Academy of Minimally Invasive Foot & Ankle Surgery

ANNUAL HANDS-ON MIS CADAVER LAB SEMINAR
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Pitfalls in the Diagnosis of Pedal Melanoma

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Disclosures:

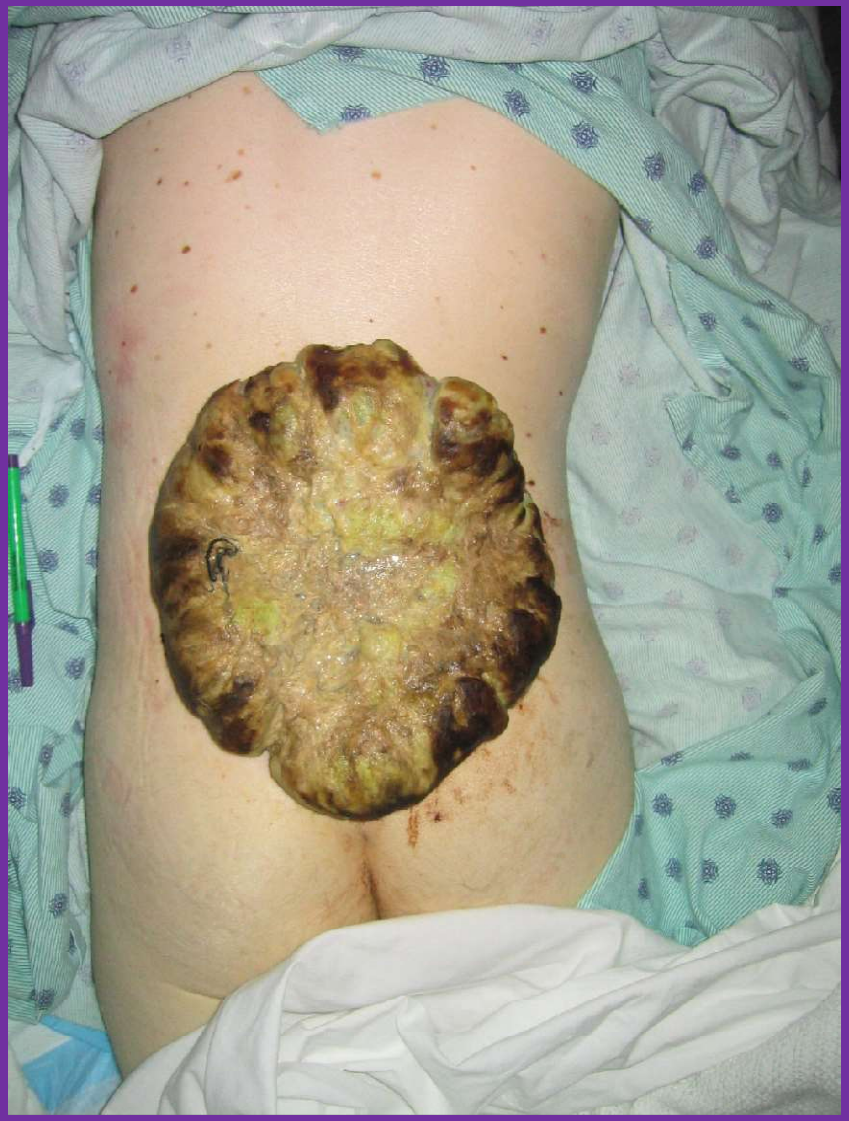
Consultant Sagis Dx Podiatric Pathology

What is a pitfall?

Danger, Difficulty, Drawback, Peril, Risk, Snag

Things that may go wrong or cause problems

Things that cause DELAY!



Pitfall mechanics in medical decision making:

Rushing – efficiency does not always equate to quality
Going with the flow – doing what already has failed
No communication with prior treating providers

Algorithm approach to chief complaint

Is the initial visit only about the chief complaint?
"I know I should be doing more biopsies?"

Exaggeration of biopsy risk of pain and infection

Relying on patient history of lesion – criteria trumps history

Cost effectiveness v. risk of misdiagnosis or no diagnosis……

All are ultimately obstacles getting in the way of tissue sampling.

Pitfalls once biopsy is decided upon:

Choice of technique
Location/area of biopsy
Number of specimens
Failure to consider recommendations in biopsy report
Follow up and communication of results
Inappropriate or failure of arranging for oncology consultation, staging, BEFORE any necessary definitive surgery when malignant….

All have the potential of compromising the outcome.

Dermatology Practical & Conceptual

Use of Nail Dermoscopy in the Management of Melanonychia

January 2019 | Vol 9 No 1 DOI 10.5826/dpc.0901a10
Submitted: Jul 12, 2018, Published: Jan 31, 2019

Michela Starace ; Aurora Alessandrini ; Nicolò Brandi ; Bianca Maria Piraccini

"Dermoscopy……provides important information for the management of melanonychia and can help **avoid unnecessary** nail biopsies."

Sawada Study Results – 5 years

- Type III lesions showed 100% in-situ melanoma
- 10% (5 lesions) of Type II lesions showed change. 2 out of the 5 were in-situ melanoma
- None of the Type I lesions showed any change

Conclusion: **dermoscopy** of nail lesions can be **very reliable**, and three month follow up for Type II lesions to look for change is recommended.

*Sawada M, Yokota K, Matsumoto T, et al. Proposed classification of longitudinal melanonychia based on clinical and dermoscopic criteria. International Journal of Dermatology 2014; 53:581-585

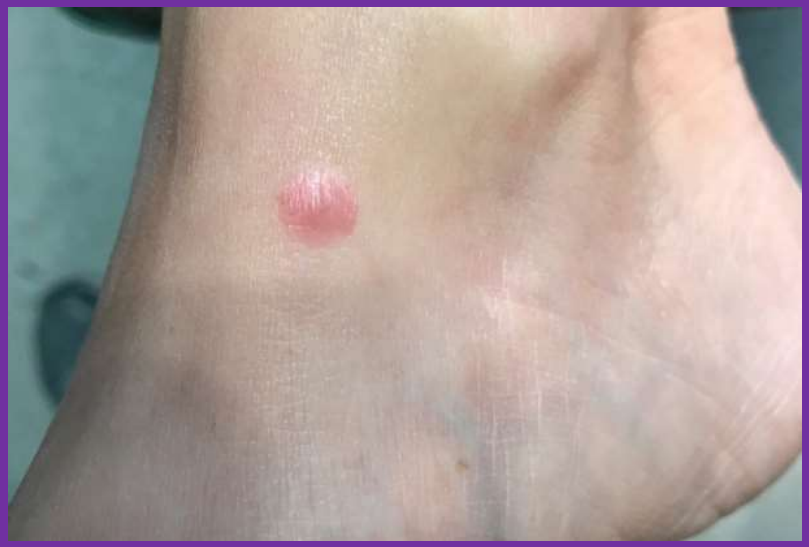
Di Chiacchio N, Hirata SH, Enokihara MY, et al.

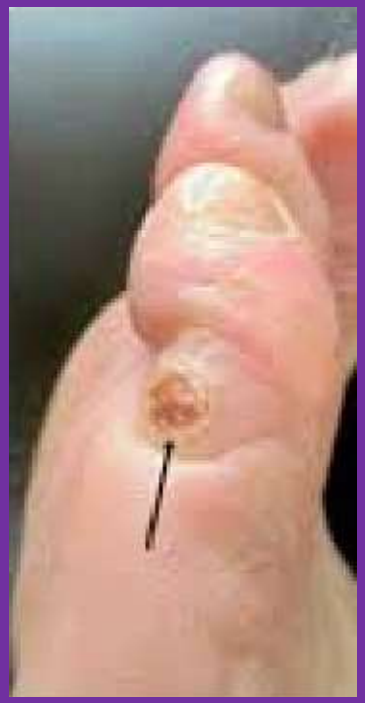
Dermatologists accuracy in early diagnosis of melanoma of the nail matrix.

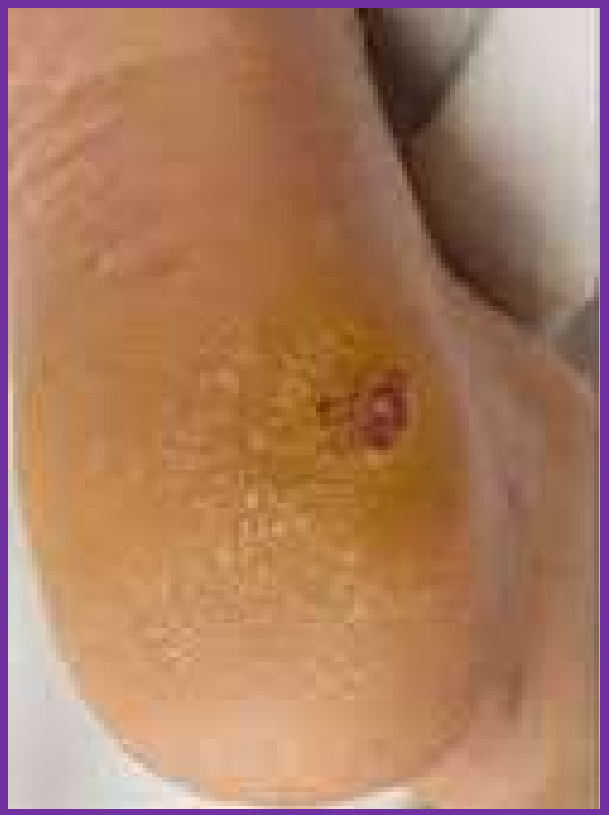
Arch Drmatol 2010; 146:382-387

CONCLUSIONS: Overall accuracy of dermatologists in the diagnosis of nail matrix melanoma in situ is **unreliable* (low)** because the percentages of physicians who indicated the correct diagnosis during each of the first 3 clinical steps of the test ranged from **46% to 55%.** The level of expertise did not statistically influence the correct diagnosis. confirming that **biopsy** is still the **gold standard** for diagnosis of these lesions."

Another pitfall: Expecting varying shades of tan to brown to black







Arch Dermatol. 2006 Dec;142(12):1551-8.

Rate of growth in melanomas: characteristics and associations of rapidly growing melanomas.

Liu W[1], Dowling JP, Murray WK, McArthur GA, Thompson JF, Wolfe R, Kelly JW.

FINDINGS:

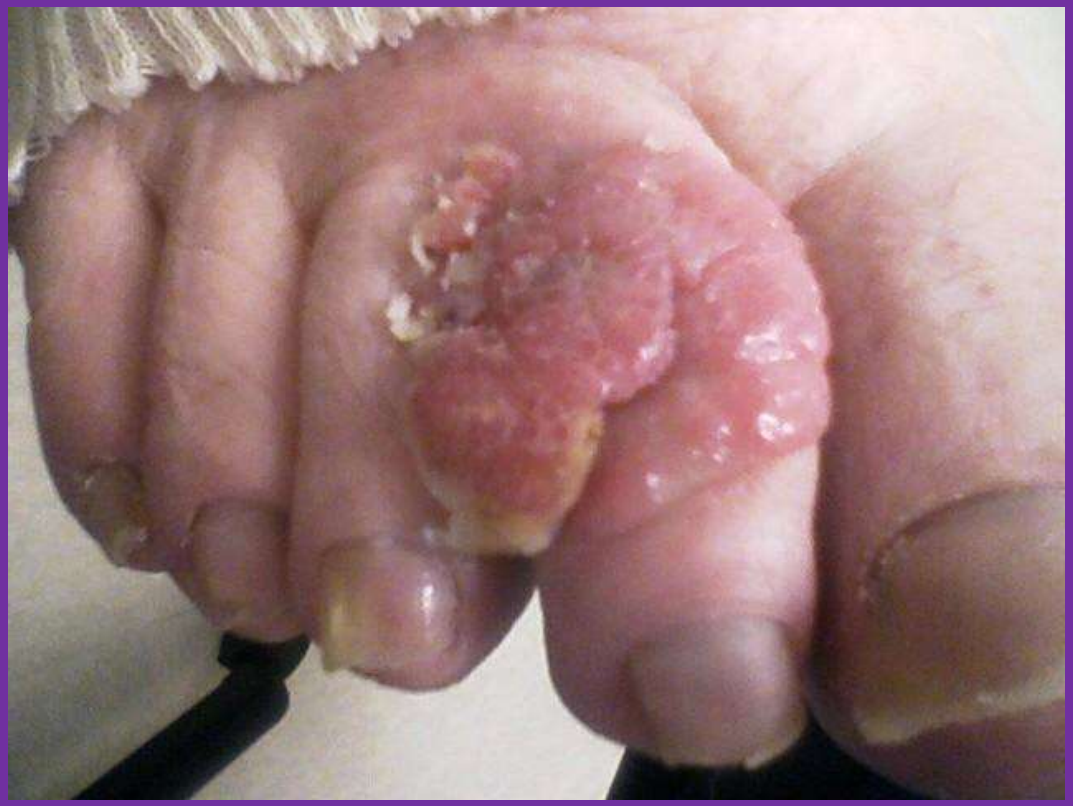
Rapid tumor growth was shown to be closely associated with Breslow thickness and mitotic rate (histologic parameters)

Rapid tumor growth was associated with male sex, older age and **fewer** melanocytic nevi and freckles

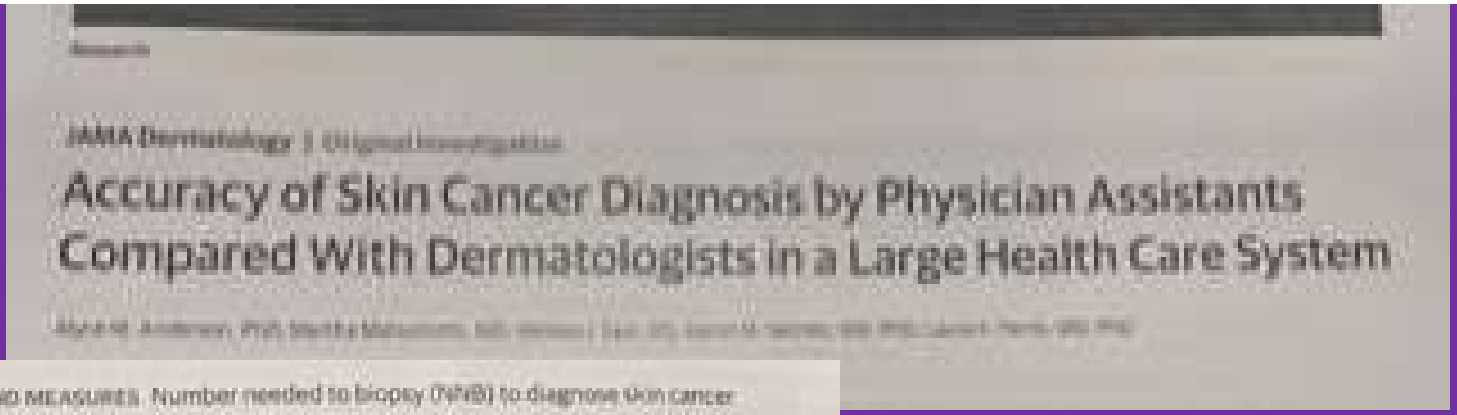
Rapidly growing melanomas were shown to display **unexpected** features such as **symmetry, amelanosis, border regularity, and presence of symptoms**

Major limitation of study is large variance in reliability of patients identifying the event of tumor appearance

Pitfall: Failure to back off a diagnosis when treatment fails



Patient was treated for 11 months with silver nitrate application!!! Biopsy on first visit revealed melanoma (amelanotic). Lesion found to have disseminated on staging and soon after succumbed



JAMA Dermatology

Accuracy of Skin Cancer Diagnosis by Physician Assistants Compared With Dermatologists in a Large Health Care System

MAIN OUTCOMES AND MEASURES Number needed to biopsy (NNB) to diagnose skin cancer (nonmelanoma, invasive melanoma, or in situ melanoma).

