



Review

Pediatric and Adolescent Nail Disorders

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ABSTRACT

Nail disorders are a frequent reason for dermatological consultation in children and adolescents. While most are benign and self-limited, some may signal underlying systemic diseases or genetic syndromes. Understanding the anatomical and physiological characteristics of the pediatric nail unit is essential for accurate diagnosis and appropriate management. We aimed at conducting a structured review of the most common pediatric nail alterations, including physiological, congenital, infectious, inflammatory, pigmentary, and tumoral conditions.

Introduction

Nail disorders are a frequent reason for consultation in the pediatric population, particularly during childhood and adolescence. In some cases, they are limited to a benign local condition, whereas in others they may represent a key sign of more complex systemic diseases.

The aim of this article is to review the main nail disorders using a practical approach. It begins with a description of the normal anatomy of the nail apparatus, followed by an analysis of the most common reasons for consultation, both physiological and pathological, grouping the latter according to their etiology. Key aspects of medical history and physical examination are highlighted, as well as the usefulness of complementary diagnostic tests.

The nail apparatus

The nail apparatus begins to form during the embryonic period, approximately between weeks 9 and 20 of gestation. It is composed of four main structures: the nail plate, matrix, nail bed, and nail folds (Fig. 1).^{1,2}

The nail plate, or nail, is a keratinized structure located on the dorsal aspect of the distal phalanx of the fingers. It is translucent, allowing visualization of the pink color of the nail bed vessels. Nails facilitate fine manipulation, protect the extremities, assist in scratching, and also have an aesthetic function.³

The nail matrix extends from the base of the distal phalanx to the proximal nail fold. Its function is to generate the nail plate through the proliferation of epidermal cells. The lunula represents the distal part of

the matrix and may be visible as a crescent-shaped structure on the first digits of the hands and feet.⁴

The nail folds surround the nail proximally, distally, and laterally. The cuticle and the hyponychium are also part of the defense system of the nail apparatus against infections and external aggressions.

The nail bed, underlying connective tissue, distal phalanx, and ligaments provide the supporting structures of the nail apparatus.

Normal nail growth in children is faster than in adults. In children, fingernails grow between 0.5 and 1.2 mm per week, while toenails grow between 1 and 1.5 mm per month. During the first weeks of life and during adolescence, this rate may triple, which explains the particular progression of certain diseases during these stages of development.^{1,5}

Table 1 presents a glossary of the most widely used terminology in onychology.

Physiological findings

Brittle nails

Newborn nails are usually thin and fragile (Fig. 2a). They may present an oval, triangular, or rounded morphology and may be flat or slightly concave (koilonychia) (Fig. 2b), particularly in the first toes. Although nail fragility is often interpreted as a sign of micronutrient deficiency, it is a physiological finding in infants and does not require further evaluation. Nail thickness progressively increases over time. Only in the presence of clinical signs suggesting an underlying disorder (malabsorption, chronic losses, or inadequate nutrition) should additional studies be considered.^{3,6}

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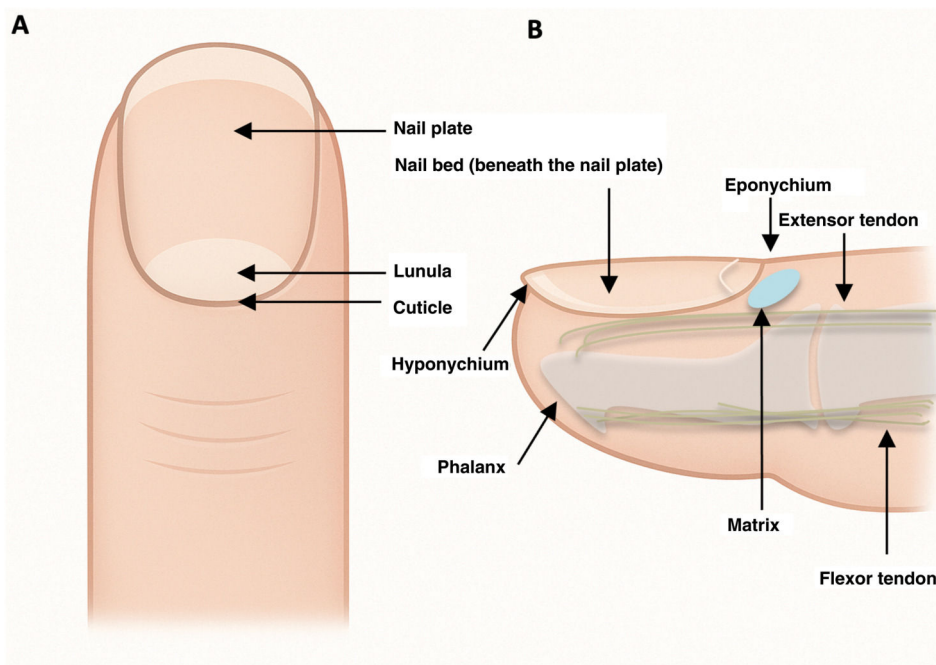


Fig. 1. Diagram of the normal nail apparatus.

