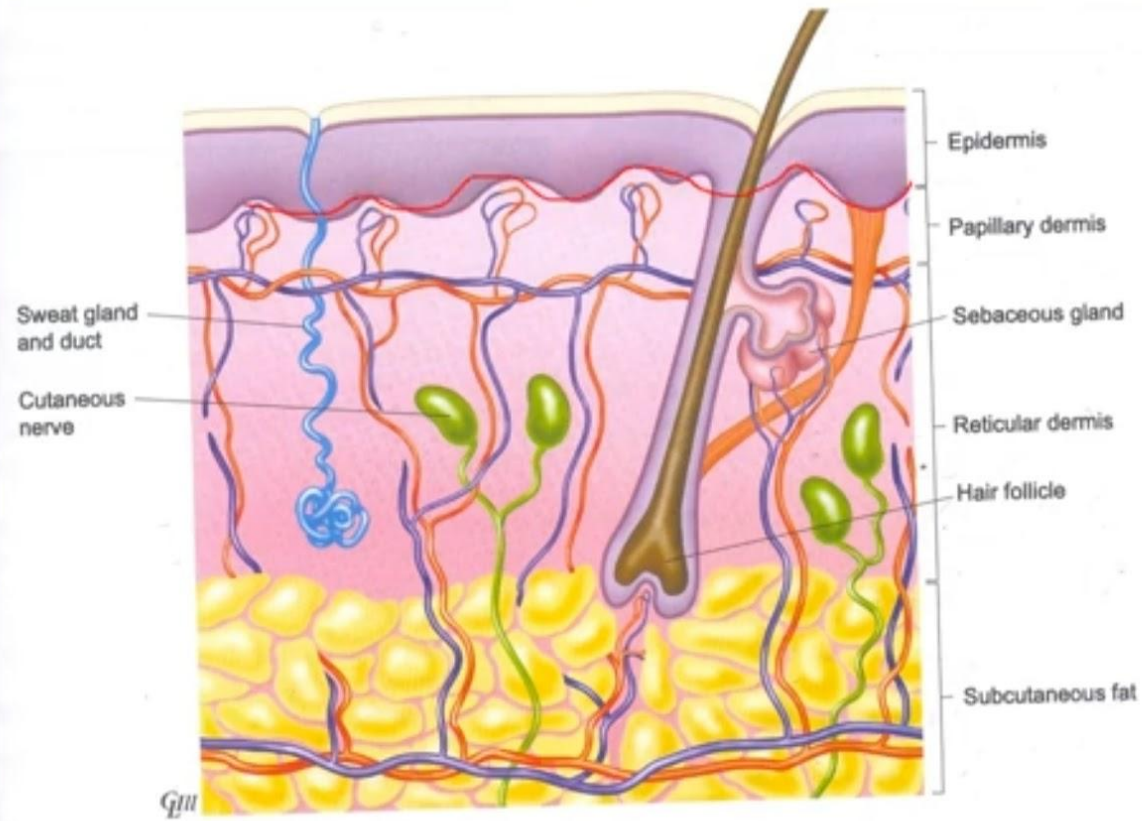
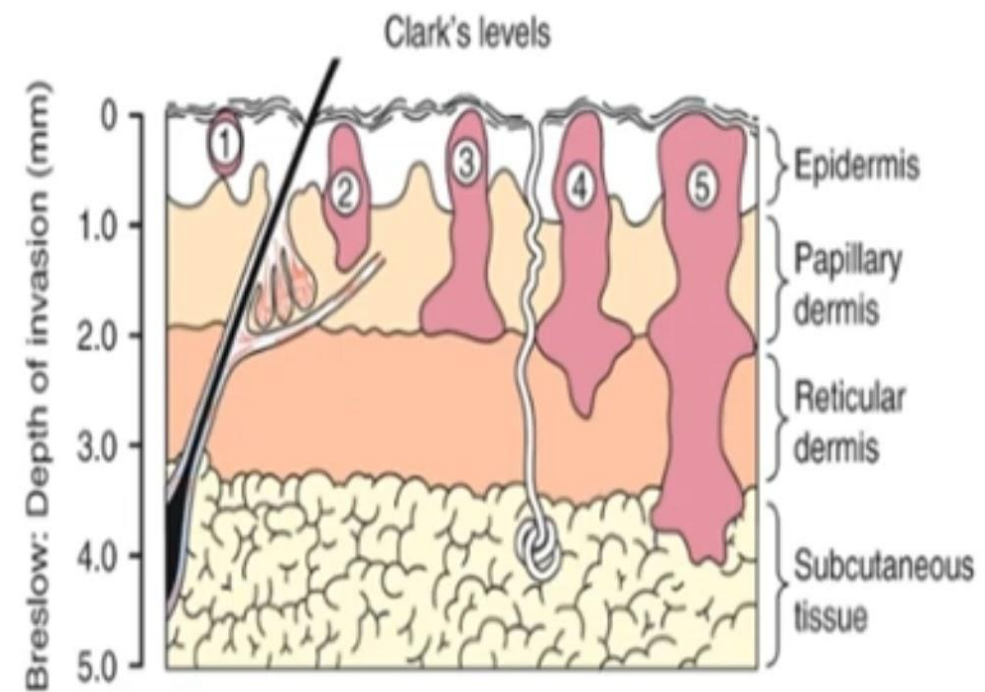
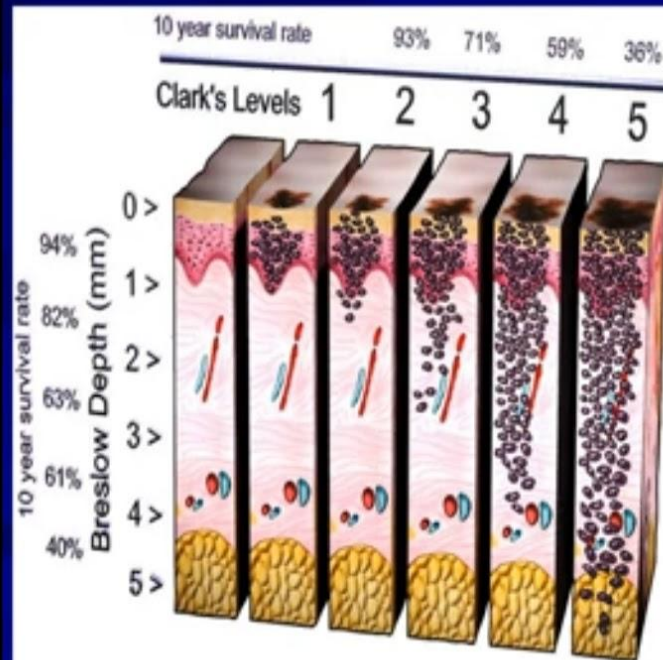