RESULTS Of 20 270 unique patients, 12 722 (62.8%) were female, mean (SD) age at the first visit was 52.7 (17.4) years, and 19 515 patients (96.3%) self-reported their race/ethnicity as non-Hispanic white. To diagnose 1 case of skin cancer, the NNB was 3.9 for PAs and 3.3 for dermatologists ($P = .001$). Per diagnosed melanoma, the NNB was 39.4 for PAs and 25.4 for dermatologists ($P = .007$). Patients screened by a PA were significantly less likely than those screened by a dermatologist to be diagnosed with melanoma in situ (0.2% vs 0.4% of visits, $P = .04$), but differences were not significant for invasive melanoma (0.2% vs 0.2% of visits, $P > .99$) or nonmelanoma skin cancer (6.1% vs 6.1% of visits, $P = .98$).

CONCLUSIONS AND RELEVANCE Compared with dermatologists, PAs performed more skin biopsies per case of skin cancer diagnosed and diagnosed fewer melanomas in situ, suggesting that the diagnostic accuracy of PAs may be lower than that of dermatologists. Although the availability of PAs may help increase access to care and reduce waiting times for appointments, these findings have important implications for the training, appropriate scope of practice, and supervision of PAs and other nonphysician practitioners in dermatology.

JAMA Dermatology 2018;154(5):569-573

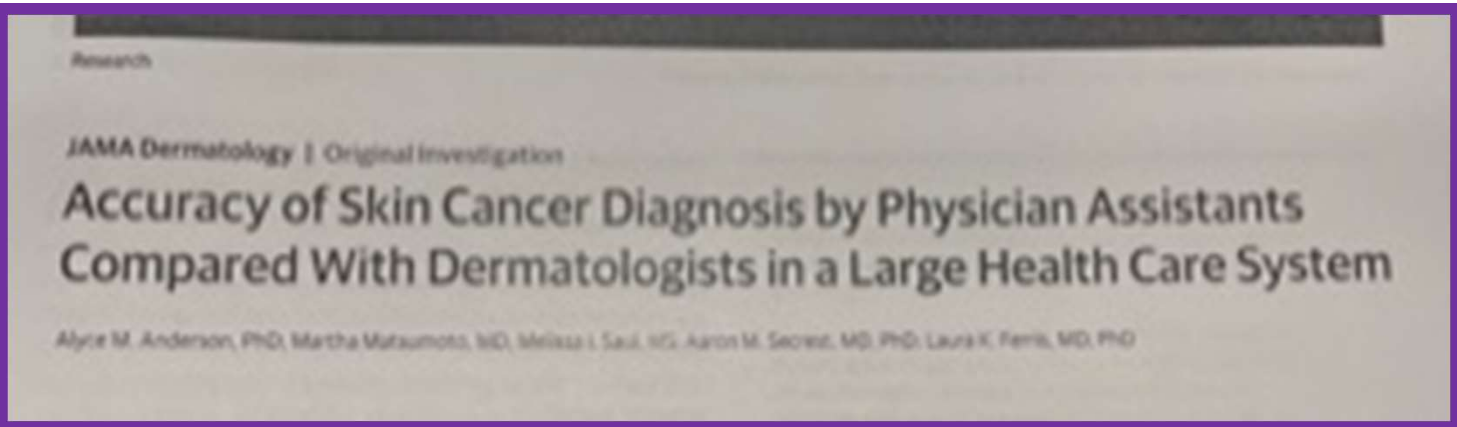
To diagnose 1 skin cancer:

NNB for dermatologists was 3.3

NNB for PAs was 3.9

To diagnose 1 melanoma:
NNB for dermatologists was 25.4
NNB for PAs was 39.4

For invasive melanoma and nonmelanoma skin cancers, NNB difference was INSIGNIFICANT!



Research

JAMA Dermatology | Original Investigation

Accuracy of Skin Cancer Diagnosis by Physician Assistants Compared With Dermatologists in a Large Health Care System

Alyce M. Anderson, PhD; Martha Matsumoto, MD; Melissa J. Saul, MS; Aaron M. Secrest, MD, PhD; Laura K. Ferris, MD, PhD

Key Points

Question Are physician assistants and dermatologists equally accurate in diagnosing skin cancer in patients undergoing screening?

Findings In this medical record review of 33 647 skin cancer screening examinations in 20 270 unique patients, physician assistants needed to biopsy 39.4 pigmented lesions and dermatologists needed to biopsy 25.4 pigmented lesions to diagnose 1 case of melanoma. Patients screened by a physician assistant were significantly less likely than those screened by a dermatologist to be diagnosed with melanoma in situ.

Meaning Compared with dermatologists, physician assistants have lower diagnostic accuracy for melanoma.

Conclusions

In the age of cost-conscious medicine, it is important to consider more than just clinician salary in determining cost of care. Visits in which skin cancers are missed and/or biopsies are performed on benign lesions owing to lower diagnostic accuracy are low-value visits and increase the potential harm to patients. This information should be factored into policy decisions about scope of practice, hiring decisions, supervision of APPs, and patient decisions about who provides their dermatologic care.

CONCLUSIONS:
BECAUSE:

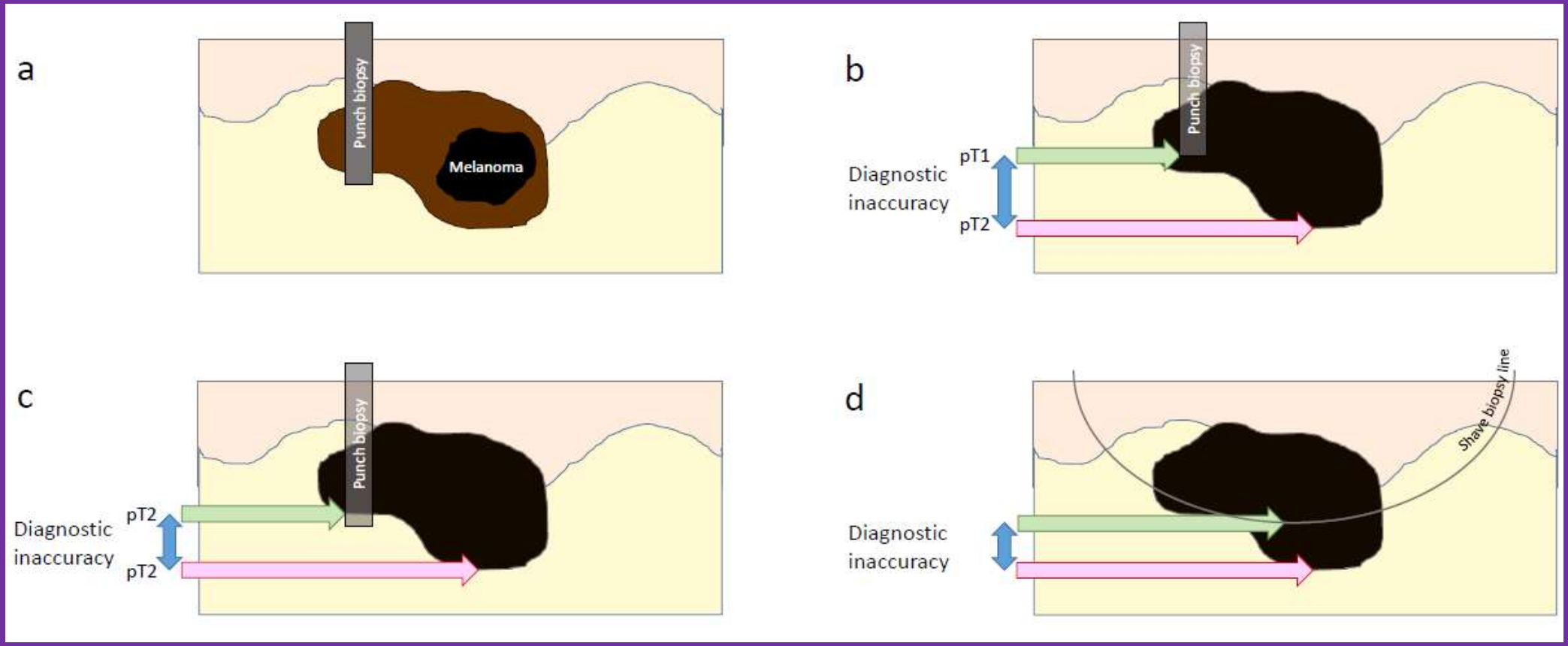
PAs performed **more** biopsies per case of cancer

PAs diagnosed **fewer** melanoma in situ showing diagnostic accuracy not as good as derms

These findings have important implications for the TRAINING, APPROPRIATE SCOPE OF PRACTICE, AND SUPERVISION OF PAs and OTHER NON-PHYSICIAN PROVIDERS IN DERMATOLOGY

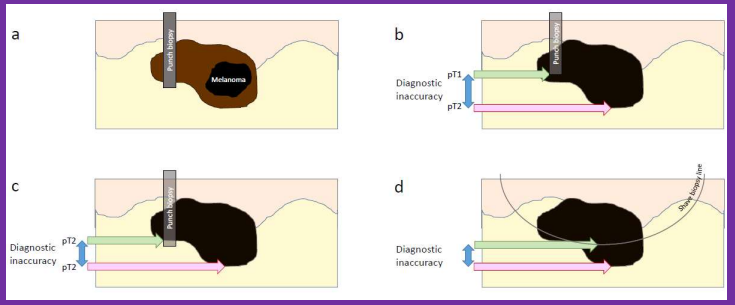
JAMA Dermatology 2018;154(5):569-573

Other pitfalls to consider:



Surgery and Staging of Melanoma, Rolland Gyulai, Zsolt Kádár and Zsuzsanna Lengyel
Melanoma - Current Clinical Management and Future Therapeutics Submitted: 07 May 2014 Published: 01 April 2015

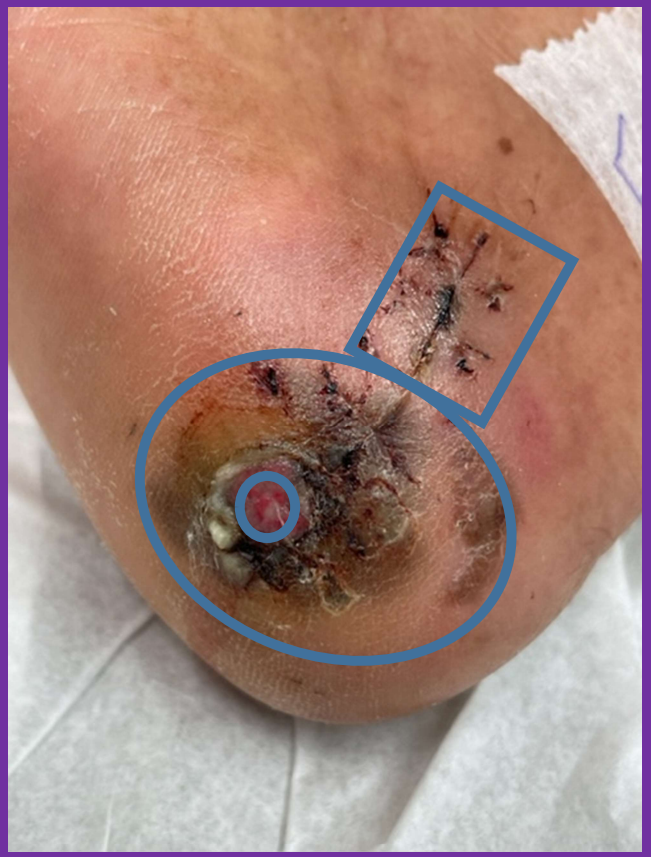
To minimize these pitfalls:

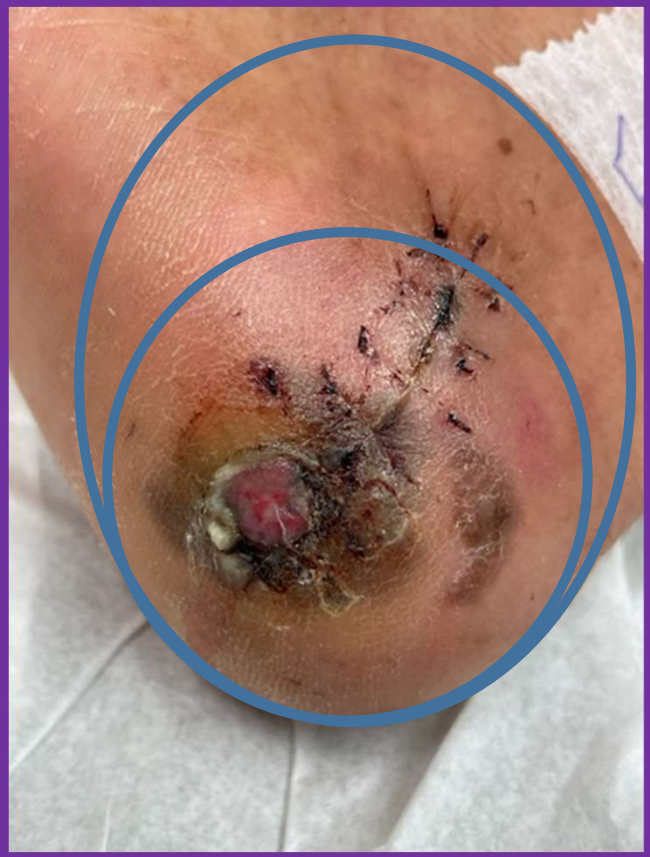


Plan melanoma biopsies in this order :

1) Area of ulceration
2) Area of highest elevation
3) Area of darkest pigmentation
4) 1, 2, and 3, all to the subcutaneous fat
5) If complete removal with primary closure is possible, excision is best choice

