Child Nail Problems Often Spontaneously Regress

BY BETSY BATES
Los Angeles Bureau

FLORENCE, ITALY — Unusually shaped or discolored nails may point to congenital abnormalities in children but rarely require surgical intervention, Bianca Maria Piraccini, M.D., noted at the 13th Congress of the European Academy of Dermatology and Venereology.

Diagnostic clues and management tips highlighted a symposium presentation by Dr. Piraccini, a dermatologist from the University of Bologna (Italy) who specializes in nail conditions.

Among the conditions she reviewed, all drawn from cases managed at her institution:

▶ **Partial thumb polydactyly.** An unusually wide nail with a bifid lunula should always be x-rayed if it is present at birth because this may reveal abnormal maturation of the distal phalanx.

"The nail follows the severity of the bone polydactyly," Dr. Piraccini said.

A completely or partially duplicated nail may be an important sign of bone abnormalities that may be correctable with surgery.

▶ **Congenital malalignment of the great toenail.** This condition occurs when the major axis of the nail plate laterally deviates from the major axis of the digit, potentially causing the distal nail to become ingrown.

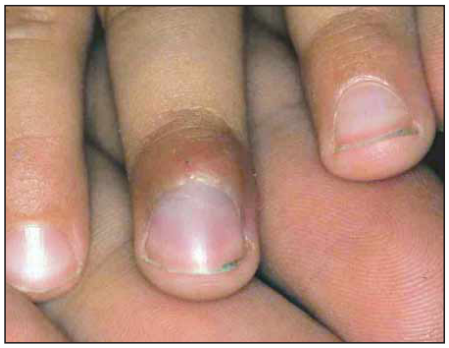
While this condition may resolve over time, it can be profoundly painful and difficult to manage when it occurs in infants.

Dr. Piraccini presented the case of a 45-day-old infant who was seen after a 14-day course of a low-potency topical steroid failed to relieve the painful inflammation of her lateral nail fold.

"We can have some problems managing this disease in very young children," she explained, noting that the child's parents encountered a struggle whenever they tried to place socks on their baby's excruciatingly painful feet.

She recommended conservative therapy as described by a number of experts. The technique involves applying tape from the distal nail fold around the digit, with the aim of pulling down on the hypertrophic nail fold, relieving pressure, and redirecting growth of the nail.

▶ **Subungual hemangioma.** A nodule under the proximal nail, purplish-bluish discoloration, and possibly pseudoclubbing in an infant all point to this diagnosis. The diagnosis can be confirmed by vitropression, a technique popular in Europe in which pressure is applied under glass and the extent of subsequent skin-bleaching measured, Dr. Piraccini said.



The subungual hemangioma on this child's finger is a benign condition that will resolve spontaneously.

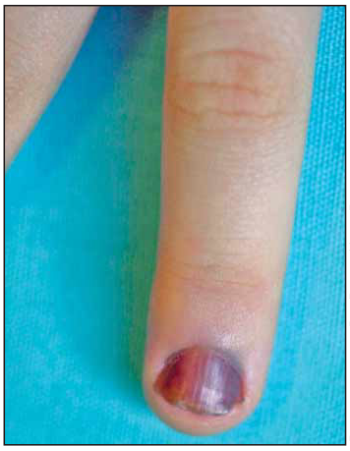
Ultrasound is another favored diagnostic technique, as is magnetic resonance imaging, although the latter is difficult in nonsedated young children.

The condition is benign and will spontaneously resolve without intervention, Dr. Piraccini said.

▶ **A darkening nail matrix nevus.** Nail matrix nevi are not unusual in infancy. "We all see them. They are not rare," she commented.

Many times such a nevus fades as the child ages, not because it regresses but because the nail matrix nevus cells reduce the production of melanin.

"What is unusual is to see darkening of pigmentation over time," she declared.



PHOTOS COURTESY DR. BIANCA MARIA PIRACCINI

This nail matrix nevus is unusual in that it has darkened over time.

Presented with two such cases in children, and concerned that the change might represent malignancy, Dr. Piraccini surgically removed the nail units of both children and performed dermoscopy, with reassuring results.

