

Malignant nails tumors

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Malignant nail tumors

- Squamous cell carcinoma (Epidermoid carcinoma)
- Melanoma
- ✓ Metastasis
- ✓ Various bone sarcomas
- ✓ Kaposi sarcoma
- ✓ Basal cell carcinoma
- ✓ Lymphomas
- ✓ Merckel cell tumor
- ✓ Periungueal eccrine porocarcinoma
- ✓ Others

Take home message

- Malignant nail tumors are rare
- Even if diagnosis is suspected, tumors are only diagnosed by an experienced pathologist
- Squamous cell carcinoma is a malignant tumor due to a viral infection
- Melanoma is the most severe cancer but can be cured if diagnosed early

Squamous cell carcinoma

- Bowen's disease is a Squamous cell carcinoma (SCC) in situ
- Without treatment, 3-5% will evolve to SCC



Etiologies of Squamous cell carcinoma

- Emerging evidence that Bowen's disease is linked to oncogenic subtypes of HPV (*HPV16-34,35 responsible for genital tract neoplasms*)
- Immunosuppression (transplant recipient, AIDS...) is a high risk factor for HPV induced tumors
- Exposure to Xrays , arsenic, trauma and chronic skin diseases have been associated to digital SCC in the past

Epidemiology

- Long delay in diagnosis (5-7 years)
- Third to sixth decade (# warts)
- Immunosuppression (transplant recipient, AIDS ...)
- Fingers (thumbs especially) are more commonly affected than the toes
- Monodactylous or polydactylous lesions (Bowen's disease)

Diagnosis



- Scalling and onycholysis that are disproportional to the verrucous changes,
- Periungueal pigmented scalling
- Lateral onycholysis with erosion of the nail bed



AIDS Patient

Diagnosis

- Longitudinal melanonychia
- Periungueal swelling
- Acropachy
- Hyperkeratotic tumors and plaques
- Crusts
- Nail plate dystrophy
- Paronychia



Diagnosis

- First, Think of it
- ✓ Biopsy of the lesion at different levels
 - Biopsies should be performed at the deepest portions of the lesion (ulceration, tumors) because
 - Some lesions may show intra-epidermal carcinoma in certain zone and invasive carcinoma in others

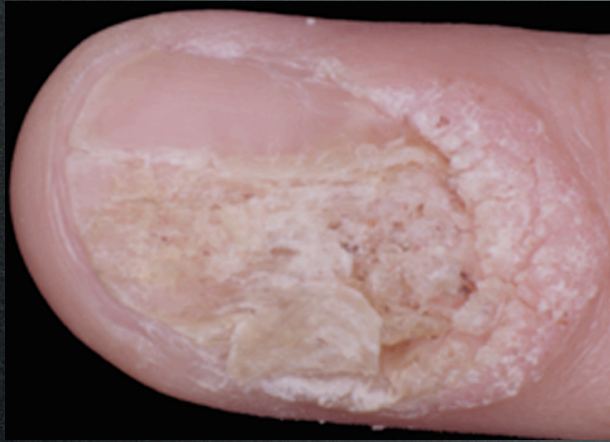
Diagnosis

- ✓ Pathology requires an experienced dermatopathologist
 - Acanthosis with marked hyperkeratosis.
 - Anaplasia and disarray that involves its entire thickness.
 - Many epidermal cells are atypical, dyskeratotic, multinucleated, pycnotic, necrotic or with large hyperchromatic nuclei, mitoses

Diagnosis

- “Bowen’s disease” is an intra-epidermal tumor that may evolve to an invasive squamous cell carcinoma
- It is extremely difficult to differentiate intra-epidermal SCC from invasive SCC or from viral warts
- Multiple biopsies followed by a complete excision are often necessary

Diagnosis



Wart



Invasive SCC



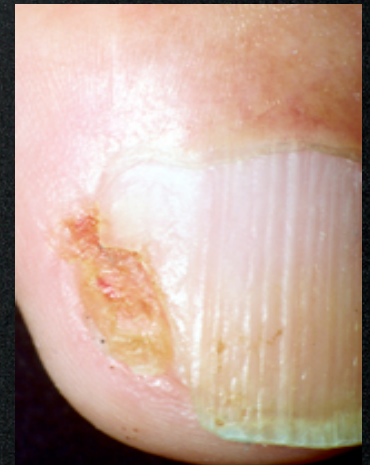
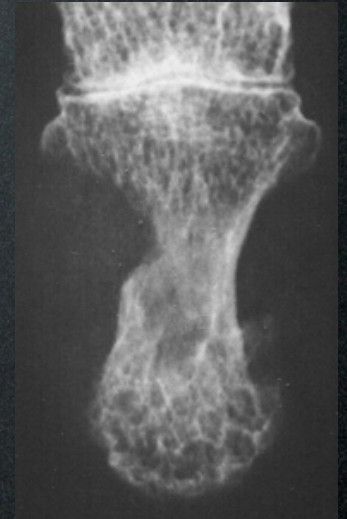
Bowen's disease



Invasive SCC

What to do ?

