Clinical Aspects of Nail Disease

Nail Surgery: Practical Tips

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Update on Nails: WDS 2012
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Disclosure Statement
I, Phoebe Rich, MD, do not have any relevant financial interest or other relationships with a commercial entity producing healthcare-related product or services.

Objectives

• What’s new and what’s Hot
  – Longitudinal Melanonychia
  – Longitudinal Erythronychia
  – Nail Surgery
  – Nail Tumors
  – Psoriasis, LP, more
  – Onychomycosis

Nails

Melanonychia
Dealing with Melanonychia

A melanonychia describes a brown or black pigmentation of the nail plate caused by the presence of melanin. In this slide, we review possible causes of melanonychia and discuss the main options of management and therapy of this condition. The goal of the management of melanonychia is early diagnosis of melanoma in nail beds and legs. Melanoma of the nail bed is also frequent in solitary melanomas. We discuss clinical features, diagnosis, differential diagnosis, treatment options, and treatment outcomes. Treatment options include surgical excision, punch biopsy, nail avulsion, or observation. The treatment of melanonychia is guided by the clinical features and the management of underlying melanoma.

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Work-up pigmented bands: History and Examination

- History
  - Age, race/ethnicity
  - How long, new, stable or changing?
  - Drugs, hormones, pregnancy?
  - Systemic disease?
  - Trauma to the digit?
- Exam
  - Digit involved: thumb, index, great toe
  - Width, color,
  - End on nail plate dermoscopy: proximal vs distal matrix
  - Nail plate dystrophy

Melanonychia: age

- Melanin from matrix melanocytes
  - 1. Activation - no proliferation
    - Racial, drug, frictional, systemic, other local nail disease (Bowens, LP) (Adults≠ Pediatric)
  - 2 Benign proliferation
    - Lentigo, nevus (Children>Adults)
  - 3 Malignant proliferation
    - Melanoma, MIS (Adults>Children)

Longitudinal Melanonychia

- Melanocyte activation - benign matrical macule usually gray, uniform
  - Frictional, trauma, radiation
  - Drugs
  - Systemic disease, B12 deficiency, hormonal, pregnancy
- Melanocyte proliferation
  - Lentigo
  - Nevus
  - Melanoma

Work-up of Longitudinal Melanonychia

- Pigmented bands in the nail
- Melanin from melanocytes
- Non-melanocytic
  - Blood
  - Infectious causes
    - Fungi: candida, T rubrum, S niger, fusarium, more
    - Bacteria: pseudomonas, proteus
  - Exogenous
    - Henna, walnut stain, self tanning cream.

Ethnic variation in Longitudinal melanonychia

<table>
<thead>
<tr>
<th></th>
<th>% of melamnas that occur in the nail unit</th>
<th>% of population who has longitudinal melanonychia</th>
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</thead>
<tbody>
<tr>
<td>Caucasians</td>
<td>1-3 %</td>
<td>1-2%</td>
</tr>
<tr>
<td>Blacks</td>
<td>15-25%</td>
<td>50% at age 20 100 % age 70</td>
</tr>
<tr>
<td>Asians</td>
<td>11-16%</td>
<td>2-20%</td>
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HISPANIC 68% LM was benign racial pigmentation
Dermoscopy pigmented bands

Key points:
- Dermoscopy is a non-invasive technique used to visualize internal structures of skin lesions.
- Pigmented bands on the nail plate can be indicative of various underlying conditions.
- Variability of lines within the band and the presence of gray vs brown bands are important features.

References:
- Archives Dermatology 2002; 138: 1227-1333

Dermoscopy in Pigmented Lesions of the Nail

- Not diagnostic
- Can help guide decision to biopsy and where to biopsy
- Variability of lines within the band
- Gray vs brown
- End-on nail plate dermoscopy of nail plate

46 year old woman with a widening brown pigmented band on her toe nail

Nail matrix biopsy of longitudinal melanonychia: Diagnostic algorithm including the matrix shave biopsy

Longitudinal melanonychia (LM) may represent nail matrix melanocyte activation (defined as a normal number of melanocytes with increased production of melanin), benign hyperpigmentation, or melanoma. In addition to multiple nonmelanoma carcinomas, including keratosis and seborrheic keratosis, LM can be caused by various conditions such as hyperpigmentation, inflammation, and infections. This article details an algorithmic approach to LM, including a single biopsy and biopsy of multiple locations, dermoscopy, and analysis of the nails in the context of LM.

The nail matrix biopsy is a diagnostic tool used to evaluate LM, particularly in cases where the clinical features are not conclusive.