Both cases revealed junctional nevi, complicated in one child by postinflammatory hyperpigmentation following trauma. "Darkening [of nail matrix nevi] is not a sign of malignancy in children," she said. ■

DNA Testing Proves of Diagnostic Benefit in Genodermatoses

BY BETSY BATES
Los Angeles Bureau

FLORENCE, ITALY — A decade of remarkable progress in molecular genetics has brought new clarity to the diagnosis of skin diseases. DNA-based testing is providing important information to clinicians and offering families predictions about potentially lethal disorders in blastomere-stage embryos, even before implantation takes place.

"We can now recognize close to 300 different genes that harbor mutations in a manner that explains the clinical manifestations of these [dermatologic] conditions," announced Jouni Uitto, M.D., professor and chair of dermatology and cutaneous biology at Jefferson Medical College in Philadelphia, at the 13th Congress of the European Academy of Dermatology and Venereology.

Putting genetic advances in perspective, Dr. Uitto noted that even a dozen years ago, inherited skin diseases mystified many community dermatologists and even confounded experts.

"Many of these conditions are evident at birth or shortly thereafter in the neonatal period, but the skin manifestations can be highly variable," he said. Some resolve early or involve mainly cosmetic manifestations, whereas others are multisystemic and severe, even fatal.

"Genodermatoses have been and continue to be a diagnostic challenge for practitioners. Many of these are relatively rare conditions, so that practitioners are not familiar with [their] salient clinical features. Their classification schemes are very puzzling, riddled with eponyms that are not very informative at all."

The completion of the Human Genome Project and concentrated effort by the dermatologic and genetic research communities have begun to change all that, offering clear insight into the differences and similarities of subtypes of disorders. This provides the opportunity for solid diagnoses in infancy, pregnancy, and prepregnancy.

To illustrate his point, Dr. Uitto reviewed 8 years of discoveries from his university's epidermolysis bullosa (EB) molecular diagnostics laboratory, which serves as a global diagnostic center and centralized mutation database for the blistering disease.

In 908 families, 783 distinct mutations have been identified on 10 different genes now associated with EB.

Improved diagnosis and classification of these inheritable diseases provides better direction to physicians in terms of management and prognosis.

Genetic clues have led to a methodical classification of four distinct forms of EB, clarifying 30 subtypes historically identified by uninformative eponyms related to whichever physician first described them, Dr. Uitto said.

Improved diagnosis and classification provides better direction to physicians in terms of management and prognosis, and to families in terms of genetic risks to future children.

"This information certainly has profound consequences for genetic counseling," he said.

DNA-based genetic tests have been sought out by 181 sets of parents, including 88 seeking information about the genetic status of a pregnancy at risk for junctional EB, which is usually lethal in the first year of life.

These tests can be conducted on embryos prior to implantation after in vitro fertilization, or can be conducted early in pregnancy.

Some families choose to terminate an affected pregnancy, if, for example, they have already lost a child to EB. Other families, however, want the information from this kind of genetic testing to help them plan a safe delivery in an appropriate medical setting with available access to a high-level neonatal intensive care unit.

At the Philadelphia program, the correct genetic phenotypic prediction was made in 155 of 181 pregnancies. In eight pregnancies, which occurred in the early years of the program when mutation detection was in its infancy, the result was inconclusive. The outcome is pending in 18 pregnancies.

The future of prenatal genetic diagnosis is even brighter than its recent past, according to Dr. Uitto.

Promising research is exploring genetic analysis of free fetal DNA within maternal blood samples as early as the seventh week of pregnancy.

Noninvasive diagnoses from maternal blood have already been successfully made in pregnancies at risk for a variety of inherited diseases such as β-thalassemia, sickle cell anemia, and lamellar ichthyosis, he said. ■

Genomics of Epidermolysis Bullosa

EB Type	Level of Blistering	Genes
Simplex	Basal cell layer	*KRT5, KRT14*
Hemidesmosomal	Basal cell/lamina lucida interface	*BPAG2, ITGB4, ITGA6* (*PLEC1* with muscular dystrophy)
Junctional	Lamina lucida	*LAMA3, LAMB3, LAMC2*
Dystrophic	Sublamina densa	*COL7A1*

Source: Dr. Uitto

KEVIN FOLEY, RESEARCH