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Clinical Pearls

Clinical Pearls help prepare residents for the future by providing them with insights about what they should know about a specific subject area by the time they complete their residency.

Longitudinal melanonychia pearls

By Shari R. Lipner MD, PhD, FAAD

Pearl #1: Determine whether the pigment reflects melanocyte activation or melanocytic proliferation. Longitudinal melanonychia is a clinical pattern rather than a diagnosis. The key first step is determining the biological process responsible for the pigment. Melanocyte activation refers to increased melanin production without increased melanocyte number and may be due to medication or friction/trauma and are common in darker phototypes. These bands are often gray-brown, relatively uniform in color, and frequently involve multiple nails. Dermoscopy typically shows regular parallel lines with consistent spacing and thickness. Melanocytic proliferation reflects an increased number of melanocytes and may represent a nail matrix nevus or nail unit melanoma. Melanocytic proliferation often presents as a solitary band with brown to black pigmentation and irregular lines with variable thickness and spacing. Recognizing these patterns helps guide management. Melanocytic activation warrants observation, whereas suspicious for a melanocytic proliferation requires biopsy.¹

Pearl #2: Approach the history and examination systematically. A careful, structured evaluation is essential. Ask the patient when the band first appeared, whether it changed in width or color, and any associated symptoms, including pain or bleeding. Document personal or family history of melanoma. Examine all 20 nails, because involvement of multiple nails often suggests benign activation, whereas a single affected nail is more concerning for a neoplastic process. Measure band width, estimate the percentage of nail plate involved, and inspect the nail folds and hyponychium for pigment. Dermoscopy should be performed routinely, and photography at every visit is highly recommended, as interval change is one of the most important clues.²

Pearl #3: Recognize clinical warning signs for nail unit melanoma. Certain features should heighten concern for nail unit melanoma, particularly in adults. These include a solitary band (especially involving the thumb, index finger, or great toe), progressive widening or darkening, band width >3 mm, involvement of more than 40% of the nail plate, irregular or heterogeneous dermoscopic lines, pigment extending onto the nail folds, and pain or bleeding.³

Pearl #4: Pediatric longitudinal melanonychia behaves differently. One of the most important distinctions to understand is that diagnostic rules for adults do not translate well to children. Nail unit melanoma is exceedingly rare in pediatric patients. Pediatric bands may be wide, irregular, or even show pigment involving the nail folds, and still represent benign nevi. The commonly cited 3-mm rule is therefore less useful in children. Instead, careful history, dermoscopy, serial photography, and longitudinal follow-up are often appropriate, with referral to a nail specialist if uncertainty remains.⁴

Pearl #5: Nail biopsy requires planning and expertise. Nail biopsy remains the definitive diagnostic test for sampling the nail matrix and distinguishing benign from malignant melanocytic nail unit etiologies. A tangential matrix excisional biopsy allows for sampling of the entire pigmented lesion while minimizing postoperative dystrophy. When invasive nail unit melanoma is strongly suspected, a longitudinal excision may be preferred to evaluate full-thickness involvement of the matrix, nail bed, and hyponychium. Punch biopsies could be considered for narrow bands but are less reliable diagnostically. Nail biopsies are technically demanding, and require prior training, while poorly planned biopsies may miss the relevant pigment or cause permanent nail deformity. If there is any uncertainty, referral to a dermatologist experienced in nail surgery is appropriate.¹ [DR](#)

References:

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