Melanoma

a malignancy arising from melanocytes.

→ ABCDE "features of melanoma"

A: Asym.
B: Border irregularing
C :- Color variation
D :- Diameter >6 mm
E :- Evolution over time.

Demographic

* phenotypic :-
  - Fair skin, freckling
  - light hair, eye color

⚠ dark skin is protective against melanoma.

Fitzpatric

PMP

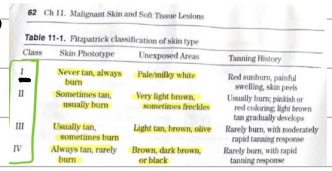
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Table 11-1. Fitzpatrick classification of skin type

Class	Skin Phototype	Unexposed Areas	Tanning History
I	Never tan, always burn	Pale/milky white	Red sunburn, painful swelling, skin peels
II	Sometimes tan, usually burn	Very light brown, sometimes freckles	Usually burn; pinkish or red coloring; light brown tan gradually develops
III	Usually tan, sometimes burn	Light tan, brown, olive	Rarely burn, with moderately rapid tanning response
IV	Always tan, rarely burn	Brown, dark brown, or black	Rarely burn, with rapid tanning response

* Geographic :-
  - High altitude, Latitude
    ↳ experience additional exposure to UV.

* Grender :-
  - Female → lower risk, better prognosis.
    ↳ due to the fact of lower extremities distrubution.

⚠ Men → distrubution on the trunk ∴ worse prognosis

Genetic

* Fx >2 in 1st degree relatives.
* Hereditary melanoma → AD.
* Suppressor genes involved.
  - P16/CDKN2A
  - RB1
* Oncogenes involved :-
  - CDK4

→ Dysplastic nevus syndrome.
= familial Atypical mole.
= Melanoma Syndrome.

↳ 1st or 2nd degree relative with malignant melanoma
↳ Moly syndrome. >50 mole.

→ Xeroderma pigmentosum.
AR
* present in childhood
* early death → rarely reach 20
* Associated with photophobia.
* ↑ risk to all 3 skin CA types.

Risk Factors

precursor lesion

Congenital

* Malignant potential depends on Histology more than size.
* Giant hairy nevi
  ↳ do prophylactic excision.

Aquired

* <5 mm
* appear at 6-12 months
* ↑ in # thro 40s then regress
* the greater the # >50 → the greater the chance of melanoma.

dysplastic

(Atypical)

* appear near puberty.
* >5 mm (5-12).
* Found in covered areas
* A marker for pt with ↑ risk for melanoma development.

* Atypical junctional melanocytic hyperplasia*
= Lentigo Malignes → female, elderly, sun exposure.

AJMHi

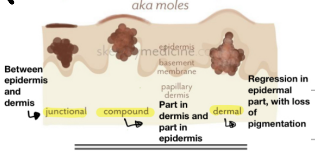
* Flat pattern (+) some high areas (+) different pigmentation

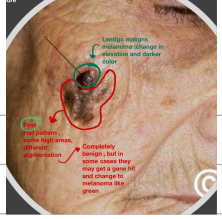
gene hit → Lentigo Malignes Melanoma. [Radial → vertical Growth.]

→ Fully excised with 5mm margins

Spitz nevusa.

* Acquired Nevomelanocytic Nevi
aka moles





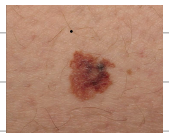
Malignant Melanoma.

4 types. « cutaneous »

MIC 40

Superficial spreading.

* Men = women
  - < upper back
  - < lower extremities.
* Arises from pre-existing lesion.
* Growth pattern
  - early :- Radial
  - Late :- vertical.



irregular, asym
+ color variation.

2nd MIC 50

Most Aggressive.

Nodular

* Men > female
* doses not arise from precursor lesion
* Vertical growth
  HALLMARK
* poor prognosis due to delayed dx.

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Least Aggressive.

Lintigo Maligna Melanoma.

* Female > Male.
* A/W sun exposure.
  - Appears mostly at areas of sun exposure
    - head
    - neck
    - Arms.

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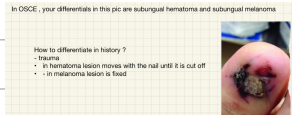
Aggressive.

Acral

* Blacks >> White.
* large > 3 cm.
  + irregular pigmentation
* palm, sole, subungual
  - MIC :- thumb, big toe
* long Radial growth phase.

excision + subungal + DIP.



(1) Melanonychia is benign Linear pigmented streak in the nail
→ Do a biopsy to differentiate it from Acral

Non cutaneous melanoma.

MIC

Ocular.

* Early dx due to interference with vision.
* No nodal Mets
* Hematog. spread to liver thro. Coronal plexus.
* tx :- Enucleation

Mucosal

* Any where from mouth to Anus
* poor prognosis.

Black pigmentation

Prognosis

* TNM
* thickness :- Breslow >> Clark
  - thin, .75 - 1
    intermediate 1-2
    thick 2-4.
* lymph node involved
* Location + sex } Related
* Ulceration.