Fig 38.2 Structure of normal skin.



Prognostic features- MM



2001 Image by Med-Art - <http://www.med-art.it>

Good prognosis

Breslow's < 1mm

Clark level I-III

Intermediate prognosis

Breslow's 1-4mm

Bad prognosis

Breslow's > 4mm

Clark level IV-V

Angiolymphatic invasion

Ulceration

Histological classification of M M

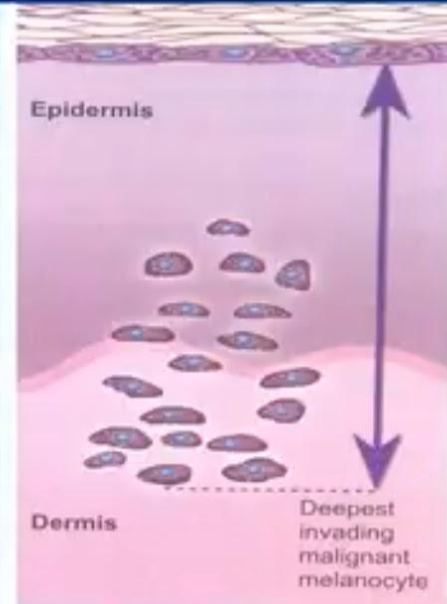
• Clark's classification Breslow's thickness