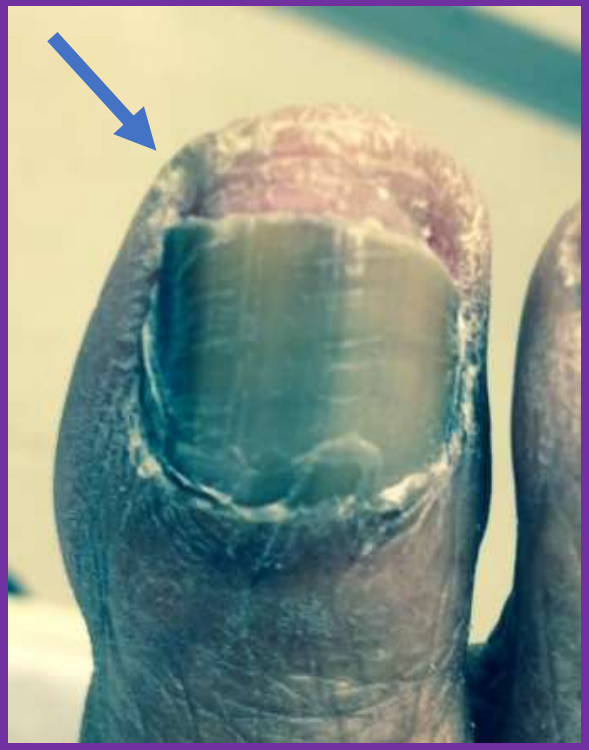
Pitfall in biopsy selection

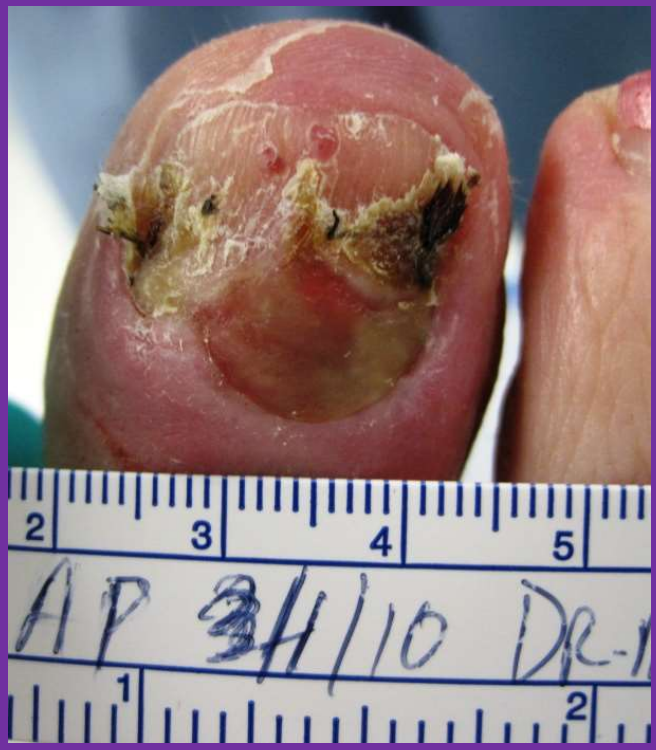




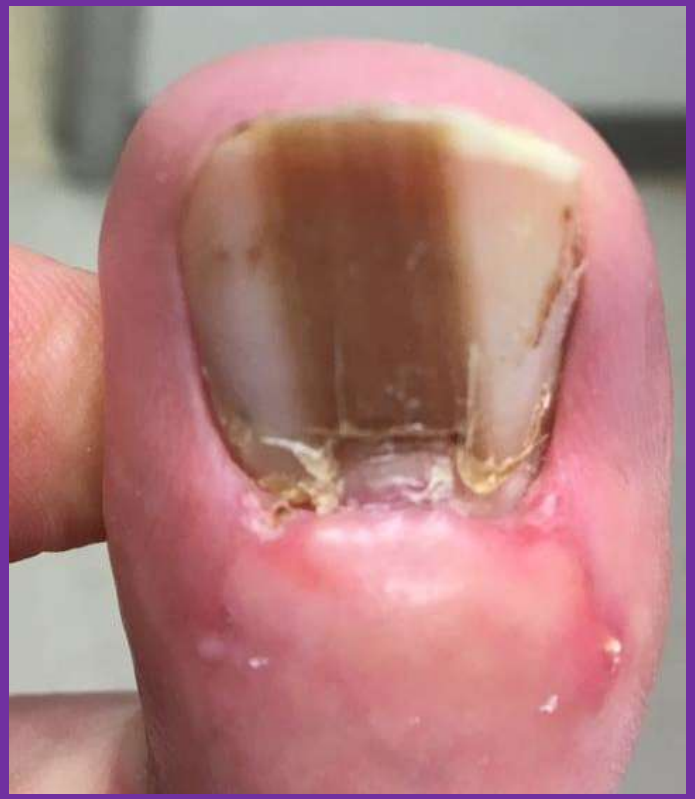
Any approach to a lesion that turns out to be malignant is considered malignant such as an incision, or a needle tract and therefore must be included in margin resection calculations.

Alarming or Not ?

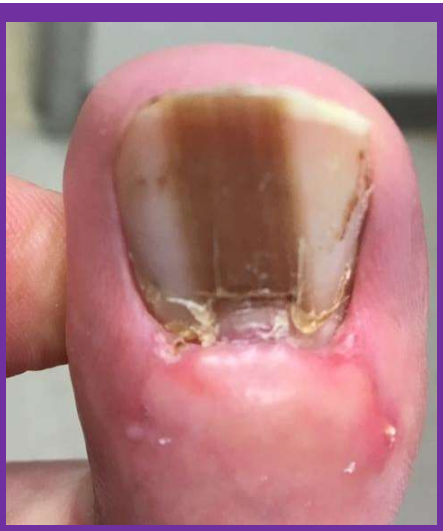




Choice of biopsy



This 7mm wide longitudinal melanonychia was observed by the patient for several years to be getting wider before seeking dermatology consult. Dermatologist chose to reflect back the fold and did a 3 mm punch in the center of the band. A better procedure would have been a matrix shave encompassing the whole band.



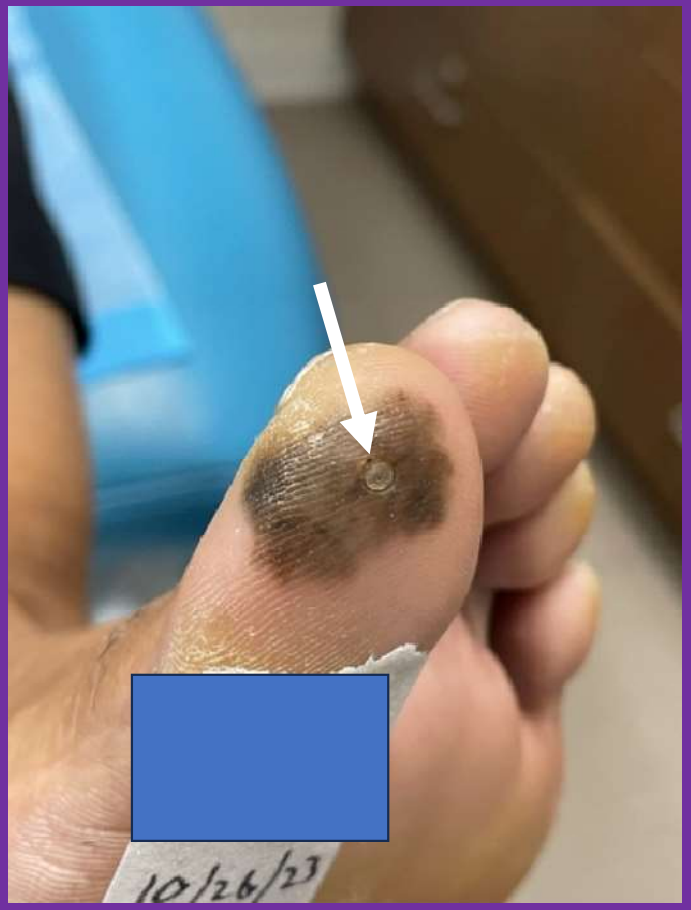
Explanation:

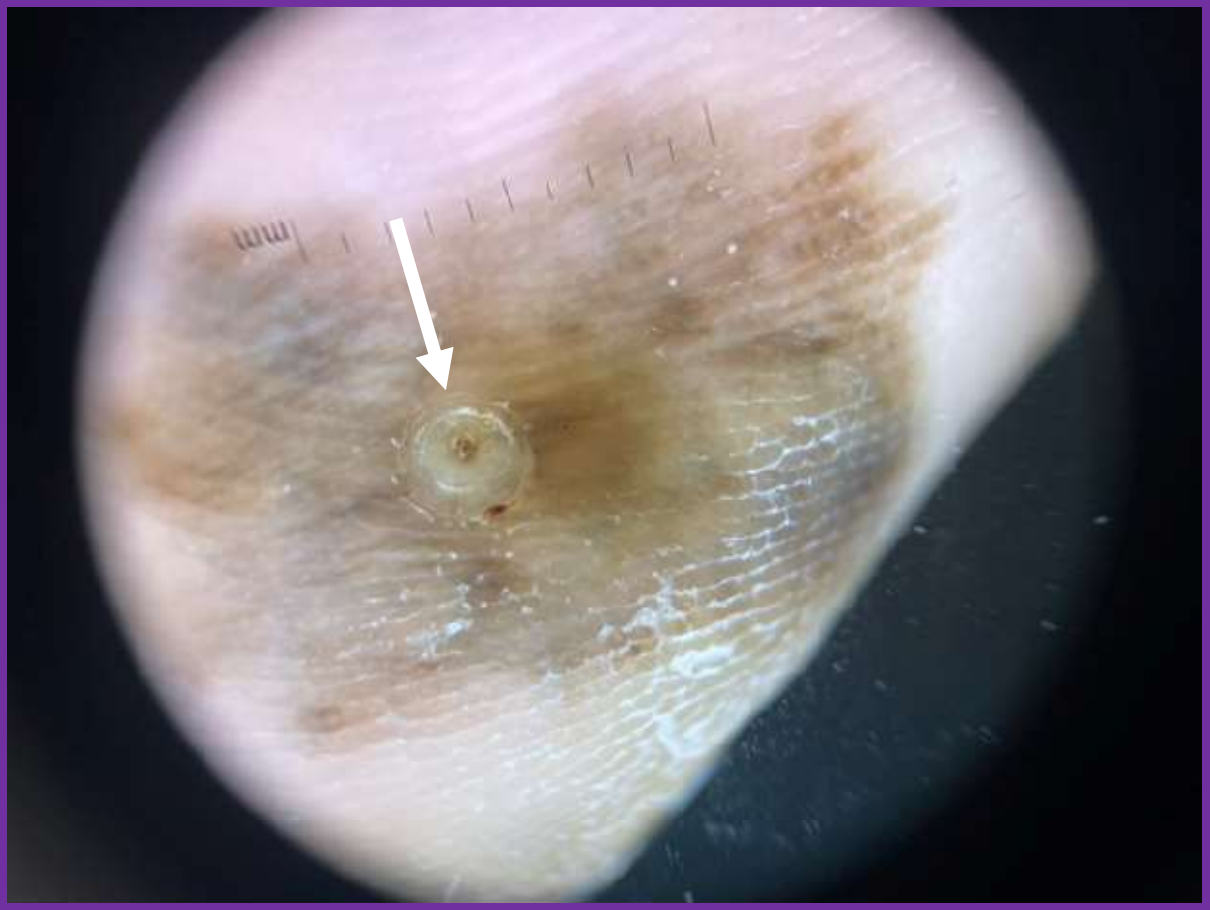
3 mm punch leaves behind 4 mm of unsampled tissue
Regardless of pathologic diagnosis, except if it was invasive melanoma, additional sampling would need to be done.

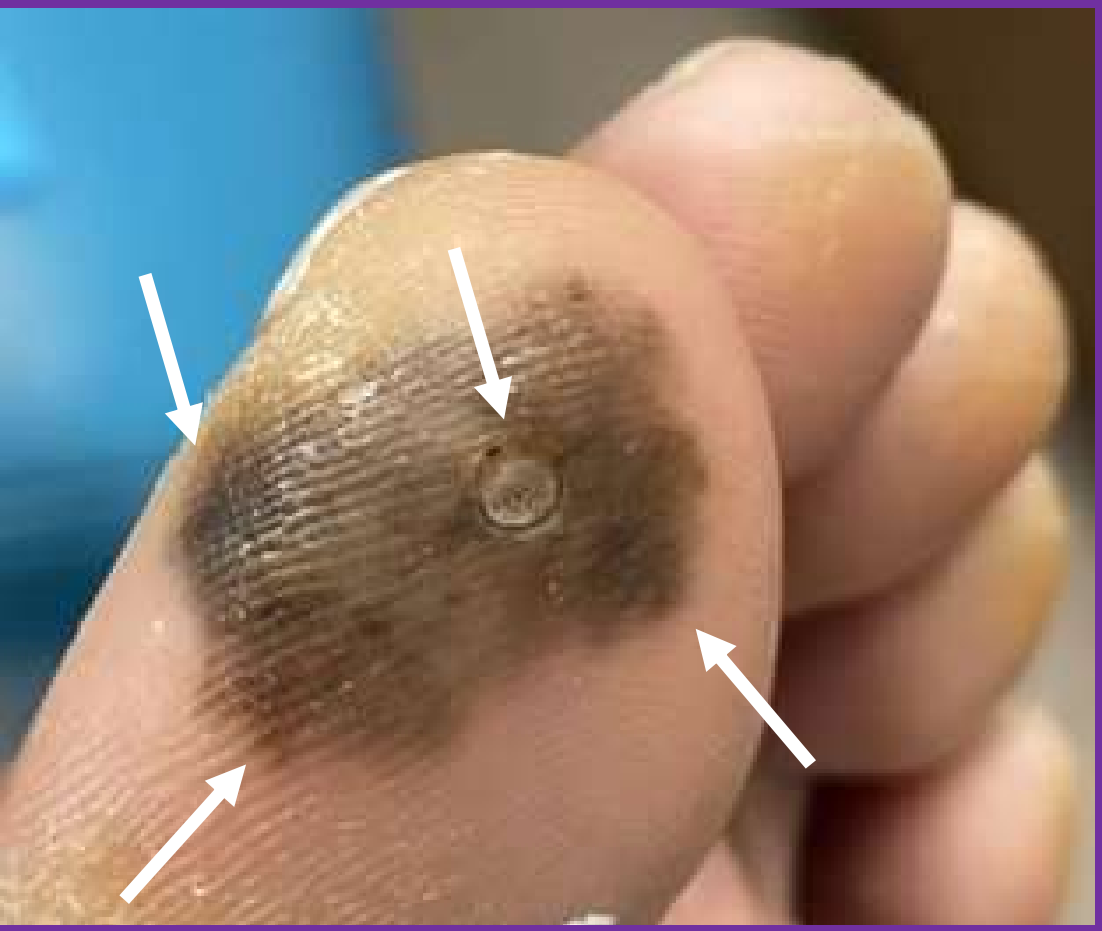
The dx in this case was “atypical melanocytic lesion, recommending complete excision.” Patient now had to be informed that we would remove the entire matrix, but if any part of it would be found to be invasive, he would need staging and definitive surgery.

If the diagnosis had been benign melanotic macule, there would be a chance that patient would be discharged from care with 4/7 of the lesion unexamined.