- X ray to rule out bone invasion
- Lymph node evaluation (epitrochlear, axillary)



What to do ?

(with the help of a dermatologist)

- Complete cutaneous and digital examination to search for a polydactylous process (rare)
- Investigation of the patient's immune status
- Genital examination of the patient and his or her partner

Treatment of Squamous Cell Carcinoma

- Treatment of squamous cell carcinoma disease should be surgical and conservative and rely on a accurate diagnosis :
- intra-epidermal VS invasive SCC

Treatment of SCC

- Intra-epidermal squamous cell carcinoma (“Bowen’s disease”)
 - Early SCC may benefit from carbon dioxide laser vaporization
 - Total excision of the lesion with 3 mm margins is considered adequate (pathological control of the margins is mandatory)
 - Bleomycin intralesional injections, topical imiquimod or photodynamic therapy are under investigations

Bleomycin injection (experimental data)

- Immunosuppressed patient (heart transplant)



Surgical Treatment

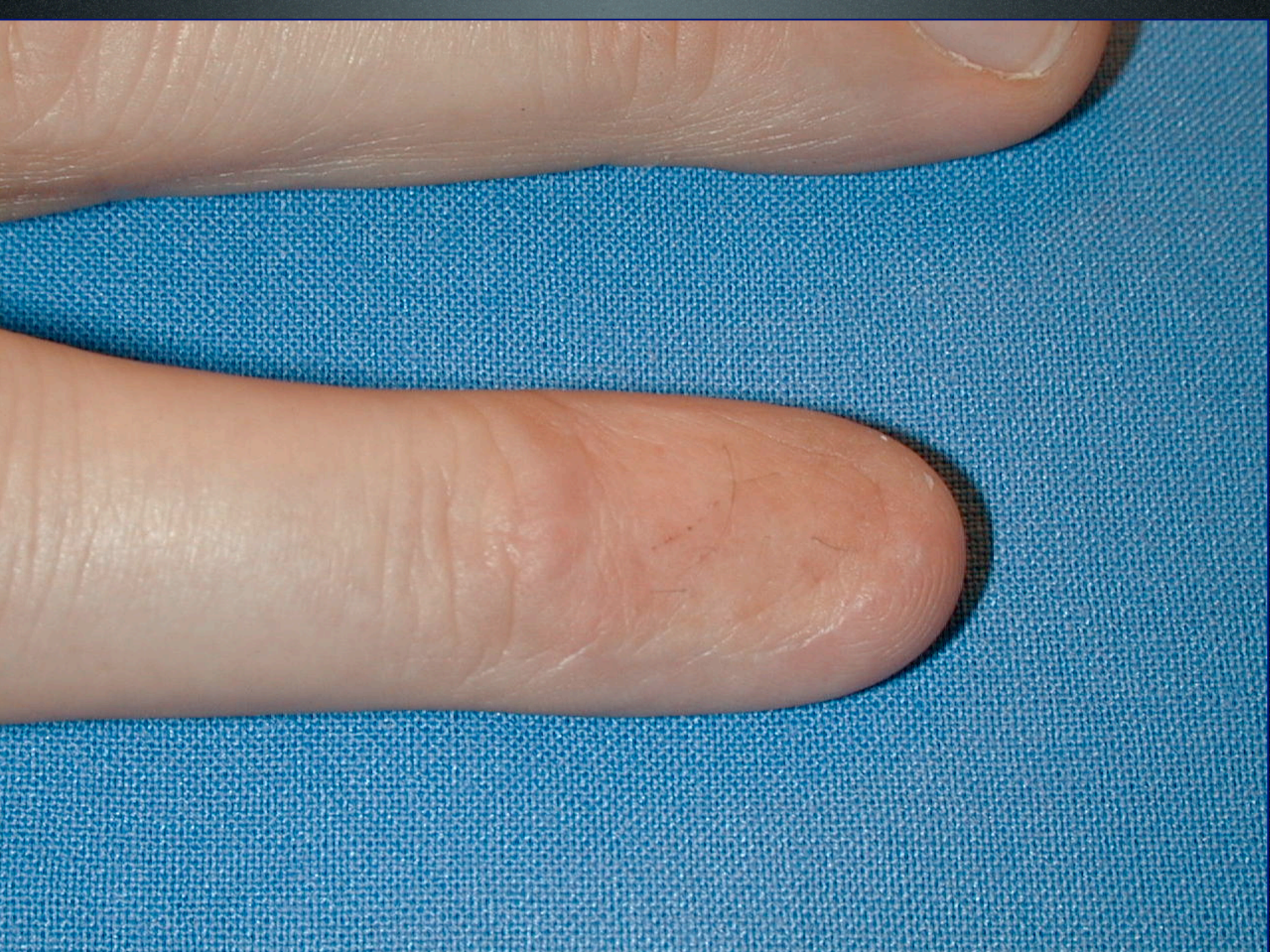


- Complete excision of the lesions



In situ SCC
Lateral excision





Treatment of invasive Squamous Cell Carcinoma