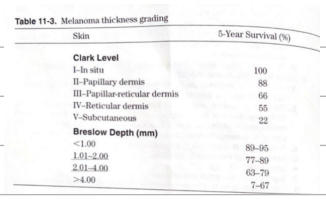
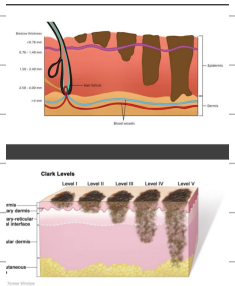


Table 11-3. Melanoma thickness grading

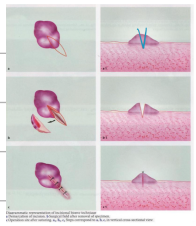
Skin	5-Year Survival (%)
Clark Level	
I-In situ	100
II-Papillary dermis	88
III-Papillar-reticular dermis	66
IV-Reticular dermis	55
V-Subcutaneous	22
Breslow Depth (mm)	
<1.00	89-95
1.01-2.00	77-89
2.01-4.00	63-79
>4.00	7-67



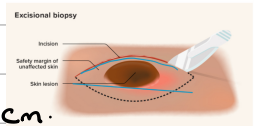
female → lower extremity distribution → Better prognosis

male → truncal distribution → poor prog.

Diagnosis



→ Histology of full thickness [biopsy.]



Excisional.

→ small lesion <1.5 cm
→ if possible + 1-2 mm margins.

incisional.

→ large lesion ≥ 1.5 cm.
→ lesion is located in disfiguring area (face, hand, feet).

⚠ Myth :- incisional biopsy ↑ risk of mets X

⚠ Avoid → shaving, Freezing, Cauterize. } → forfeit the ability to stage the lesion based on thickness.

⚠ Wide local excision → ↓ efficacy of future lymphatic mapping. due to disruption of local nodes.

⚠ Orientation of biopsy :-
→ Extremities :- longitudinal incision
→ Around Joint :- trasverse to avoid contracture.
→ head ⅓ neck :- within relaxed skin tension line.

Definitive Margins

of Melanoma

* tx of choice :- wide local excision
* Recommended surgical margins.

of Regional lymph nodes.

- Elective lymph node dissection (ELND)
- Sentinel lymph node Biopsy. (SLNB)

→ ELND :-

* Removal of clinical, -ve lymph node.

Feature	SLNB	ELND
Invasiveness	Less invasive	More invasive
Lymph nodes removed	Only **sentinel node(s)**	A whole **lymph node basin**
Diagnostic or Therapeutic?	Diagnostic	Therapeutic (but has been largely replaced)
Use today	Standard for melanoma and breast cancer	Rarely used now

→ SLNB (sentinel lymph node :- first lymph node seeded by tumor cells.)

* performed in cumbined with wide local excision

① pre-operative nuclear imaging :-
→ Radiolabeled colloid solution of technetium 99 is injected intradermally at the 1° tumor.
→ the imaging will localize the sentinal lymphnode.

② in operating Room :-

blue dye is injected intradermally at the periphy of the tumor site

* Prior to excision of the primary tumor *

↓

Potential sentinel node will appear blue.

⚠ watch out the risk of allergy or anaphylaxis with dye injection.

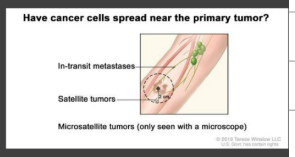
⚠ dye injection may interfere with pulse oximeter reading ⇒ inform Anesthesiologist

F.Following excision of the primary tumor, drapes, instruments, gowns, and gloves are changed and the regional lymph node basin(s) identified by lymphoscintigraphy are explored. All radioactive ("hot") and/or blue nodes are excised

G.Histologic analysis of sentinel node(s) with immunohistochemical staining identifies micro metastases. Permanent sections are required; frozen sections cannot reliably differentiate normal from neoplastic melanocytes.

D. Surveillance and treatment of melanoma recurrence

1. Guidelines vary depending on stage of melanoma
2. **Asymptomatic patients** should be seen every 3 to 4 months for 2 years then every 6 months for 3 years, then annually. The most accurate way to detect metastatic disease is to take a thorough history
3. **Chest x-ray and liver function tests** (LDH and alkaline phosphatase)are usually sufficient; more extensive workups including computed tomo-graphic (CT) scans have not altered outcomes.
4. **Local recurrence** typically occurs within 5 cm of the original lesion, usually within 3 to 5 years after primary excision; most often this represents incomplete excision of the primary tumor.



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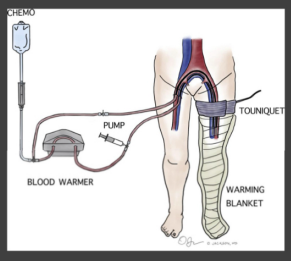
D. Surveillance and treatment of melanoma recurrence

5. **The most common sites** of recurrence are the skin, subcutaneous tissues, distant lymph nodes, and then other sites (lung, liver, brain, bone, gastrointestinal tract).
6. **Excision** is the primary treatment for local, small, isolated lesions.
7. Surgery is effective for palliation in patients with isolated recurrences in skin, central nervous system, lung, or gastrointestinal tract
8. **Chemotherapy**: Complete remission is rare.
   a. Dacarbazine (DTIC), carmustine, cisplatin, and tamoxifen in combination are most frequently used.
   b. b. Isolated hyperthermic limb perfusion for extensive cutaneous disease(melphalan and tumor necrosis factor) is used at some centers



D. Surveillance and treatment of melanoma recurrence

9. **Immunotherapy** with vaccines and cytokines is the subject of ongoing clinical trials. FDA-approved regimens include interferon- α (IFN-α) for stage III disease and interleukin 2 (IL-2) for stage IV disease.
10. **The mean survival with disseminated disease** is 6 months. Respiratory failure and central nervous system complications are the most common causes of death.
11. Radiotherapy