Patient watched lesion grow for about 5 years
Biopsy choice by referring DPM was a one 3mm central punch







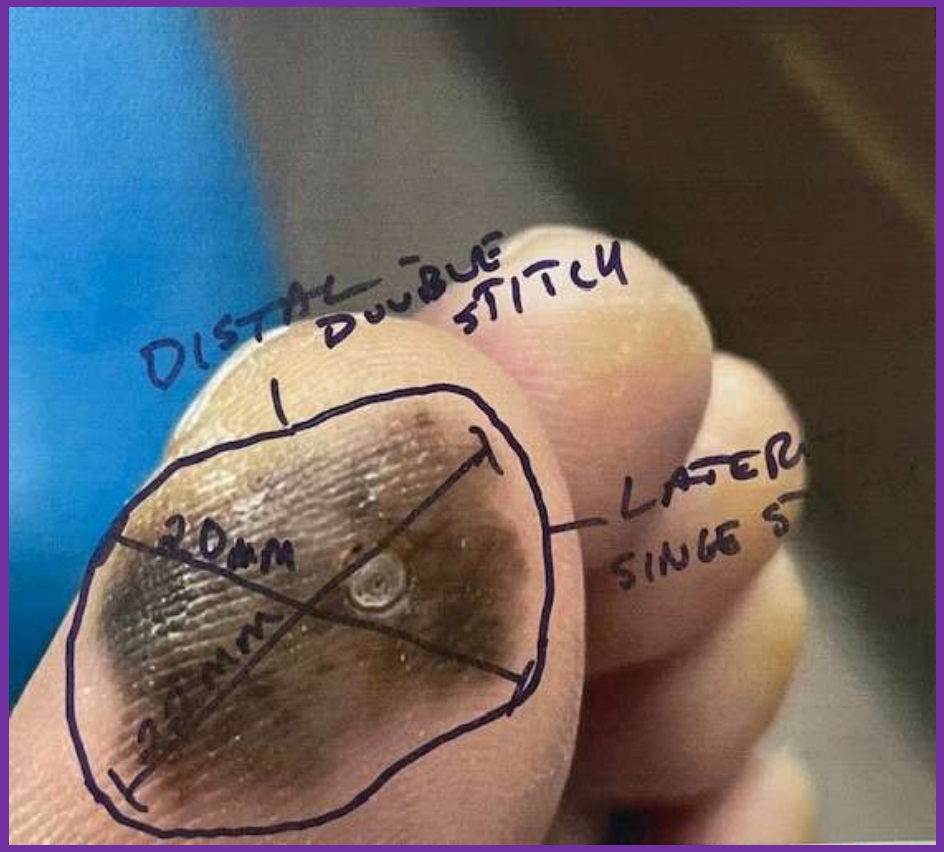
Explanation:

Most of lesion is not sampled with initial procedure.

Dx was in situ melanoma

If any part of it is invasive, margin requirements for WLE would change

Multiple biopsies would have been better as if found to be invasive, staging and definitive surgery could have been planned. Additional scout biopsies have been performed, if they are in situ, lesion will be excised in toto and hopefully final path will be all in-situ. Patient knows she may need amputation if WLE reveals invasive melanoma.


DISTAL
DOUBLE
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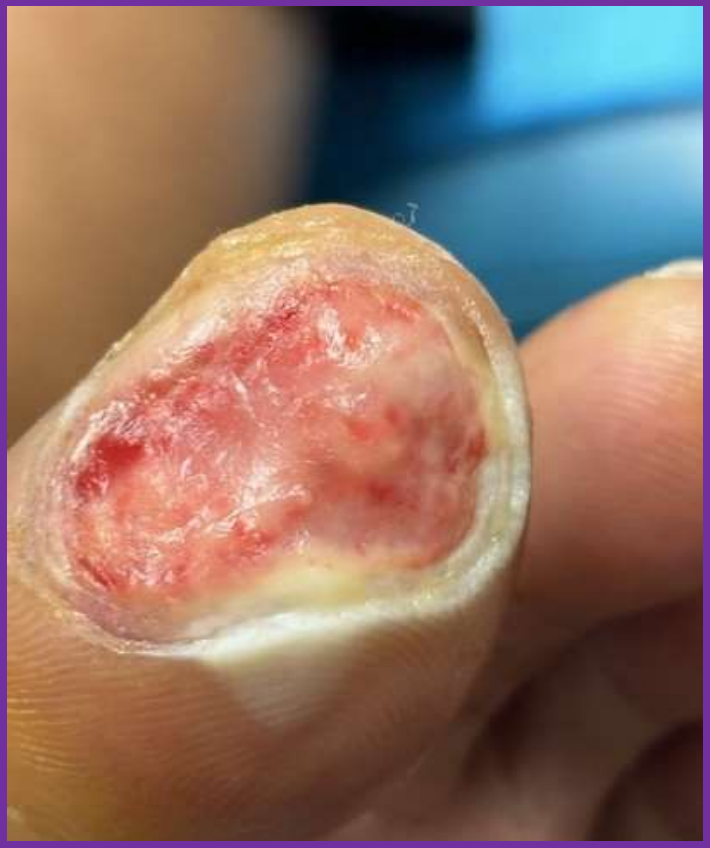
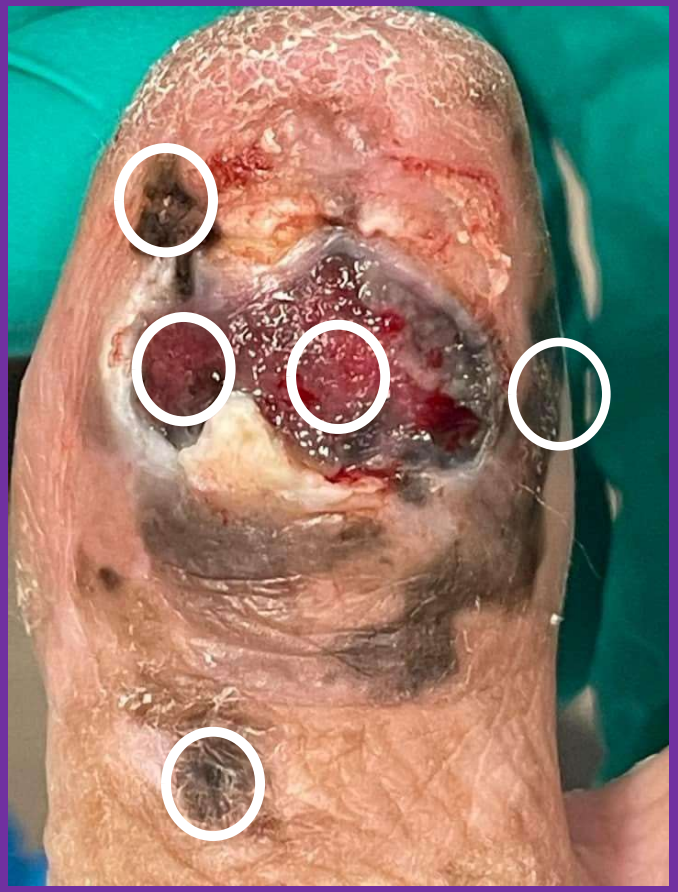
20MM



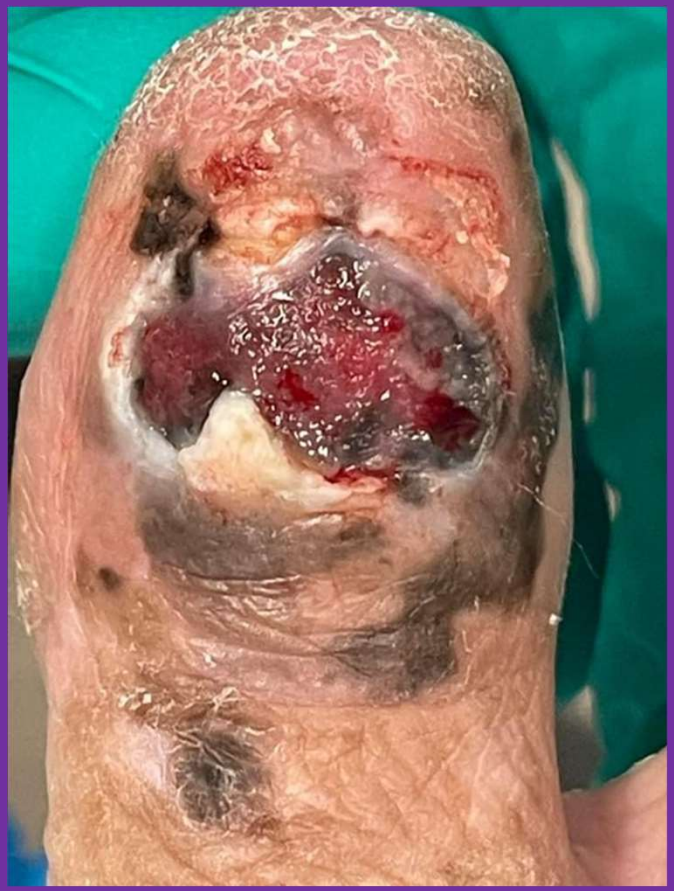
Relying on patient history of lesion – criteria trumps history!



Patient slammed toe under door 25 years ago and had significant soft tissue injury that healed. Patient always assumed that pigmentation that occurred soon after was a result of that injury and any clinician asking about it got the same story, but in the face of clinical findings that should have sharply elevated clinical suspicion, no one acted until recently.

ALARMED?

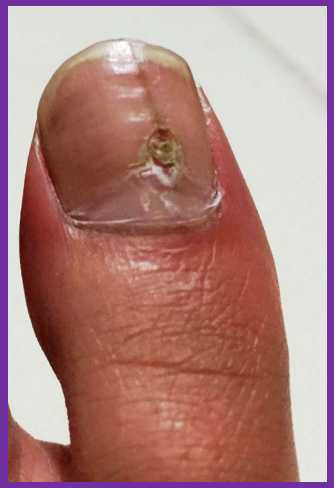
Relying on patient history of lesion – criteria trumps history!

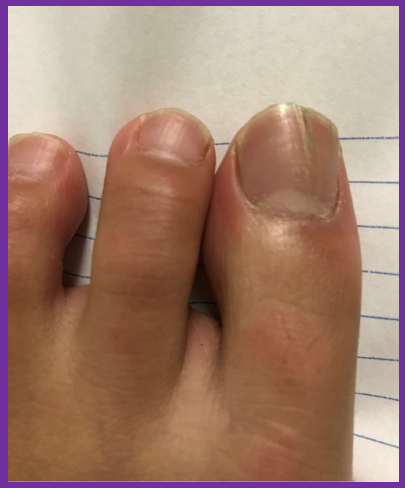


Biopsy hx:

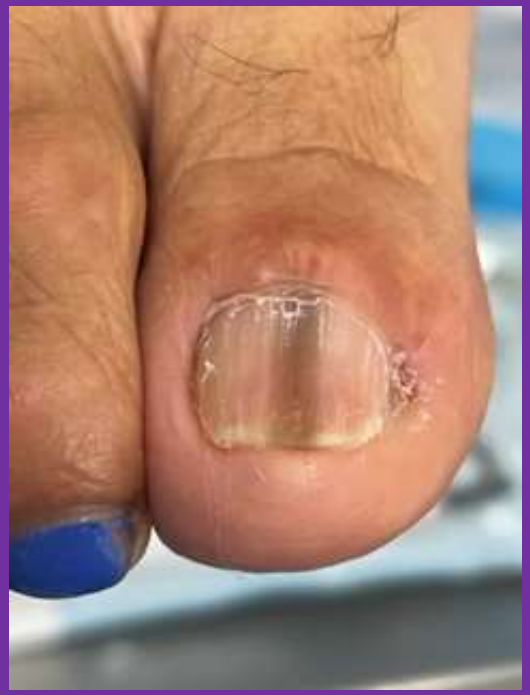
2 years ago by dermatologist in big supergroup did a bx. Dx was atypical melanocytes. Told patient not malignant (true) no f/u necessary.
Second biopsy by plastic surgeon – tissue submitted inadequate
Third biopsy by DPM – no mention of pigmented lesion or suspected melanoma (even though it was) on submission, tissue submitted also inadequate – dx granulation tissue

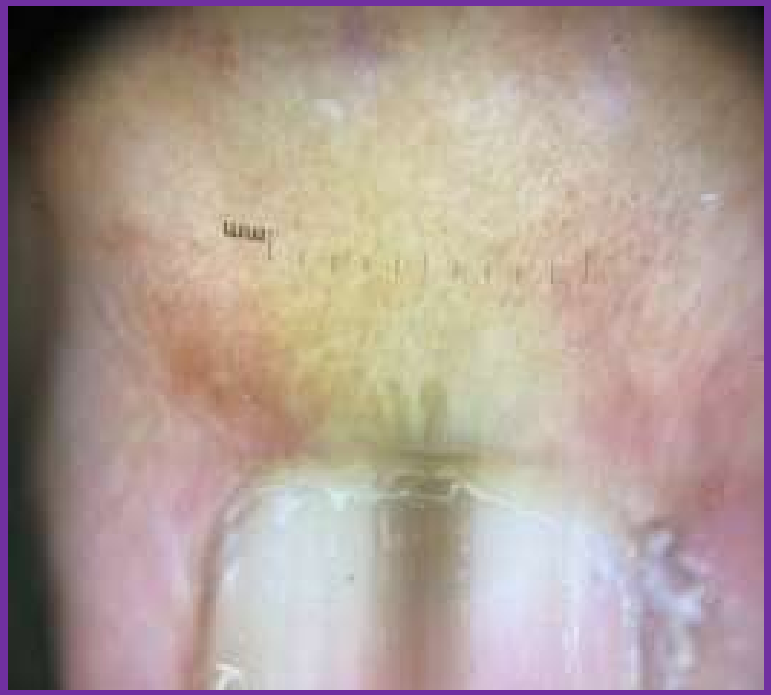
VERY ALARMING!!