- Moh's micrographic surgery is the treatment of choice
- Total excision of the lesion with 5 mm margins is considered adequate (pathological control of the margins is mandatory)
- SCC invasive to the bone require amputation of the distal phalanx
- Axillary lymph node dissection should be performed in the presence of a palpable node, sentinel node biopsy should be considered otherwise

Treatment

- SCC invasive to the bone require amputation of the distal phalanx



- ✓ After surgery, patients should undergo follow-ups at regular intervals

Evolution of the disease

- Prognosis of SCC is encouraging despite the frequent delay in diagnosis
- Evolution is mostly local with a very low risk of distant metastasis (lymph nodes)





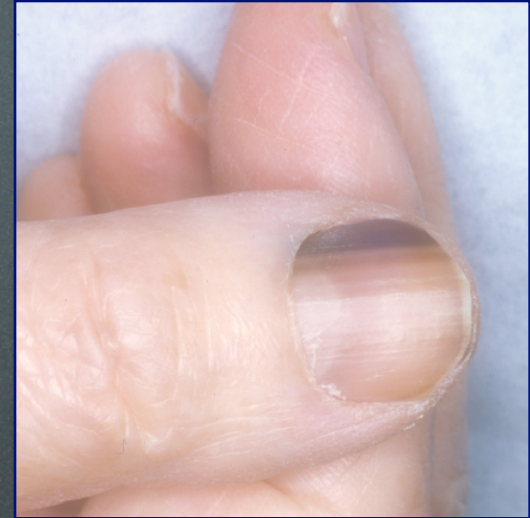
Melanomas and
longitudinal melanonychia

Melanomas

- Malignant neoplasm derived from melanocytes
- Represent 2-3 % of all melanomas in caucasians (rare lesions)
- Represent around 20% in individuals of dark skin races

Epidemiology

- Sixth decade
- Women > men
- Thumb and great toe are more often concerned
- Amelanotic melanoma account for 15-25% of nail melanomas



