SAN DIEGO — Of the many cases of longitudinal melanonychia—a longitudinal brown-black discoloration of the nail plate—only a fraction are subungual melanomas.

“With some of these you know they’re going to require an extensive work-up or biopsy,” Dr. Arash Izadpanah said at a melanoma update sponsored by the Scripps Clinic. “Others are not so concerning, but it’s not always intuitive whether these are benign or malignant.”


In this mnemonic, A stands for age, with the peak incidence occurring in the fifth to seventh decade of life.

B stands for black-brown band with a width greater than 3 mm. “The size of the band is crucial,” said Dr. Izadpanah of the division of dermatology at Scripps in San Diego.

C stands for change in morphology such as color and width. Subungual melanomas may have blurred indistinct margins or a variation in band color.

D stands for involvement of digits, particularly the thumb, the great toe, and the index finger. “If there’s dystrophy of the nail, unfortunately that’s a late finding,” he said.

E stands for extension of pigment to the periungual folds, and F stands for family history of melanoma.

“The most important thing is using your clinical judgment,” he said.

Longitudinal melanonychia stems from either melanocytic activation or melanocytic hyperplasia. In melanocytic activation—the most common cause of longitudinal melanonychia in adults—“the melanocytes are there and something happens to get them producing melanosomes and pigment, but there is no actual increase in the number of melanocytes,” Dr. Izadpanah explained. Melanocytic hyperplasia—the most common cause of longitudinal melanonychia in children—is marked by an increase in the number of matrix melanocytes. “This could be for benign or malignant reasons,” he said.

Certain racial groups are susceptible to melanocytic activation, including African Americans, Chinese, Japanese, and Native Americans. Other physiologic causes include pregnancy and trauma to the nail, Dr. Izadpanah said.

Dermatologic causes of melanocytic activation include endocrine disorders such as Addison’s disease and Cushing’s syndrome, hyperthyroidism, and acromegaly. Other possible culprits include vitamin B12 deficiency, malnutrition, alcaptonuria, porphyria, graft-versus-host disease, AIDS, Langerhans cell histiocytosis, and Peutz-Jeghers syndrome.

Iatrogenic causes of melanocytic activation include radiation and a host of commonly used medications, including antimalarials, minocycline, sulfonamides,
ketoconazole, zidovudine, and chemotherapy agents.

Melanocytic hyperplasia can occur in the form of benign lesions such as a lentigo or a nevus, or in the form of malignant lesions such as melanoma in situ or invasive melanoma. “Longitudinal melanonychia is the first manifestation in 38%-76% of nail apparatus melanoma,” Dr. Izadpanah said.

Dermoscopy can be useful in evaluating melanonychia, “but the main limitation is that you’re examining pigment that’s deposited in the nail plate, when the action is really in the nail matrix, so you’re indirectly seeing what’s going on,” he said. “It’s not as useful as it might be for melanocytic lesions of the skin.”

He went on to note that the majority of melanocytes that give rise to longitudinal melanonychia become active in the distal matrix, not in the proximal nail matrix. “That’s important, because the proximal nail matrix gives rise to the vast majority of the nail plate,” he said. “So if you do a biopsy of the distal nail plate, you’re probably not going to cause any significant lasting damage to the nail.”

Before a biopsy, visualize the source of melanocytic activity. This requires making a small cut in the proximal nail fold and lifting it for inspection. “In most cases you can remove the whole nail or the proximal part of the nail or do two punch biopsies: one to get part of the nail out, and a second, deeper one that reaches bone,” Dr. Izadpanah said.

Lesions greater than 3 mm in width require a transverse elliptical excision. The goal here is “to get the pigment but try to avoid damage to the proximal nail matrix, so as to not cause nail dystrophy,” he said.

Dr. Izadpanah had no relevant conflicts to disclose.