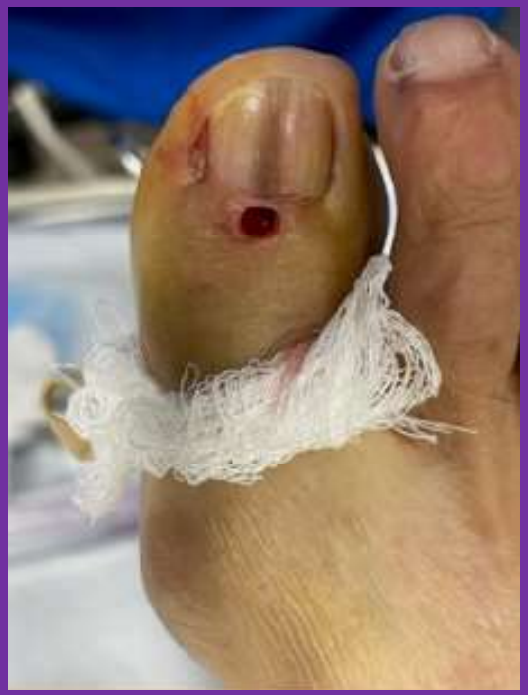


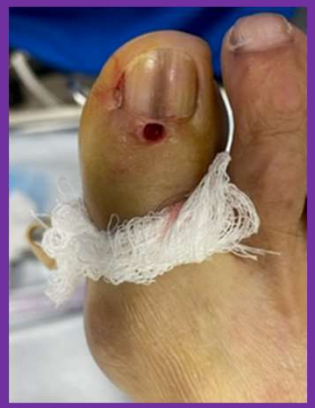


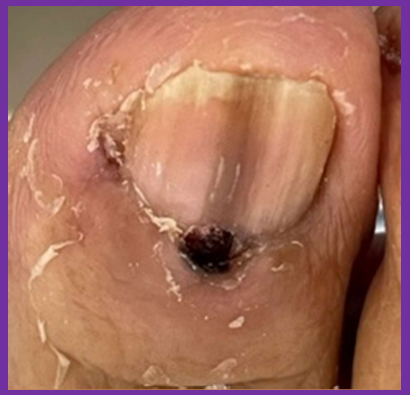
Pitfall: Concern for cosmetic disruption

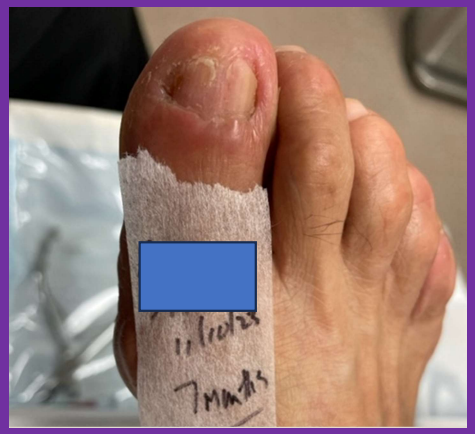


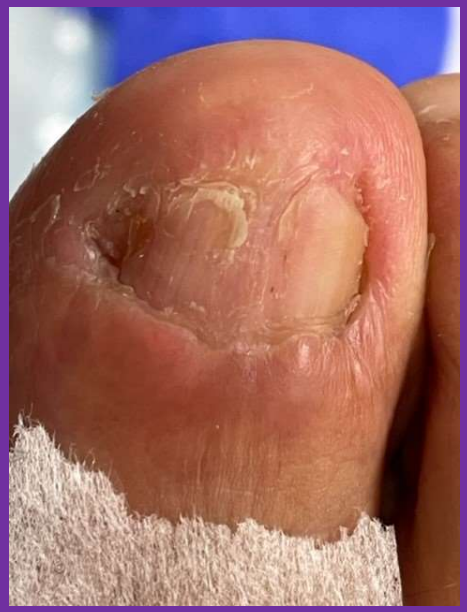




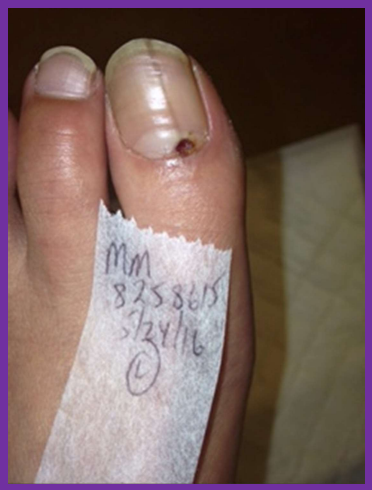


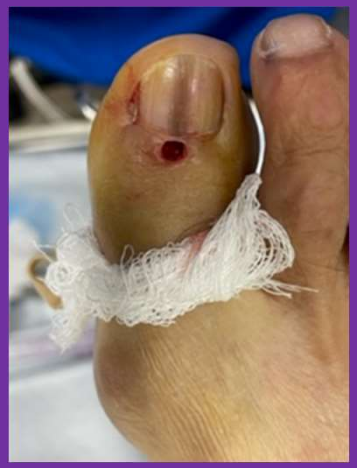




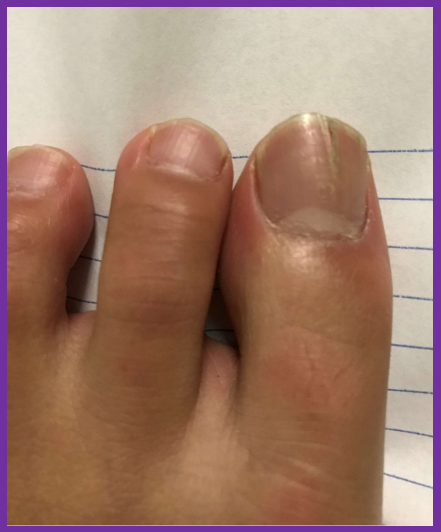


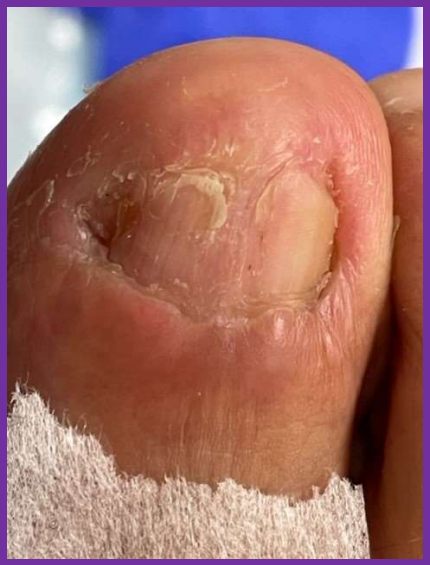
3 mm

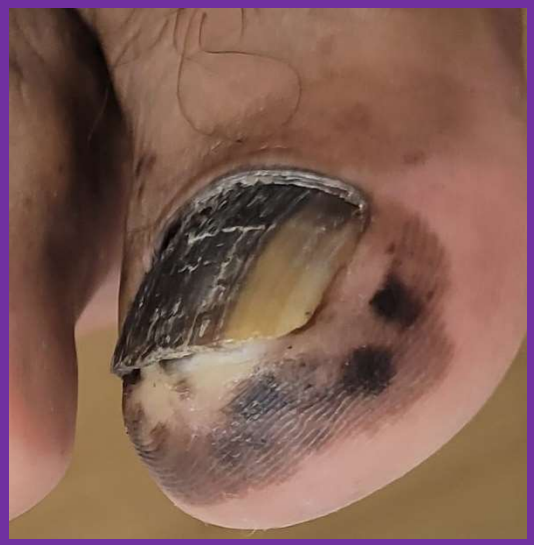


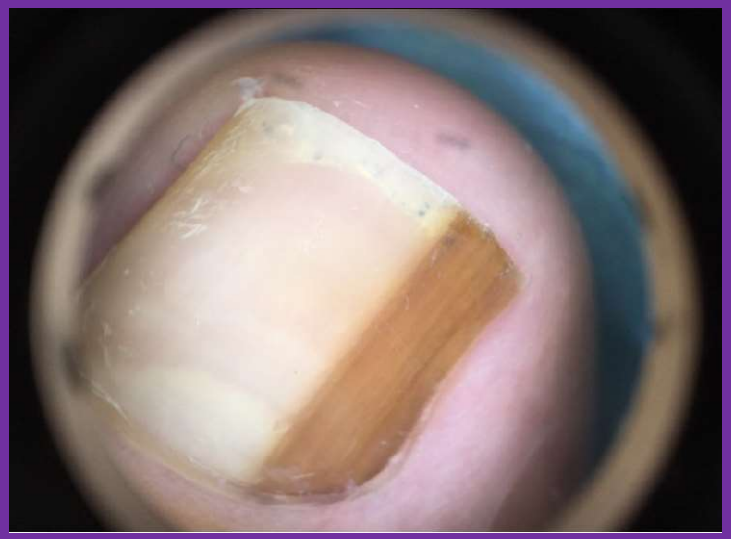


4 mm

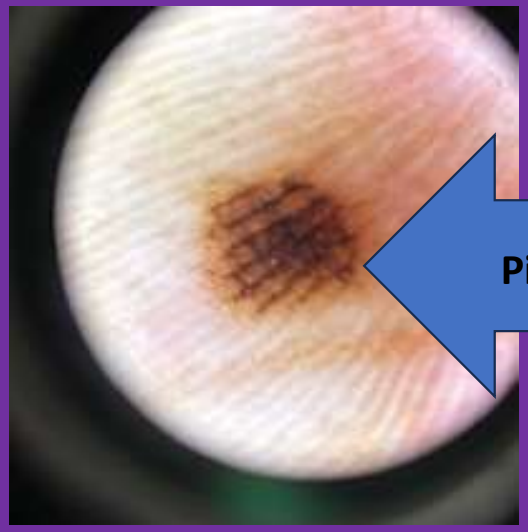








Pitfall: Hesitancy to learn dermoscopy

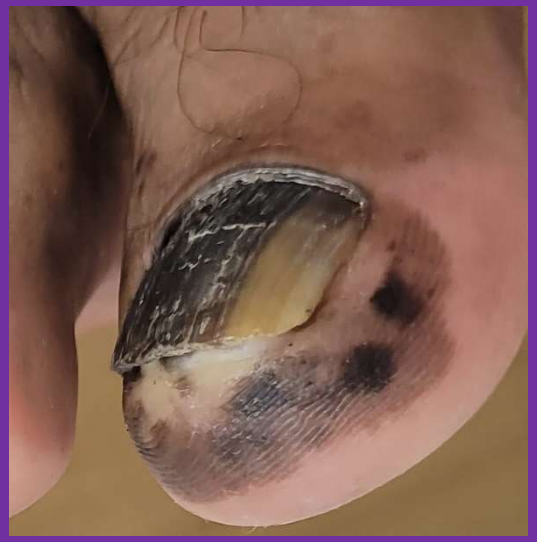


Pigment on furrows

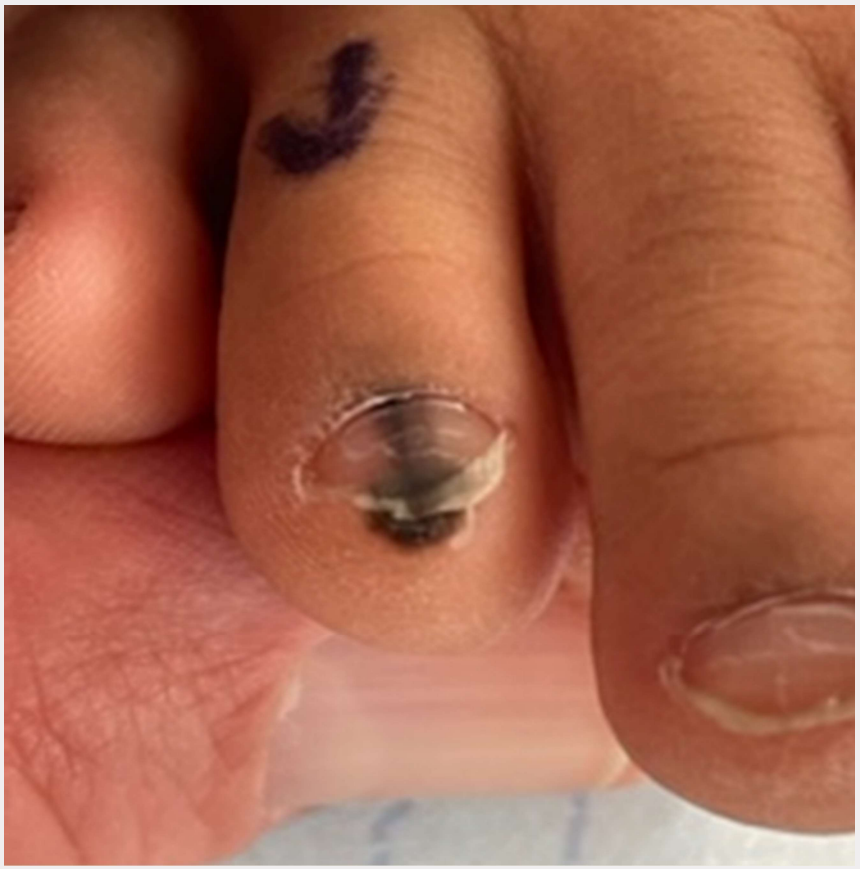
Volar dermoscopy not that hard to learn.

Pigment on furrows = benign.

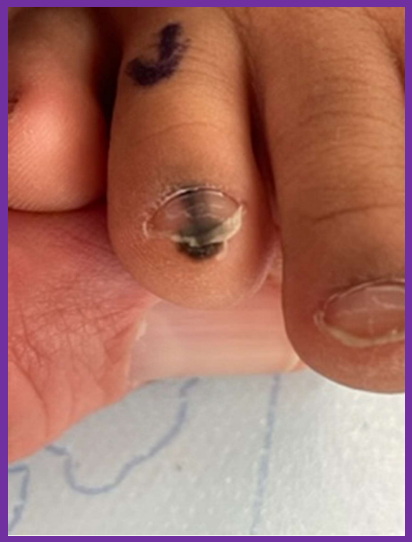
Pigment on ridges = malignant.

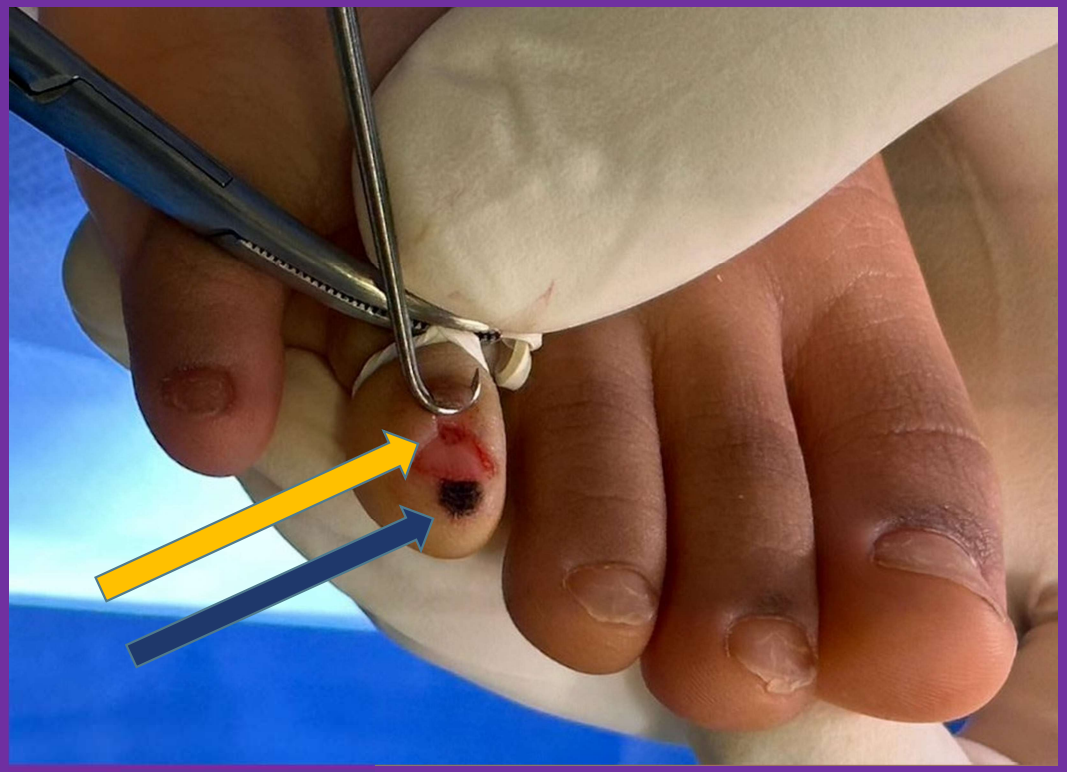


Pigment on ridges



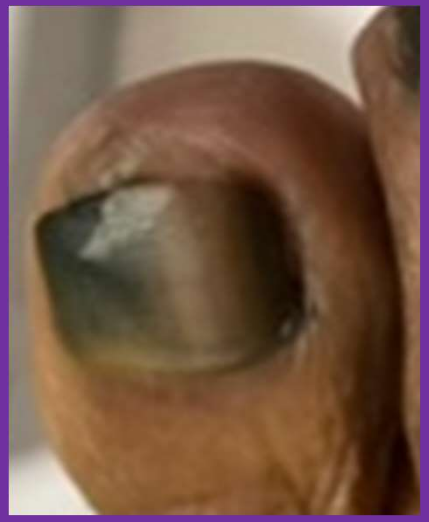
Pitfall: Pediatric nail unit melanoma EXTREMELY rare