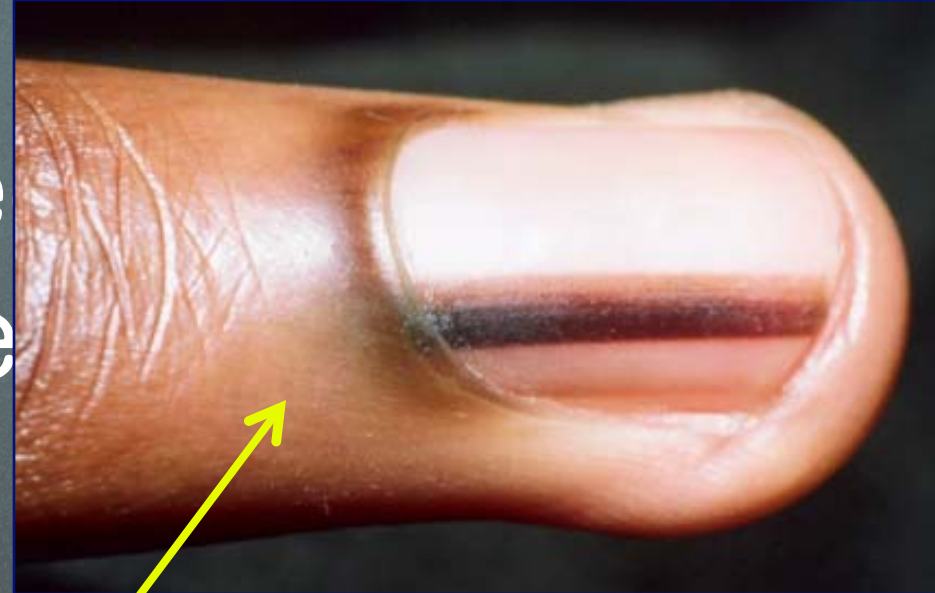
Problem in practice

- ✓ Low frequency of melanomas
 - 2/3 of Longitudinal melanonychia (LM) are secondary to melanocytic hyperactivity
 - 1/3 are naevi or lentigos
 - Only 5% are melanomas

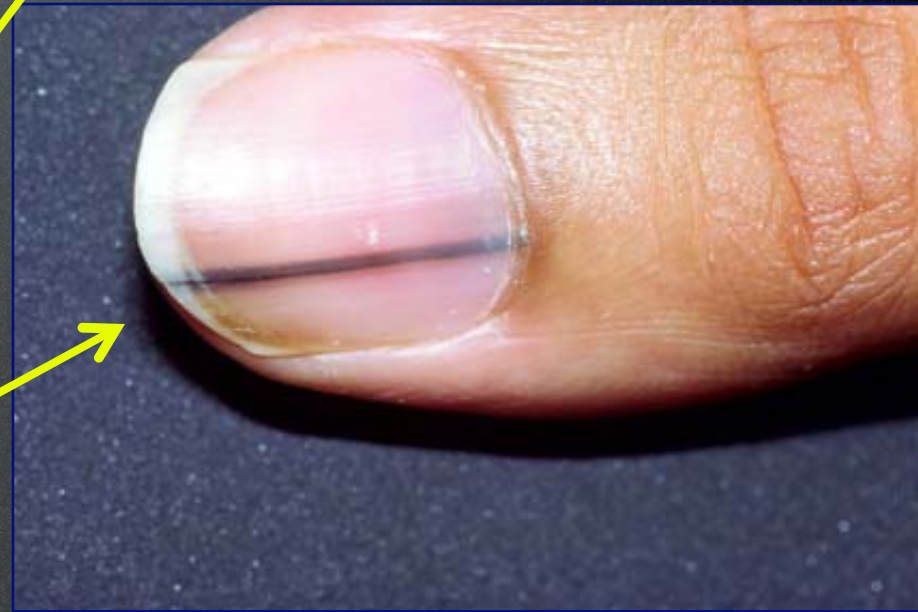
Problem: Clinical diagnosis is very
difficult even for experienced
dermatologists



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- Lentigo
- Jonctional nævus
- Melanoma



The difficulty in practice

- Melanomas seen early carry a very good prognosis
- But the diagnosis may be difficult or impossible on a partial biopsy
 - When the clinical picture is suggestive of a melanoma the biopsy SHOULD PREFERABLY INCLUDE ALL the lesion

- It means that
- Any excisional-biopsy of LM carries a high risk of permanent nail dystrophy



Histologic subtypes

- Acral lentiginous malignant melanoma
- Superficial spreading malignant melanoma
- Nodular malignant melanoma.

Less useful for nail
melanomas

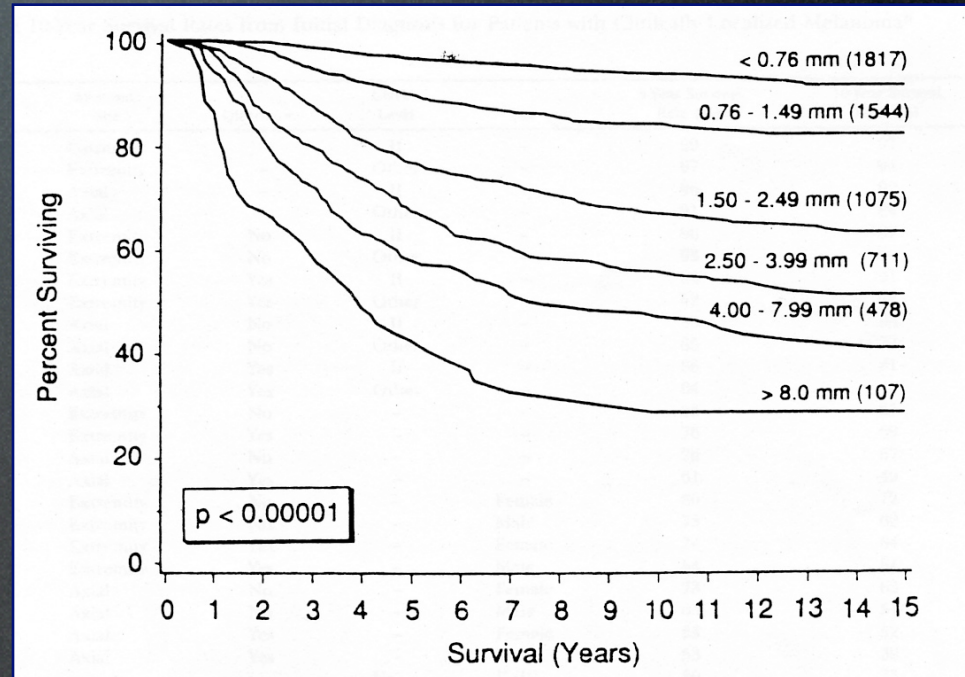
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Prognosis