Facility with this technique will allow the physician to prepare appropriate nail matrix specimens for diagnosis.
Answer: Melanoma in-situ

Subungual melanoma

- 1-3% of melanoma in whites and 20% of melanomas in blacks occur in nails.
- Thumbs and great toe most common
- 22/24 in one study. Foot > hand
- SM may begin as LM many years
- While many SM are dark and wide, the width and darkness does not exclude or confirm the dx
Dermatologists’ Accuracy in Early Diagnosis of Melanoma of the Nail Matrix
Nilsen DT, Chin AC, MD, Sergio Menezes Fuss, MD, Mancy Yoshida Enoshima, MD, Niles S. Melochez, MD, Gabriella Faham, MD, Annarita Zen, MD

• measure and compare the accuracy of different clinical methods in the diagnosis of melanoma in situ of the nail matrix
• Photos shown to dermatologists with different levels of clinical experience: Asked if malignant or benign based on
  • (1) clinical evaluation,
  • (2) evaluation according to the ABCDEF rule
  • (3) dermoscopy of the nailplate
  • (4) intraoperative dermoscopy.

Experts were no better than beginners
Biopsy technique for pigmented bands

- Advantages:
  - Not full thickness of matrix
  - Less scarring
  - Faster recovery
  - Can take broad section of matrix without leaving dystrophy
- Cautions: not appropriate for advanced nail lesions with nail plate thickening/dystrophy which may indicate an advanced invasive melanoma
Dermoscopy melanocytic nails

Dermoscopic features of acral lentiginous melanoma in a series of 116 cases in a white population.

Pharoah, D.J., Hsu, S., Chang, S., Pinkus, H., Thompson, M., et al.

Department of Dermatology, Centre Hospitalier Universitaire, Lausanne, Switzerland

ABSTRACT: Melanocytic naevi are the most common and easily identifiable cutaneous neoplasms. The diagnosis of melanocytic naevi can be challenging due to their clinical and dermoscopic overlap in appearance. The aim of this study was to investigate the dermoscopic features of a large series of melanocytic naevi in a white population.

METHOD: We prospectively collected photographs of naevi, including red and yellow naevi, from a cohort of patients at the University Hospital of Lausanne.

RESULTS: One hundred and eleven cases were included in the study, including 110 (99.1%) patients with melanocytic naevi and 1 (0.9%) patient with naevus of Ota. Of these cases, 106 (95.5%) were followed for a median of 16 months (range 6-36 months). The mean age of the patients was 32 years (range 5-88 years). The most common sites were the hands and feet (54.5%), followed by the face (25.4%), and scalp (18.6%). The most common clinical features were the presence of pigmentation (95.5%), followed by the presence of a black spot (92.7%) and a black dot (86.4%). The most common dermoscopic features were the presence of pigmentation (95.5%), followed by the presence of a black spot (92.7%) and a black dot (86.4%).

CONCLUSION: The presence of a parallel ridge pattern and/or irregular pigment networks within the lesion is highly indicative of melanocytic naevi. These patterns are highly sensitive for the detection of melanocytic naevi and should be considered in the differential diagnosis of pigmented cutaneous lesions.
Clinical Signs and Symptoms of Melanoma

- Involvement of one digit
- Color variability of the band from light brown to black, irregular lines within band
- Heterogeneous appearance
- Variability in band width (2-4 mm)
- Sharp or blurred borders
- Extension of pigment onto adjacent skin

Baran Longitudinal melanonychia: diagnosis and management
JAAD 1989

Nail Lookalikes

Longitudinal Erythronychia

Longitudinal RED Bands in the Nail

- What is the diagnosis?

Longitudinal Erythronychia:

Why is the band RED?
Nail plate is thinner overlying the pathology so the vascular nail bed shows through
Longitudinal Erythronychia

- Differential diagnosis
  - Solitary digit
    - Onychopapilloma
    - Glomus
    - SCC in situ
    - Amelanotic melanoma in situ
  - Polydactyl
    - Darier’s/ lichen planus (onychorrhhexis)
    - Aging ridges
- Diagnostic Clues
- Biopsy and treatment

* Jellinek, N. Longitudinal Erythronychia Suggestions for evaluation. JAAD vol 64 Pg 167; Jan 2011

Glomus tumor

- 85% tender, sensitive to cold
- 50% cause nail plate dystrophy
- Most common tumor of the hand
- 30-60 age
- Women more than men

Glomus Tumors

- Glomus tumors account for 1-5% of soft tissue tumors of the hand
- 75% are subungual
- Middle age women
- Love’s test
- One study 5/10 pts showed a mass shadow, bone erosion cortical thinning plain film
- Not diagnostic
• Glomus bodies – neuromyoarterial structures in reticular dermis
  – Composed of afferent arteriole and efferent venule (Saquet Heuer canal)
  – The arterial end is surrounded by glomus cells which contain actin and contract to regulate blood flow.
  – Glomus bodies are located all over body but concentrate in the fingers and soles