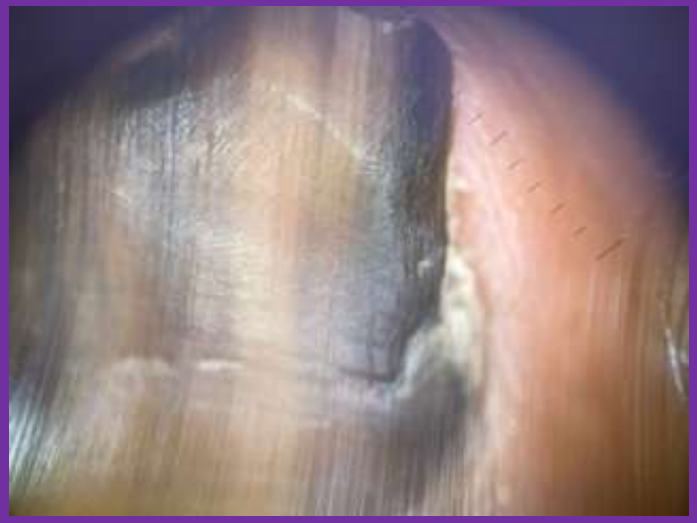


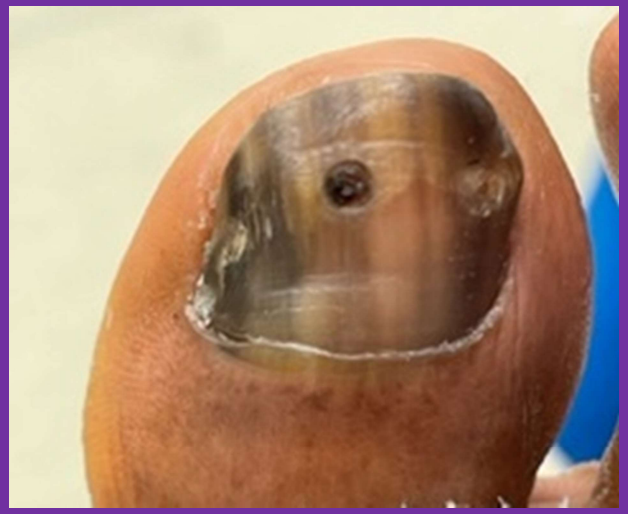


Melanotic macule

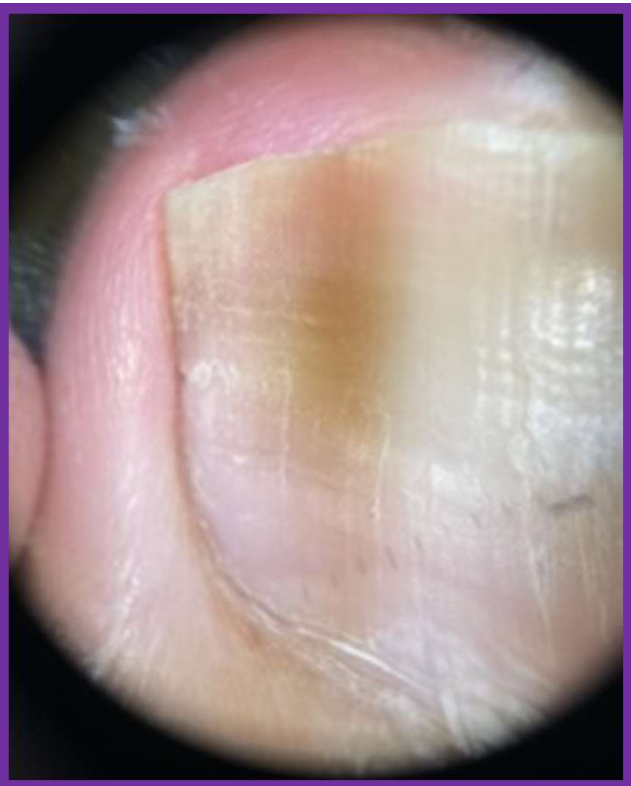
Acral nevus

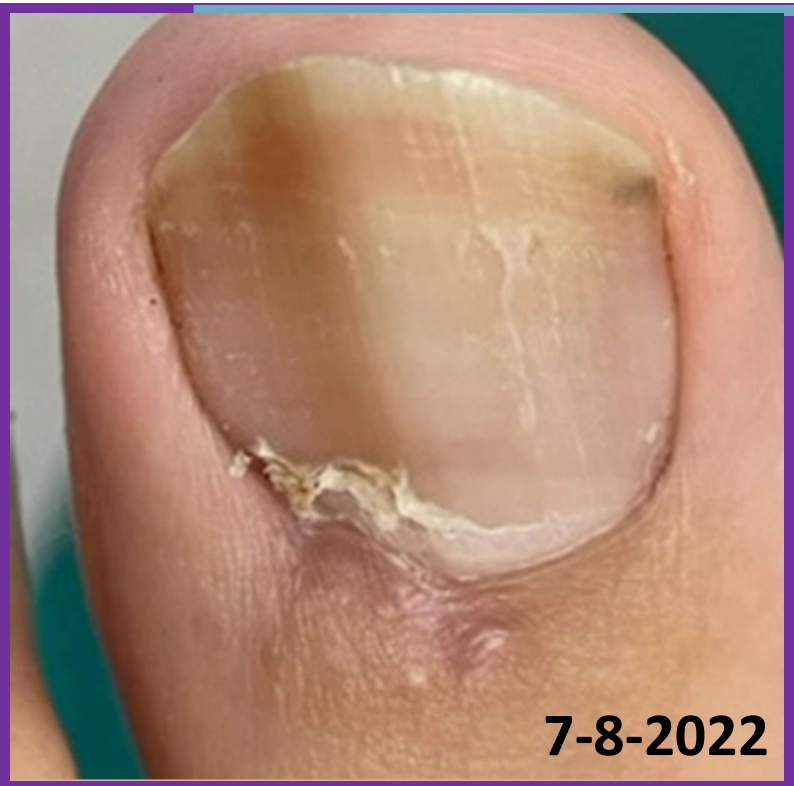






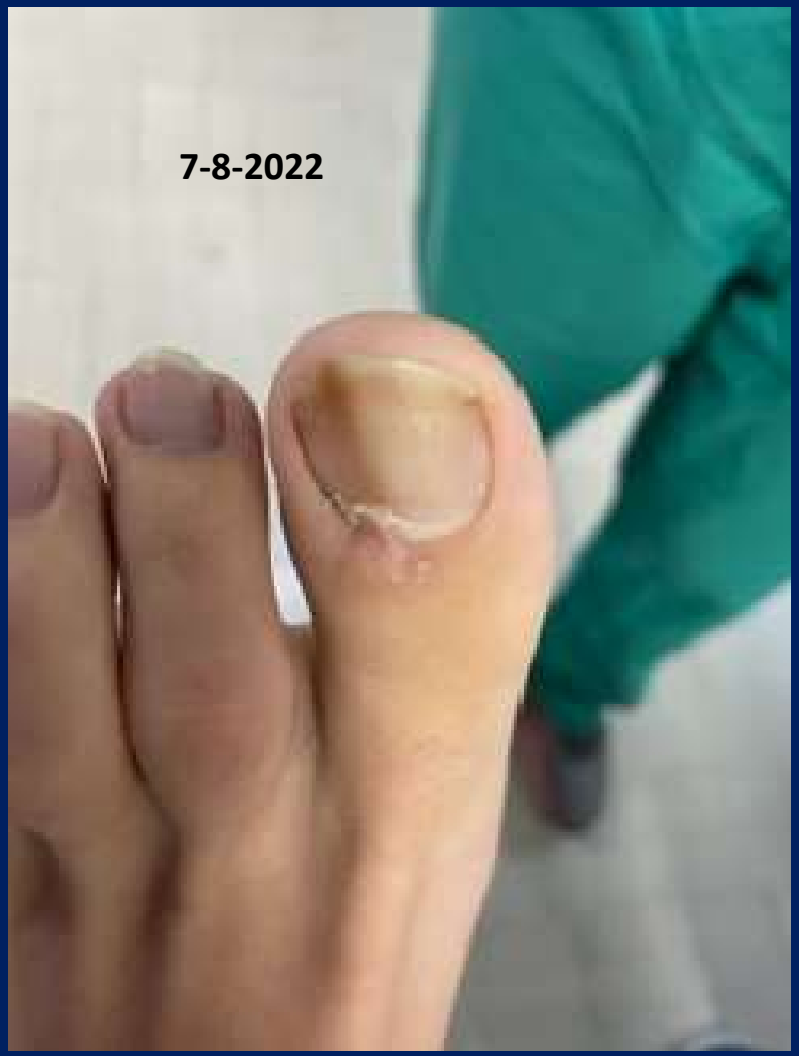
DIAGNOSIS:
A. Lentigo simplex/melanocytic macule. Note: Sox-10 and Anti-Melan-A immunohistochemical stains confirm the diagnosis.
B. Lentigo simplex/melanocytic macule and cutaneous calcinosis. Note: Sox-10 and Anti-Melan-A immunohistochemical stains confirm the diagnosis.
C. Lentigo simplex/melanocytic macule and cutaneous calcinosis. Note: Sox-10 and Anti-Melan-A immunohistochemical stains confirm the diagnosis.

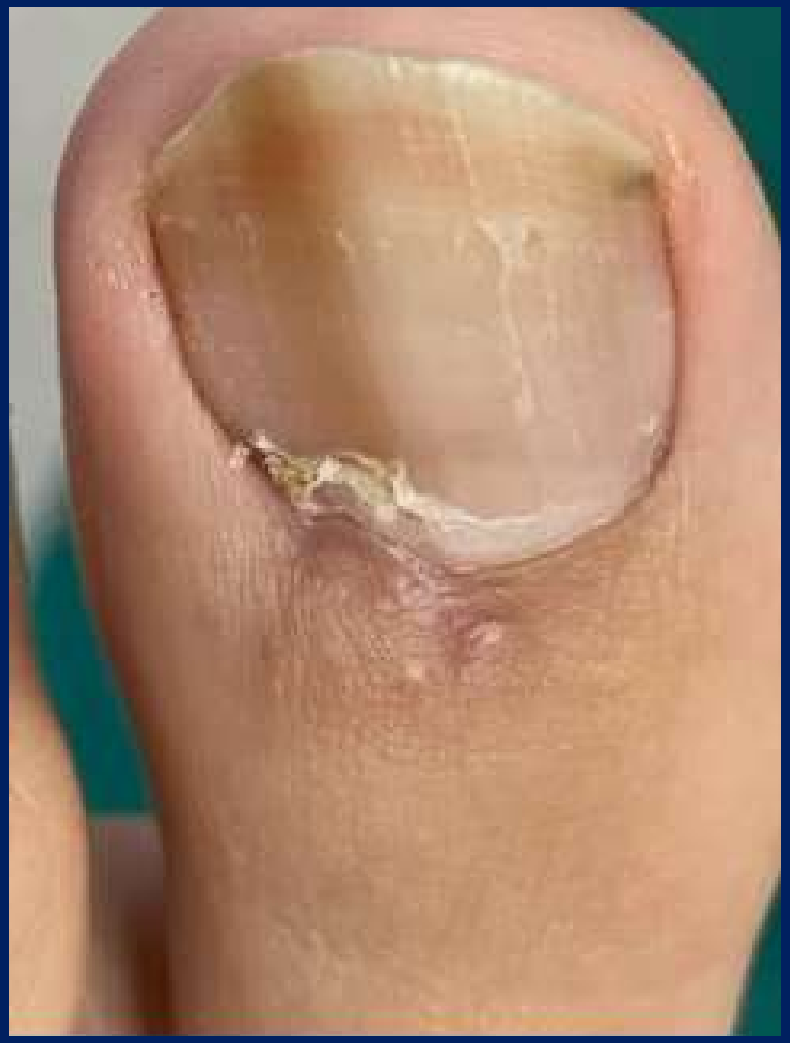


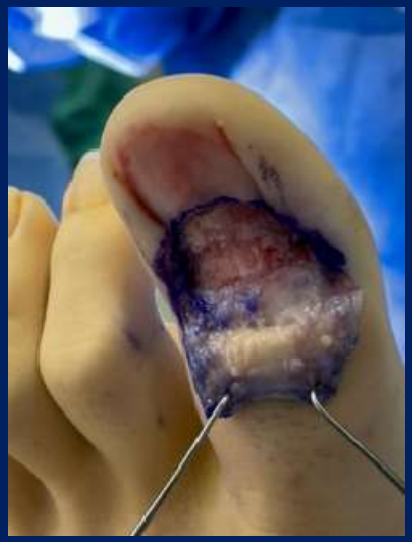
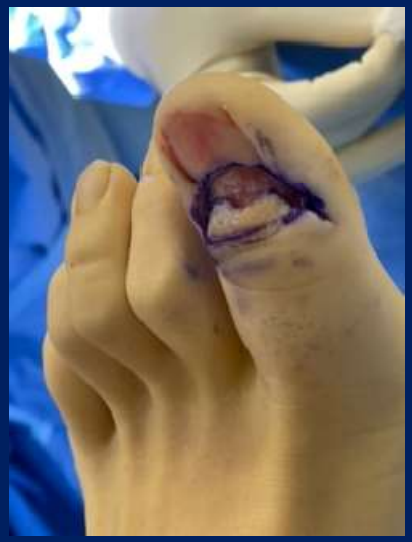
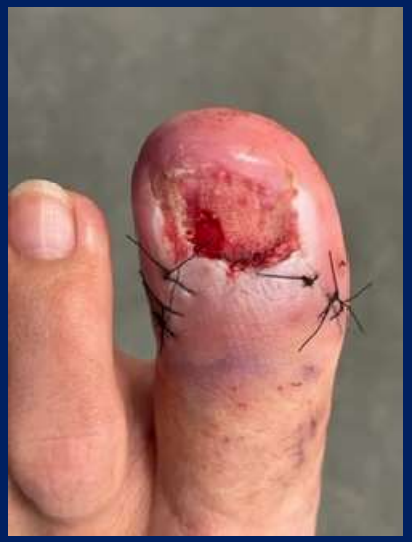
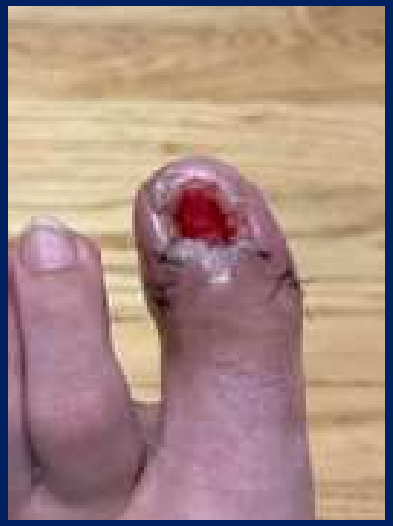


Atypical intraepidermal melanocytic proliferation. PAS stain is negative for organisms. SOX-10 shows a **melanocytes count of 44/mm.** Masson Fontana shows increased melanin.