- Breslow's tumor thickness
 - $< 0,75$ mm
 - $0,75-1,5$ mm
 - $1,5-4$ mm
 - > 4 mm



Prognosis

- Clark's level of invasion
 - I in situ
 - II invades the papillary dermis
 - III invades the papillary reticular-dermal interface
 - IV invades the reticular dermis
 - V invades the subcutaneous tissue

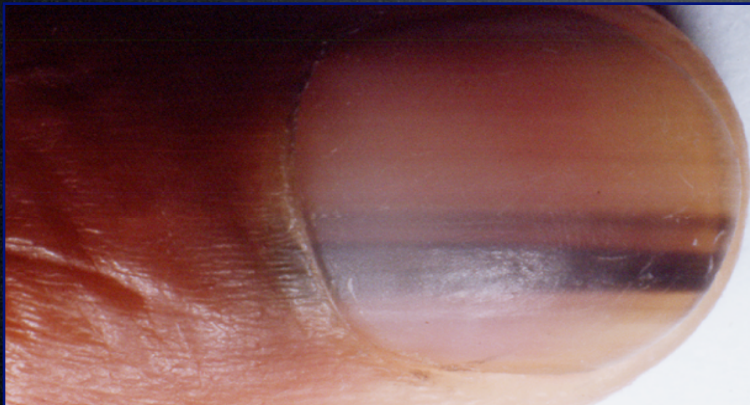
Prognosis

- Diagnostic delay ! It is most often the fault of the doctor...



Diagnostic (early)

- Large, progressive LM (≥ 5 mm),
- Pigmentation of the periungueal tissue (Hutchinson sign) is frequent but not pathognomonic



Two years natural evolution of nail melanoma in a 34 years old lady who refused treatment

Breslow 0,66 mm / Clark Level II

Diagnostic (early)

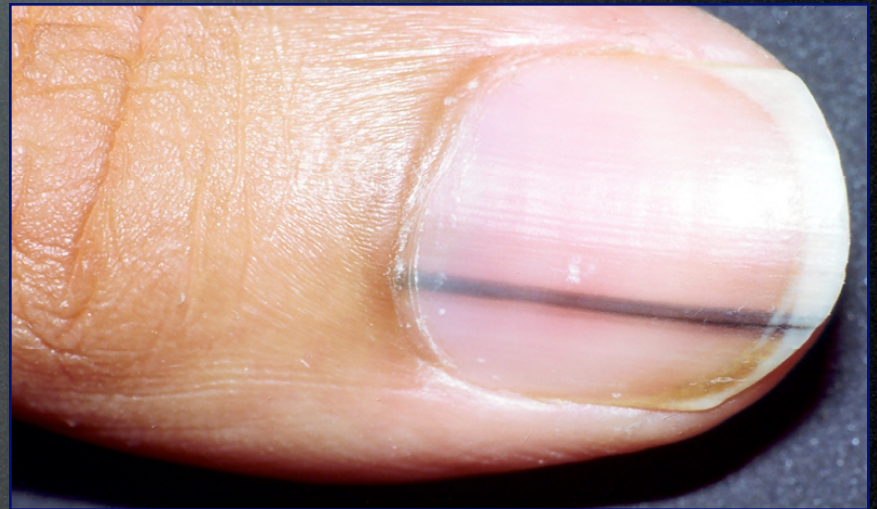
- Progressive widening
 - (A proximal width of the band superior to the distal indicates a rapid growth rate)
- Thumb, index, great toe
- Traumatism



*Breslow 0,55 /
Clark level II*

Diagnosis (early)

- Light brown bands but more often dark, with variegated colors and multiple fine linear streaks of denser hyperpigmentation.