Table 38.2

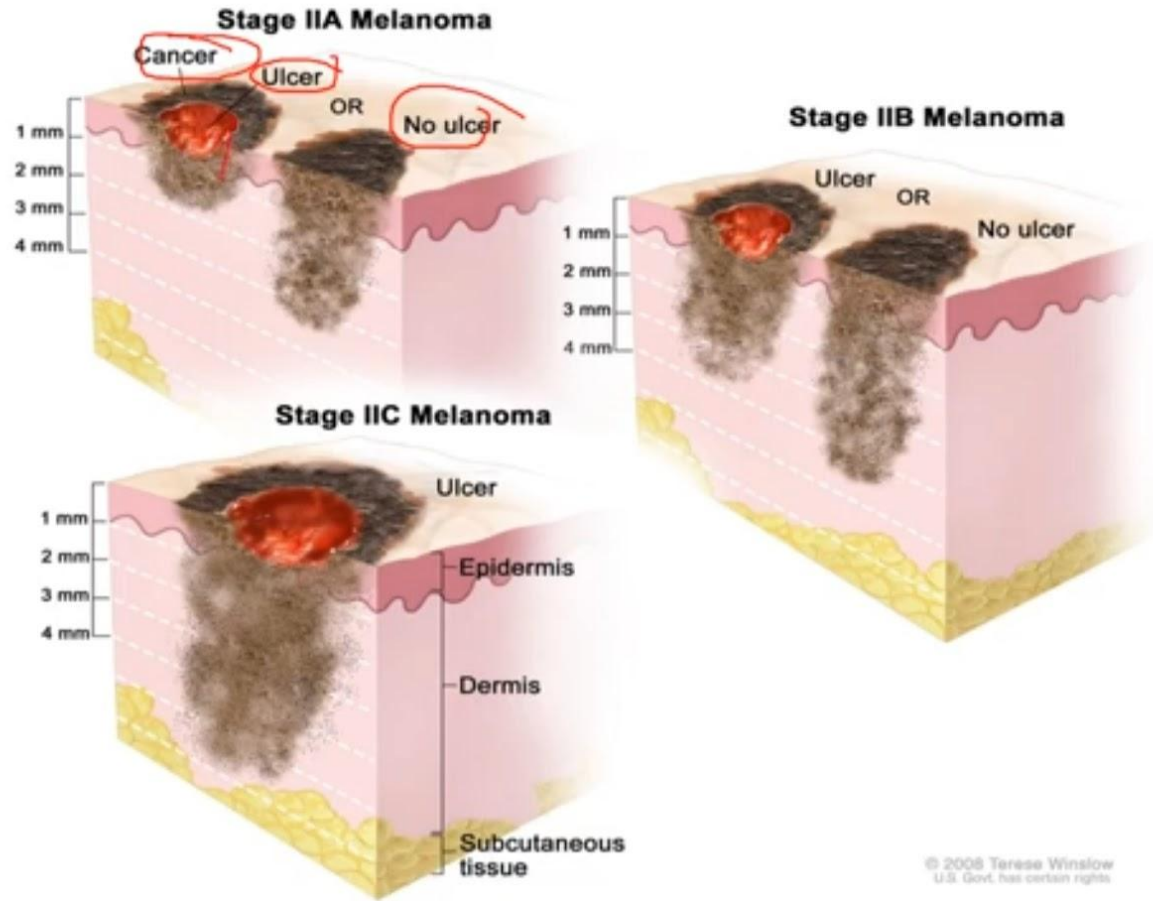
Clark's classification of levels of malignant melanoma

Level I	Lesion confined to epidermis (melanoma in-situ)
Level II	Invasion into upper (papillary) dermis
Level III	Occupation and expansion of papillary dermis by melanoma cells
Level IV	Invasion into deeper (reticular) dermis
Level V	Invasion into subcutaneous fat

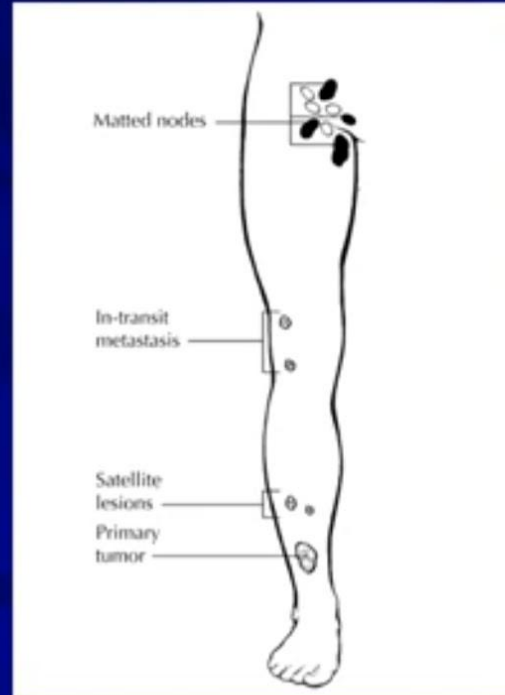
Five years survival figures fall steadily with deeper layers.