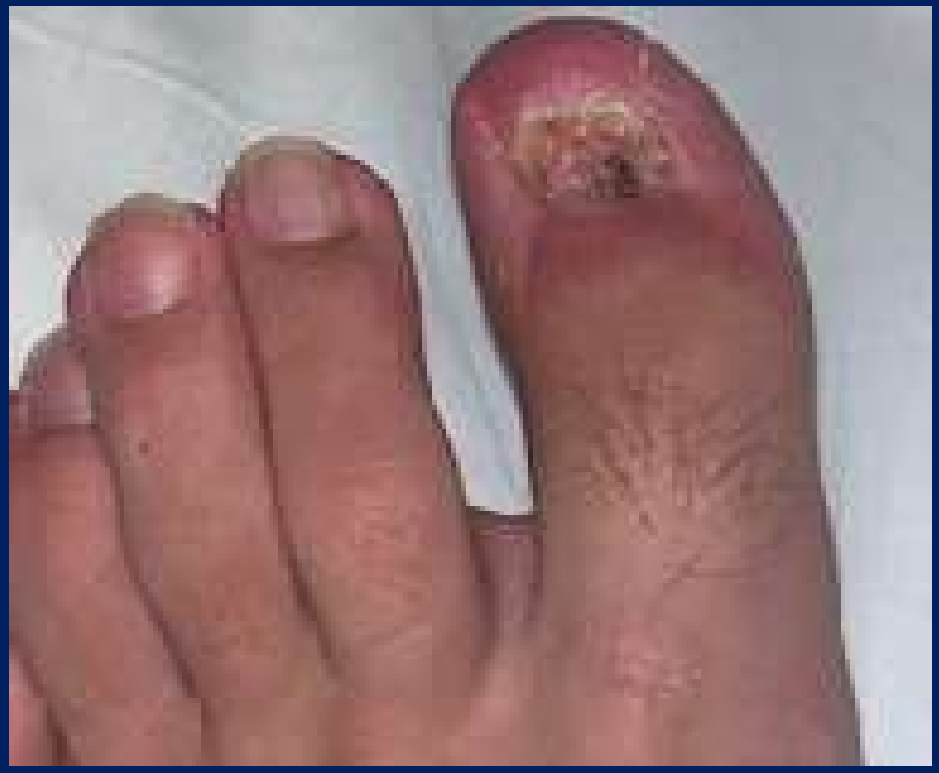
Re-excision is advised.


7-8-2022

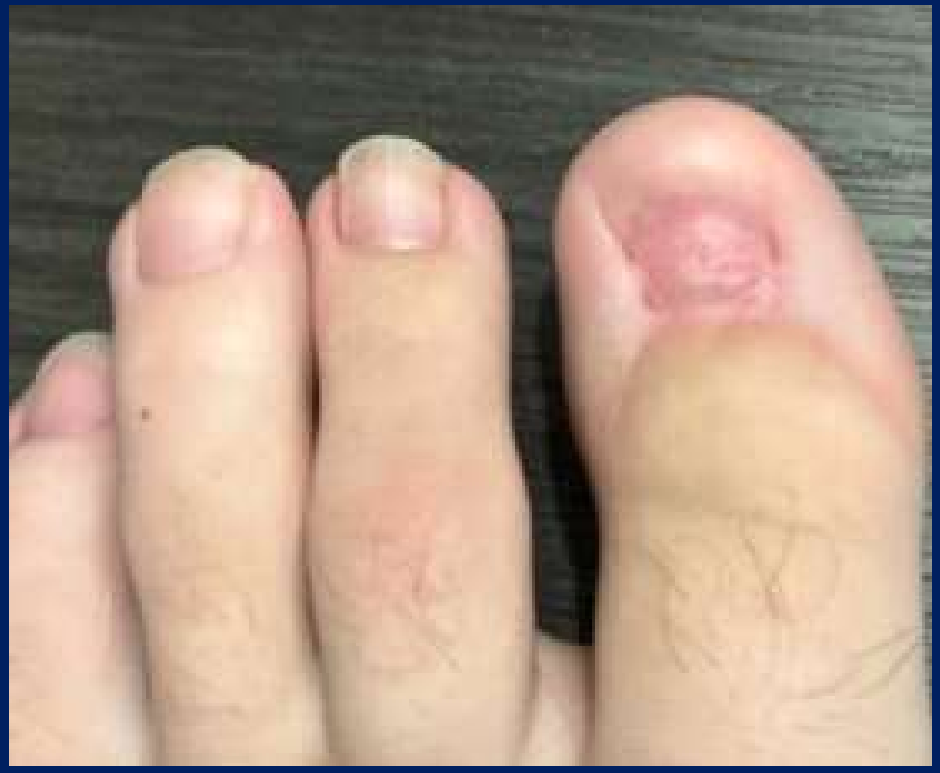


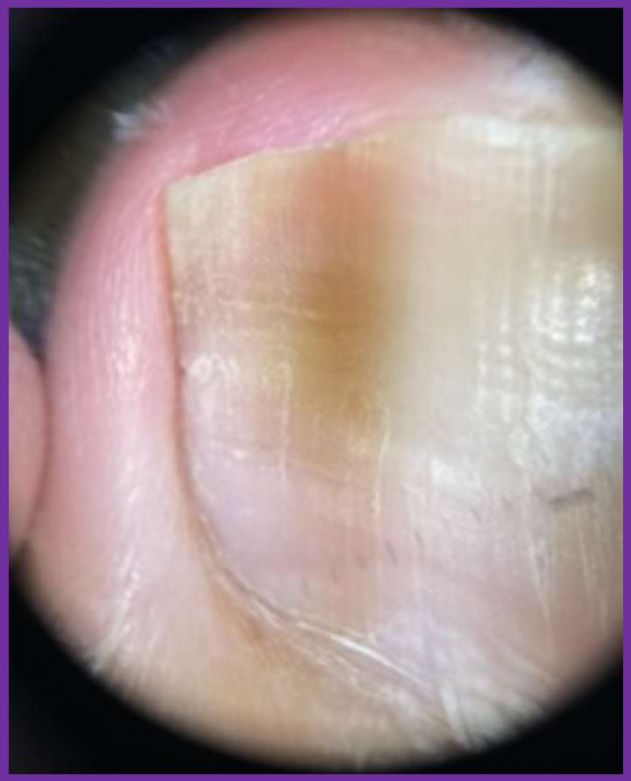
8-18-2022

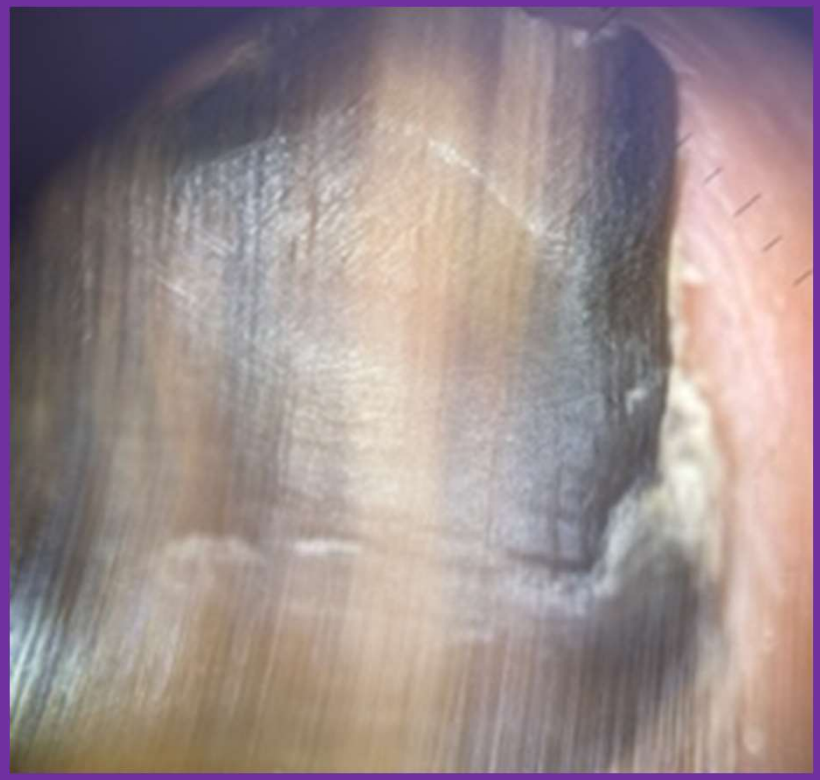


8-25-2023



Innocent versus Alarming

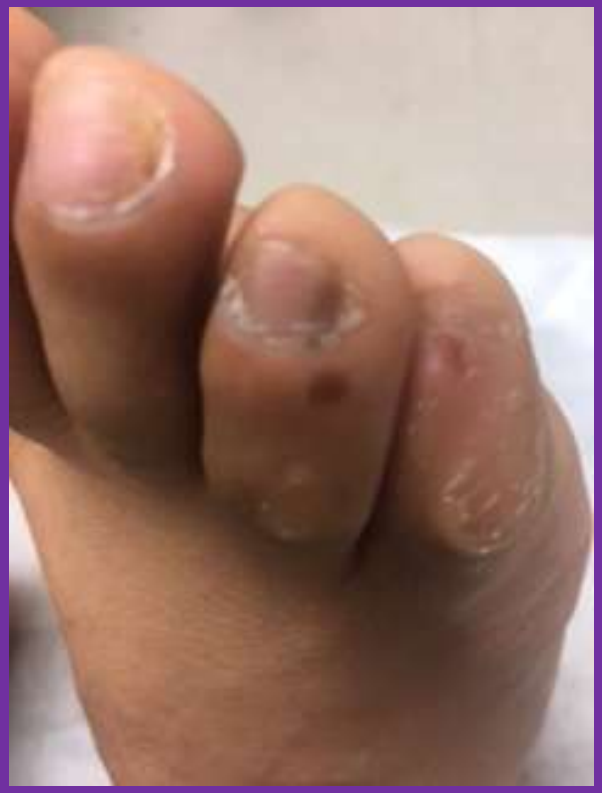


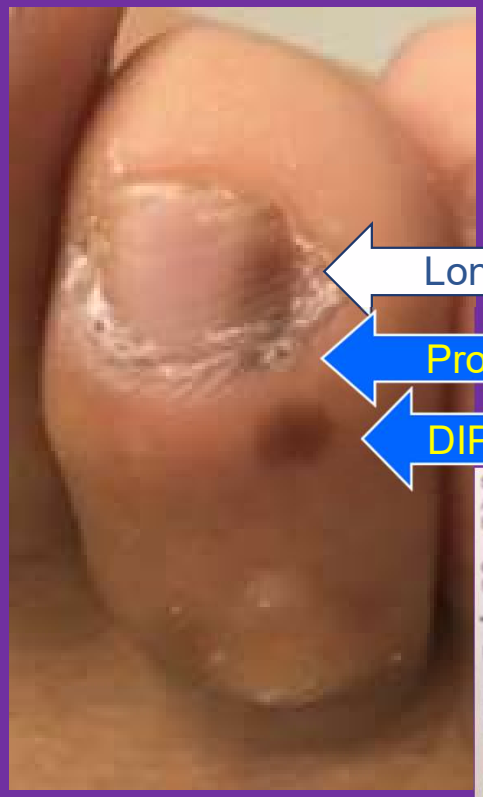


ATYPICAL

BENIGN

Surprise!





Longitudinal melanonychia

Proximal nail fold (cuticle) involvement

DIP joint lesion

SPECIMEN SOURCE:
A. RIGHT 4TH TOE
B. RIGHT 4TH TOE NAIL - PUNCH BIOPSY

CLINICAL HISTORY:
R/O melanoma

DIAGNOSIS:

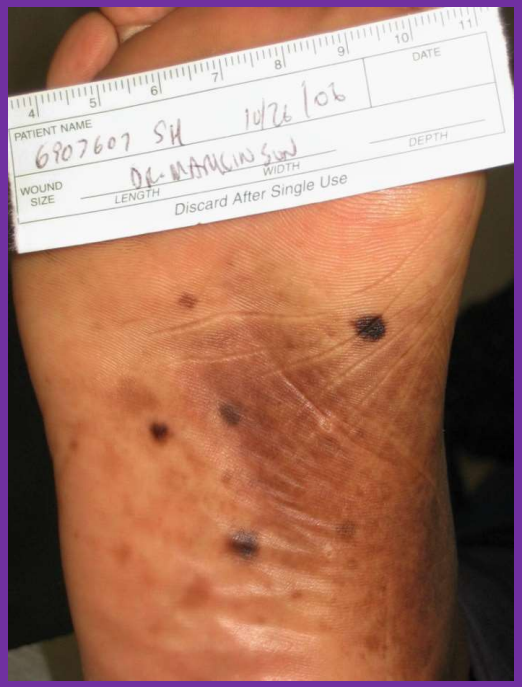
A. RIGHT 4TH TOE:
- ATYPICAL LENTIGINOUS MELANOCYTIC PROLIFERATION, EXTENDING TO A LATERAL TISSUE EDGE.

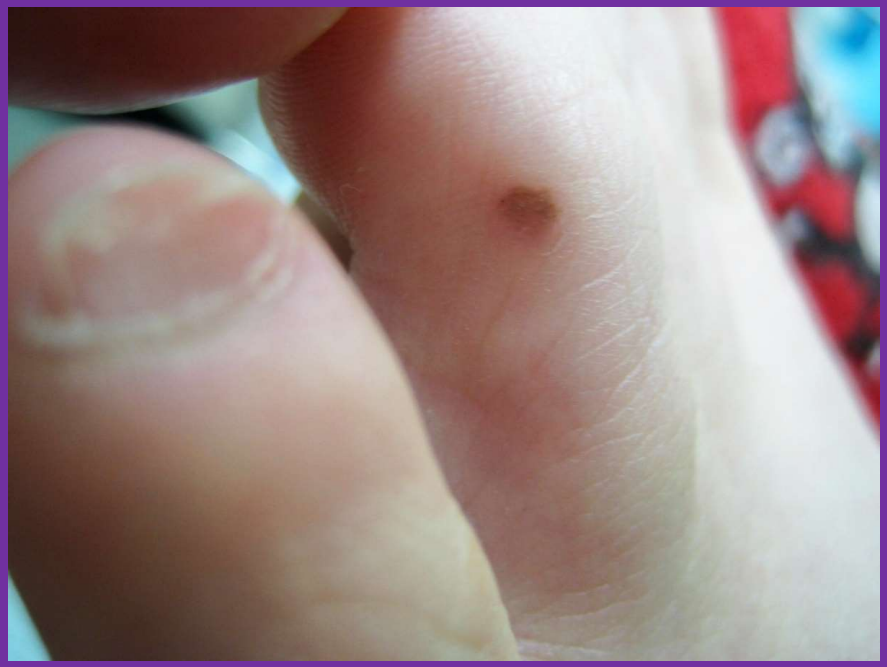
COMMENT: An early evolving melanoma in situ cannot be excluded. Complete removal is recommended.