Amelanotic melanoma 15-25 % of nail melanomas !



♀ , 54 yrs

Breslow 2,4 mm /Clark Level IV

Amelanotic melanoma 15-25 % of nail melanomas !



♀ , 33 yrs

Breslow 2,7 mm / Clark Level IV



♂ 62 yrs old, MD

Breslow 0,45 mm

7 yrs evolution

- Destruction of the nail plate or fissure
- Tumor
- Granulation tissue - pigmented or not
- Ulceration of the nail bed associated with onycholysis or destruction of the nail plate
- Infection, bleeding or pain

Diagnostic
(too late...)



Treatment

- Early diagnosis and surgical removal of NM is mandatory to improve currently poor survival rates.
- Surgical principles are similar to MM at other skin sites.
- Wide local surgical excision

Treatment

- Treatment guidelines of MM at other skin sites are well defined and rely upon Breslow thickness
- Recommended Surgical Margins for Melanoma*
 - T1 (<1.0 mm) 1 cm (radial)
 - T2 (1.1-2.0 mm) 1-2 cm, depending on location
 - T3 (2.1-4.0 mm) 2 cm
 - T4 (>4.0 mm) 3 cm
- (*Primary surgical closure whenever possible)

Treatment, 1st step

- A well-done biopsy
- Given in one piece, with orientation, to an experienced pathologist
- If negative, nail dystrophy should be limited

Lateral biopsies



- Margin 0,5 to 1 mm

Lateral biopsies



- Margin 0,5 to 1 mm
- Take off the lateral wall

- Margin 0,5 to 1 mm
- Take off the lateral wall
- Remove the ventral and proximal part of the matrix