Breslow Thickness	5-year survival
< 1 mm	95-100%
1-2 mm	80-96%
2.1-4 mm	60-75 %
> 4 mm	37-50%



Schematic of N Status



■ Node Numbers

– 1-3 vs. 4+

■ Type of Metastasis

- Micrometastasis
- Macrometastasis

■ Satellite vs. In-transit lesions



Types of malignant melanoma

- Superficial spreading melanoma.
- Lentigo maligna melanoma.
- Nodular melanoma.
- Acral lentiginous melanoma.
- Amelanotic melanoma.

Superficial Spreading Melanoma

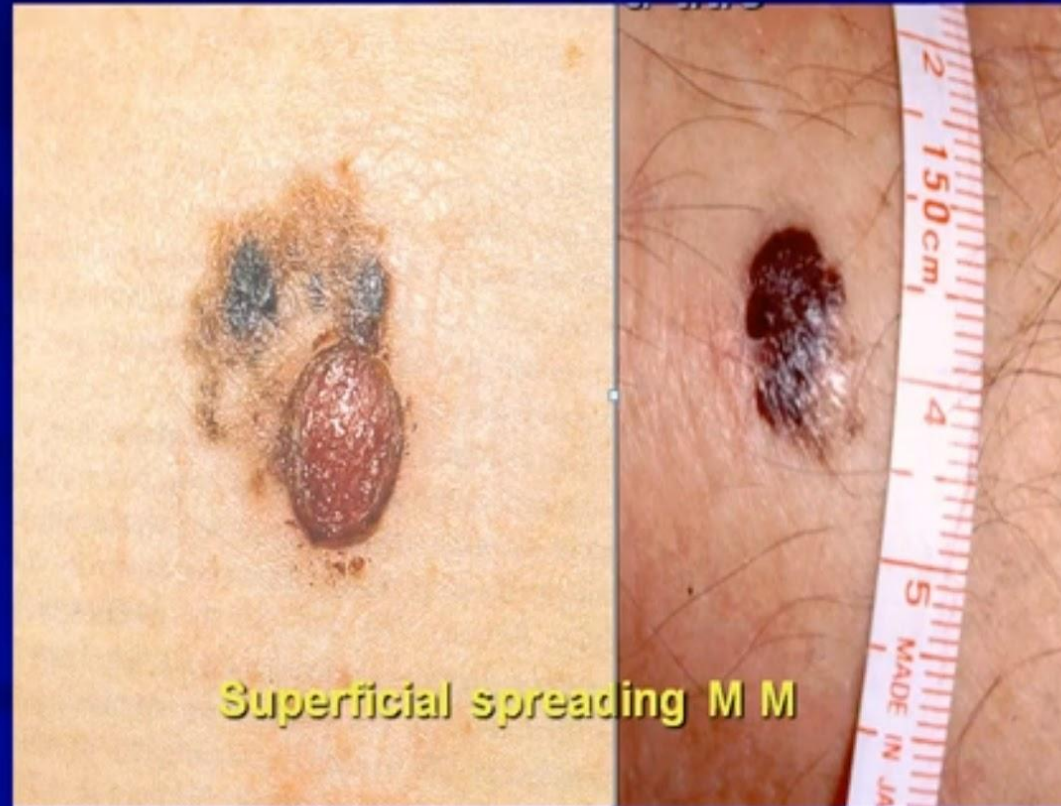
- 70% Most Common
- Horizontal Spread
- 5th Decade
- Back in Men, Legs in Women



Nodular melanoma

- 10% of MM
- Vertical spread
- Aggressive
- Commoner in males
- Trunk is common site
- Black, brown nodule
- Ulceration, and bleeding common
- Bad prognosis





Superficial spreading M M

Types of MM

Lentigo Maligna Melanoma

- 10 % in face and head.
- Elderly patient.
- Change from Lentigo Maligna, after many years.
- Any thickening of skin lesion suggest invasion
- Good prognosis