B. RIGHT 4TH TOE NAIL - PUNCH BIOPSY
- MELANOTIC MACULE.

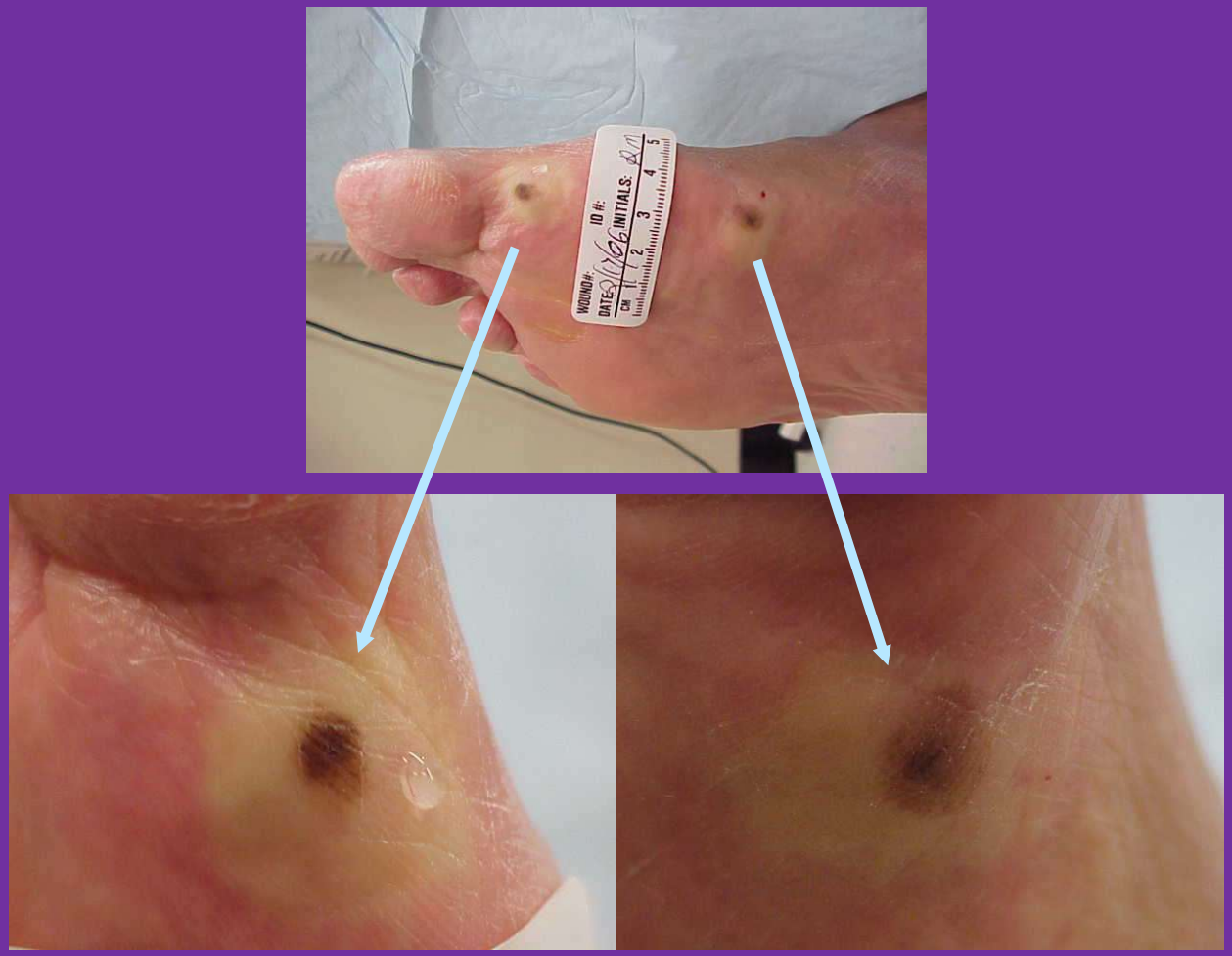
MICROSCOPIC DESCRIPTION:
A. There is a high density lentiginous proliferation of melanocytes along the basal layer. Melan-A st
reveals a dominance of single melanocytes over nests. Multiple levels have been examined.
B. The nail matrix exhibits elongation of the rete ridges with basal cell hypermelanosis. A slight
lentiginous melanocytic hyperplasia is present. Significant atypia of either epidermal keratinocytes
melanocytes is not identified. Melan-A stain reveals the concentration and distribution of intraepithe
melanocytes to be within acceptable limits. Multiple levels have been examined.

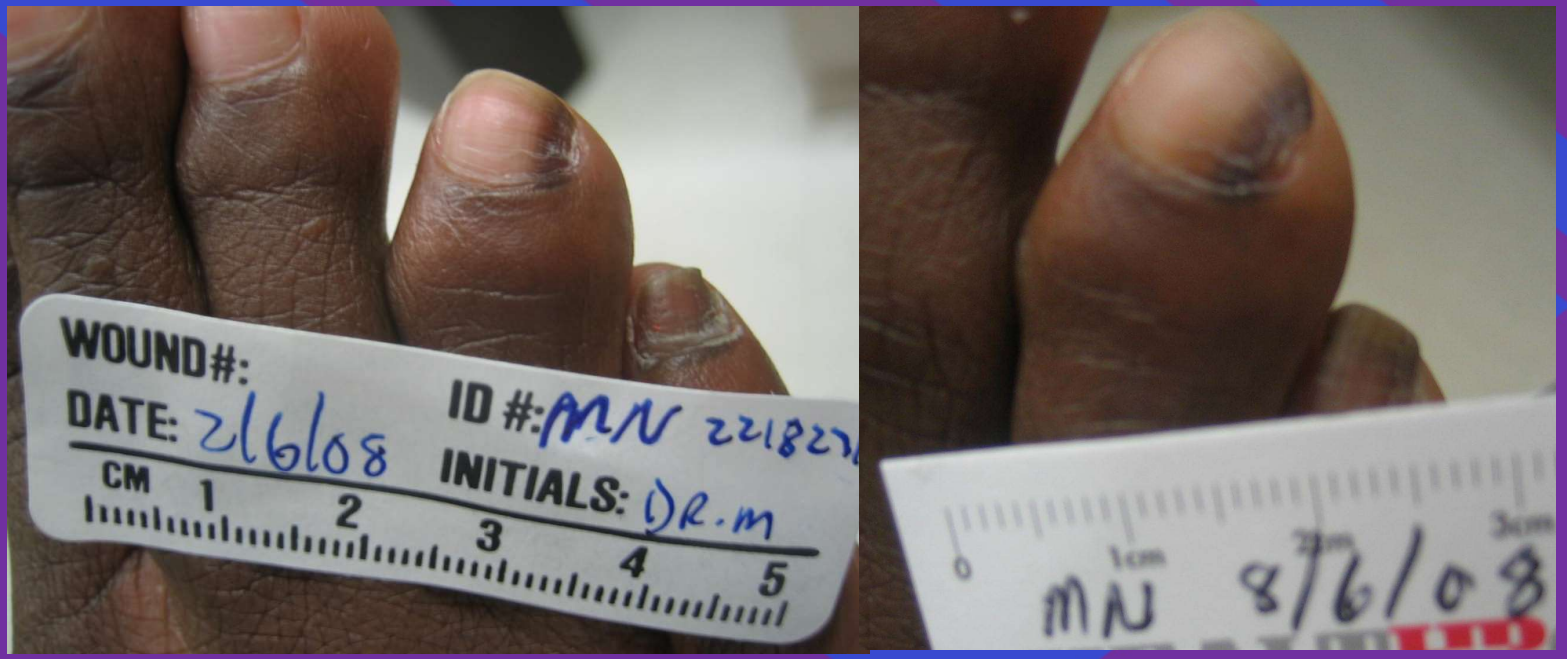
Histology reveals true nature of lesions

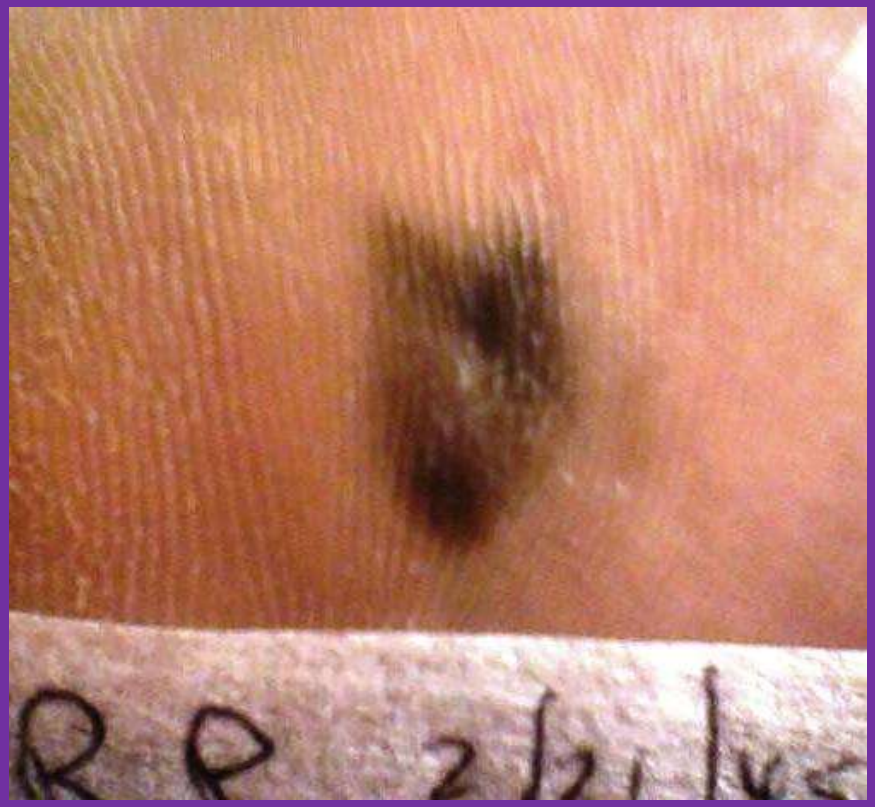


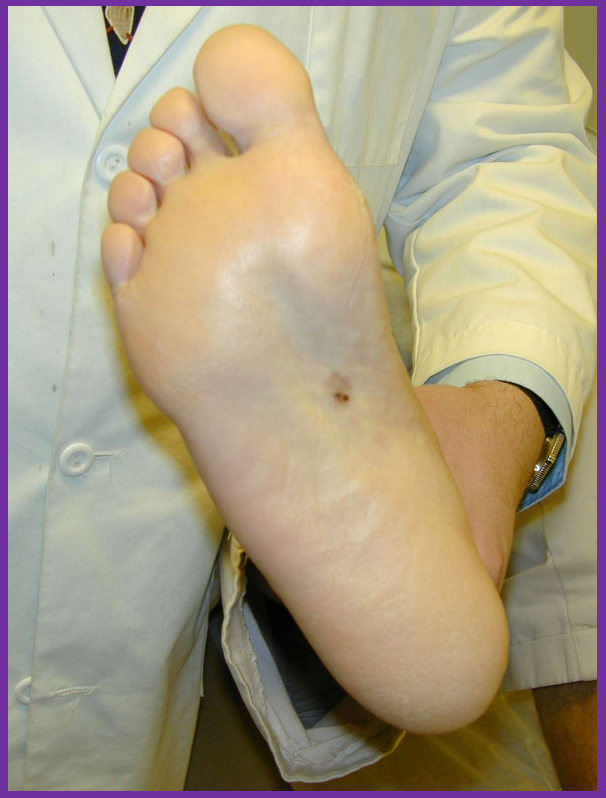


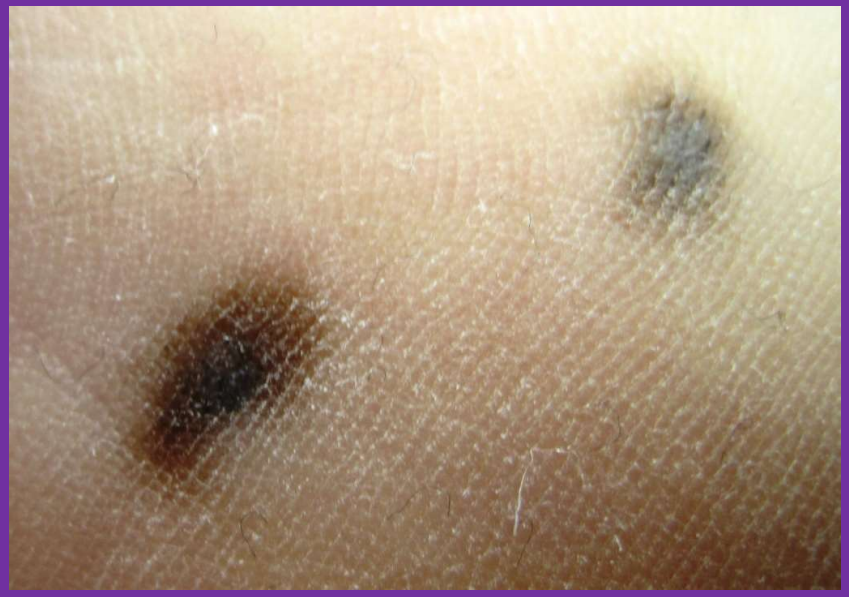
Transplant recipient

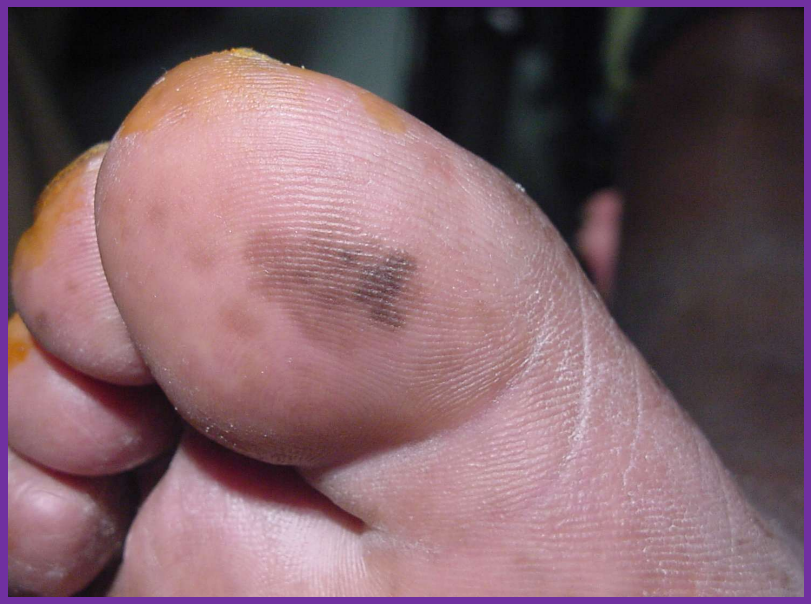



WOUND#:
DATE: 2/6/08
ID #: MN 221827
INITIALS: DR.M
CM 1 2 3 4 5
MN 8/6/08









Pitfalls in the Diagnosis of Pedal Melanoma

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