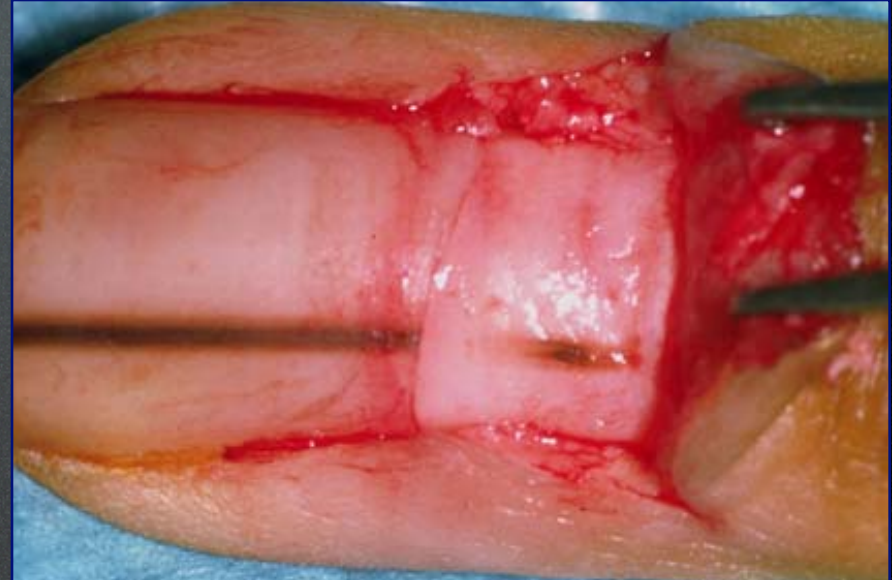
Lateral biopsies

- Reconstruct the lateral wall using Dubois's flap



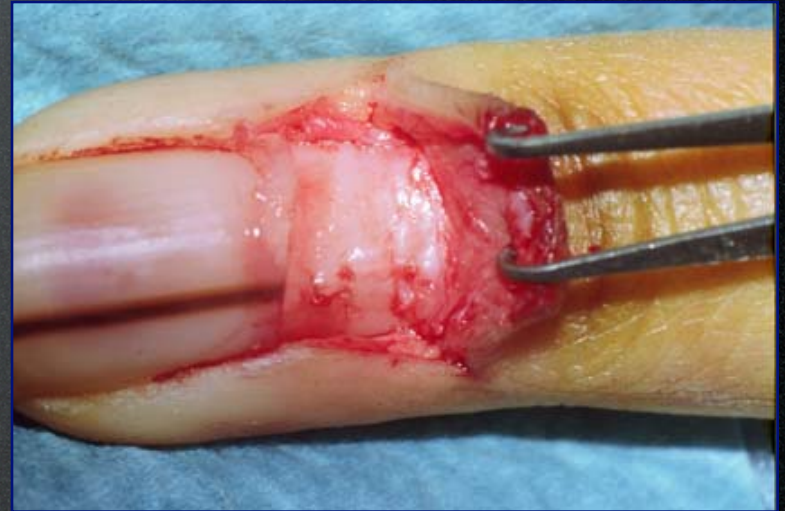
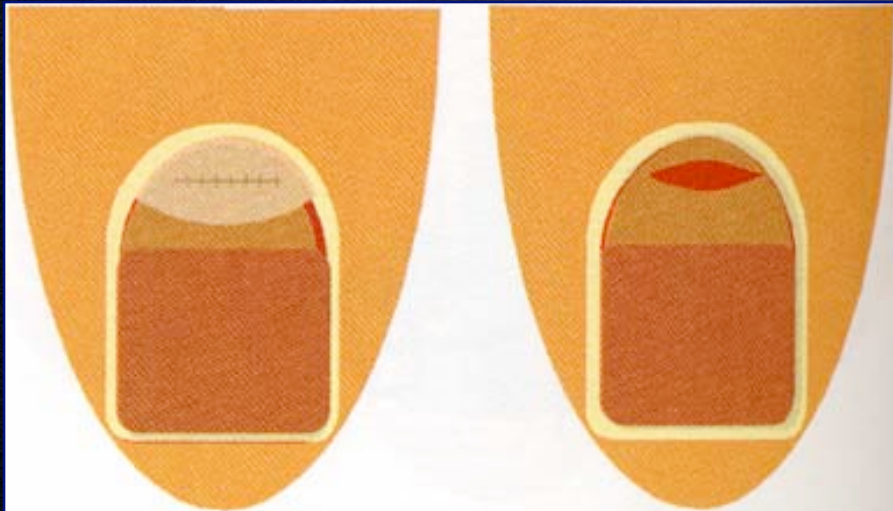
Central LM < 1-2 mm