Rapid growth
Poor differentiation melanocytes

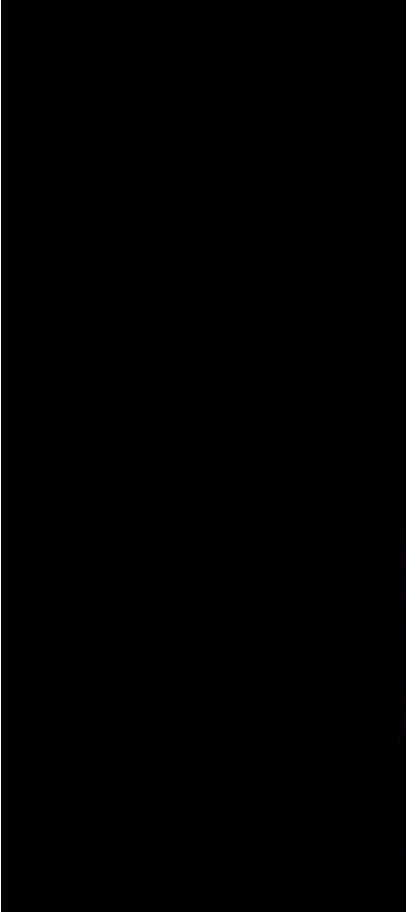
Amelanotic melanoma

Lentigo maligna melanoma

Acral lentiginous melanoma

- 3-5% of MM
- Palms, soles, and subungual region
- Has flat lentiginous, and invasive element
- Commonest MM in non white
- Worst prognosis





Subungual melanoma



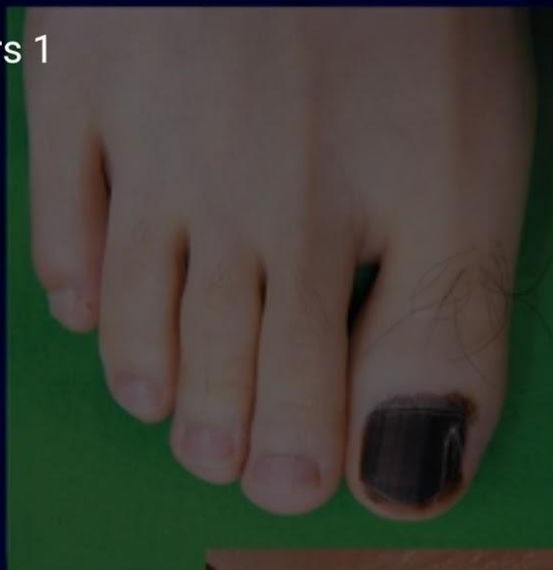
■ Hutchinson's sign

Spillage of pigmentation
from the nail into
under and around nail

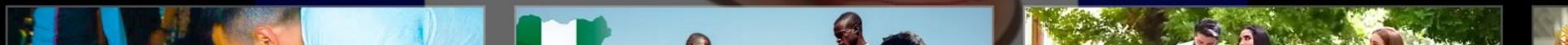


DD
Hematoma

▼ skin disorders 1

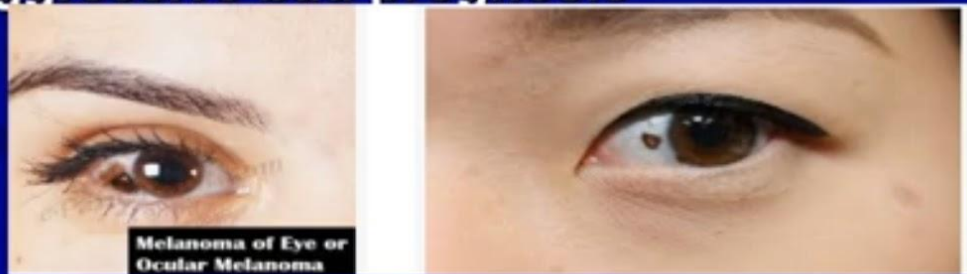


2:03:56 / 2:09:00



Non-Cutaneous Melanoma

- 4-5% of Melanoma are Outside skin
- Ocular: Most common cancer of eye
- Mucosal: Meninges, vulva , vagina anal canal
- Paranasal sinuses.
- Aggressive bad prognosis



Metastatic melanoma



Prognosis

Breslow depth	5 y survival
Less than 1 mm	95-100 %
1-2 mm	80-95 %
2-4 mm	60-75 %
More than 4 mm	50%

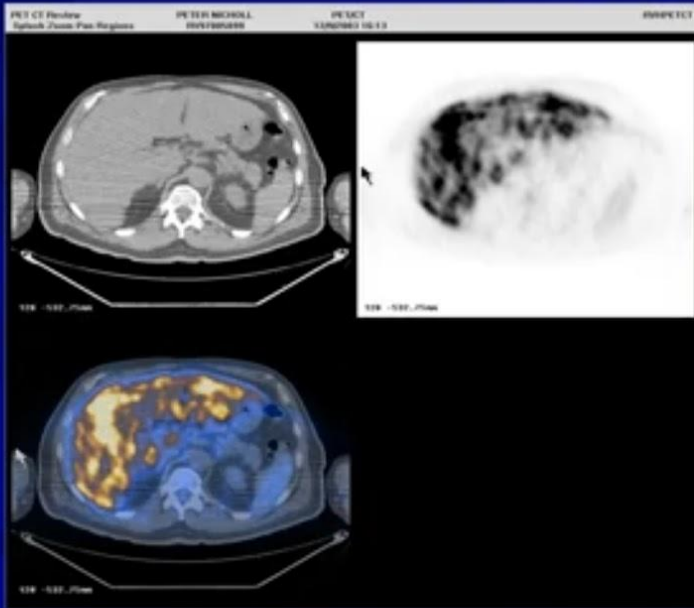
Diagnosis

- **Excisional Biopsy** The margin should be 1-2 mm to prevent disruption of local lymphatic's.
- **Punch Biopsy** for large lesions, lesions in foot, face or digits.
- The initial margin should be away from final resection margin.
- **LDH:** is important marker for tumor spread

Diagnosis

- Search for Metz in any lesion more than 1mm thick.
- CBC, LFTS, LDH
- US abdomen
- Chest X-ray
- CT+CT PET abdomen,chest,pelvis

PET CT



PET CT Review
Spleen /panc Pan Region

PETER MICHELL
10/17/2000

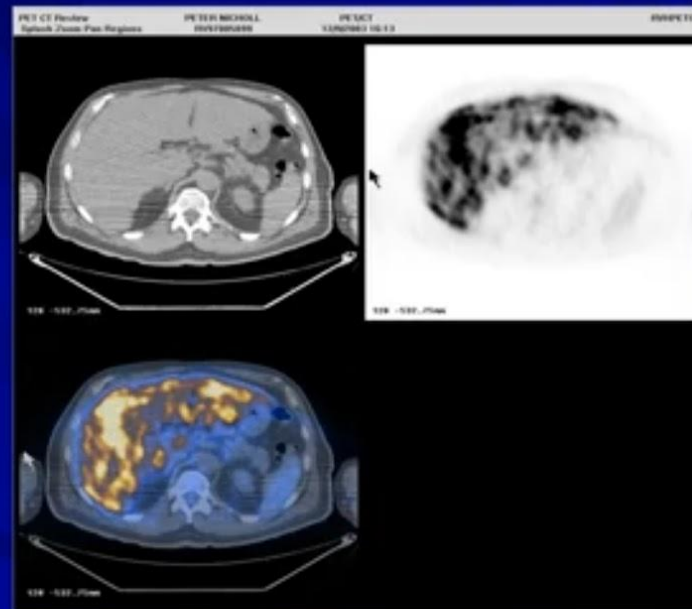
PETCT
10/17/2000 10:13

P0000001

128 -0.00 .70mm

128 -0.00 .70mm

128 -0.00 .70mm



Clinical types- MM



Superficial spreading melanoma



Lentigo maligna mela

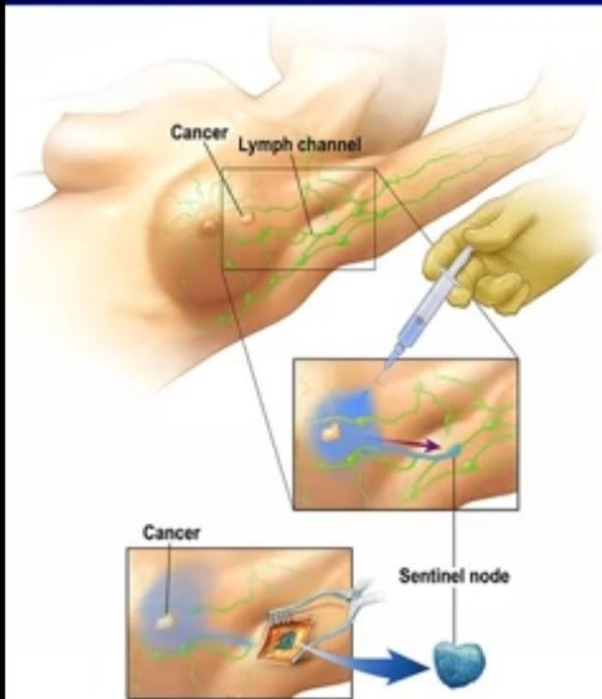


Acral lentiginous melanoma



Nodular melanoma

Sentinel lymph node biopsy- MM



Recommended for
MM with Breslow's 1-
4 mm

Lymphadenectomy
for positive nodes

Powerful prognostic
feature for
disseminated disease

It does not affect
survival of patients