- Remove proximal part of the nail plate

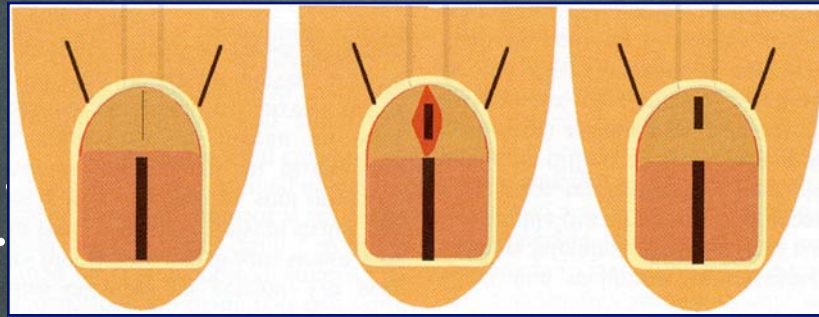


Central LM < 1-2 mm

- Transverse excision
 - Closure with some tension



Cen



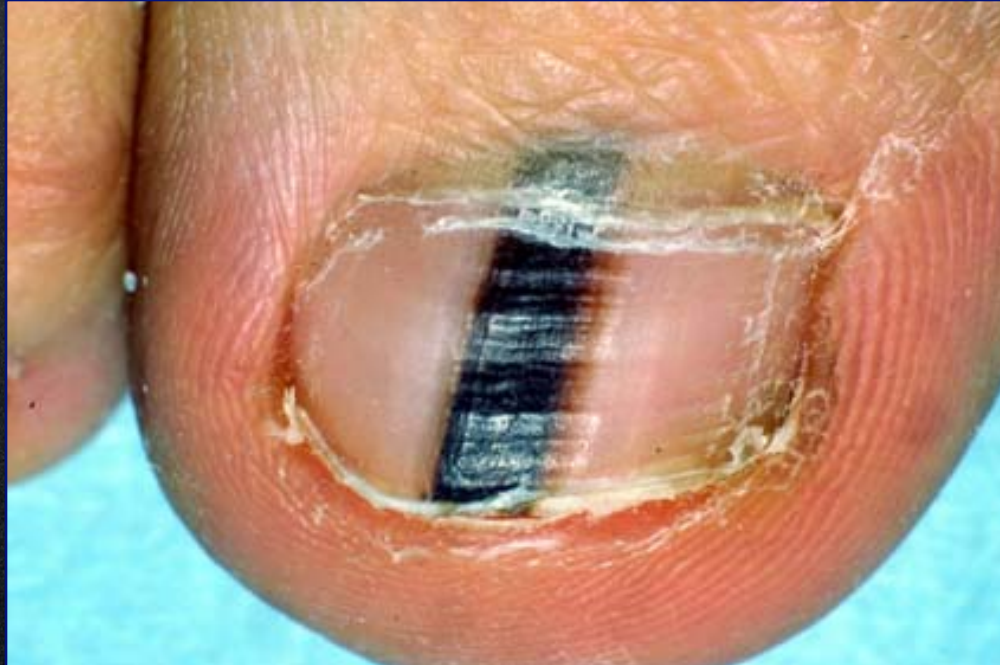
mm

- Longitudinal excision
 - Close with Johnson's flap



Central LM > 3 mm

- Excision will be large (3 mm + 1 mm on each side) and nail dystrophy cannot be avoided



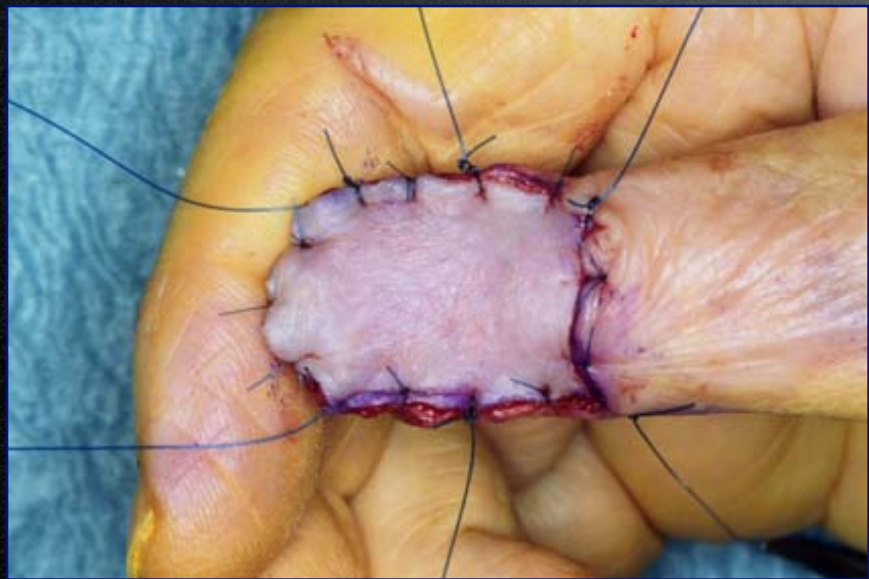
Central LM > 3 mm

- ✓ Closure with 1 (2) Schernberg's flap
- ✓ Leave it open
(spontaneous healing)
until the pathologist
give the answer



Treatment (in situ melanoma)

- For malignant melanoma in situ we recommend complete excision of the nail apparatus to the underlying bone followed by a full thickness graft.
- No amputation (skin disease, not bone)



Our series

- 13 patients
- 9 Melanoma in situ
- 4 epidermoid carcinoma (2 Bowen's)



Our series

- 4 years FU
- No nail regrowth
- 5 mm Weber Two-point discrimination
- Normal DIP mobility
- No recurrence



Our series

- 5 epidermal cysts
- 2 patients had some difficulties to accept their fingers



Literature

- « old » literature favors amputation through the MP joint
- Recent papers (decade) favor amputation through the DIP/IP joint
- Most « recent » papers favor nail apparatus excision with nail reconstruction using nail skin graft

Treatment (late stages)

- Amputation
 - DIP/IP joint amputation is enough
 - No benefit of proximal over distal amputations
 - Level of amputation is chosen in order to obtain the best functional outcome

Other treatment

- Sentinel node biopsy
- Interferon
- Other protocols
 - For melanomas research projects
 - I have no experience

Take home message

- Malignant nail tumors are rare
- Nail dermatologist is needed to eliminate differential diagnosis which are not tumors
- Most tumors are only diagnosed by an experienced pathologist
- Any surgeon must have a high suspicion of melanoma facing a patient with a melanonychia