Table 1
Glossary of nail terminology.

Term	Description
Acropachy	Increase in the fibrovascular supporting stroma of the distal phalanx.
Beau lines	Transverse depressions of the nail plate.
Koilonychia	“Spoon nail.” Flattened or concave nail with loss of the usual convexity.
Chromonychia	Change in the color of the nail plate (white, yellow, brown, green, etc.).
Erythronychia	Red-colored nail (total or partial).
Leukonychia	White-colored nail (total or partial).
Melanonychia	Brown-colored nail (total or partial).
Onychocryptosis	Ingrown nail.
Onychogryphosis	Thickening, chromonychia, and increased curvature of the nail.
Onycholysis	Detachment of the nail plate from the nail bed at the distal edge.
Onychomadesis	Proximal detachment of the nail plate.
Onychomycosis	Fungal infection of the nail.
Onychorrhexis	Longitudinal fissure of the nail plate (single or multiple).
Onychoschizia	Splitting or peeling at the distal edge of the nail plate.
Pachyonychia	Thickening of the nail plate with subungual hyperkeratosis.
Paronychia and perionychia	Inflammation of the periungual skin.
Pits	Small punctate depressions on the nail plate surface.
Retronychia	Proximal ingrown nail.
Trachyonychia	Rough and dull nails with a “sandpaper-like” appearance.

Modified from Hernández-Martín.⁵

Periungual hyperpigmentation

This is a physiological phenomenon, more common in infants with darker phototypes. It affects both hands and feet and is usually more evident between 2 and 6 months of age (Fig. 2c).⁴

Congenital hypertrophy of the nail folds (pseudo-ingrown nail)

This is a common finding in newborns, in which one or more folds may partially cover the nail plate (Fig. 2d). It is generally asymptomatic and tends to improve with growth. If inflammatory signs or discomfort appear (Fig. 2e), the use of topical corticosteroids and local massage may be helpful.^{7,8}

“V-shaped” nails

Also known as “Chevron” or “fishbone” nails, they can be observed from the first months of life and are more evident in children between 5 and 7 years of age. The nail plate shows fine linear ridges that converge in a V-shape toward the distal center of the nail (Fig. 2f). These changes, related to a discrepancy in the growth pattern between the lateral and central nail matrix, resolve spontaneously over time.^{9,10}

Beau’s lines

These are transverse depressions of the nail plate caused by a temporary interruption of growth in the matrix (Fig. 2g). They may affect one or multiple nails. Single lesions are usually due to trauma, whereas



Fig. 2. Physiological nail findings. (A) Fragile nail in an infant; (B) koilonychia in an infant; (C) periungual hyperpigmentation; (D) congenital hypertrophy of the nail folds; (E) erythema and edema of the lateral nail fold in an infant with congenital hypertrophy of the nail folds; (F) Chevron or “fishbone” nails; (G) Beau’s lines; (H) onychomadesis; (I) onycholysis; (J) leukonychia; (K) dermoscopic image of the previous patient.

involvement of multiple nails suggests systemic causes. Up to 25% of healthy newborns present Beau’s lines. They become visible between weeks 3 and 4 of life and usually disappear by week 14. They are considered a physiological change due to perinatal stress.^{9,10} Furthermore, they may occur after febrile viral infections such as hand-foot-and-mouth disease (Coxsackie virus) or after chemotherapy cycles.⁶ As the nail grows, the line moves distally; the distance from the proximal fold allows estimation of the time elapsed since the insult.

Onychomadesis

This consists of separation of the nail plate from the nail bed and matrix, usually occurring 3–8 weeks after an acute illness such as hand-foot-and-mouth disease (Fig. 2h).

Onychoschizia

This refers to distal splitting of the nail plate into layers (Fig. 2i). Unlike in adults, it is usually not associated with excess moisture, although thumb-sucking may worsen the condition.

Punctate leukonychia

This is characterized by the presence of small white spots on the nail plate (Fig. 2j and k), produced by microtrauma that alters keratinization in the nail matrix. These spots move distally with nail growth until they resolve. No treatment or additional investigations are required.⁶



Fig. 3. Congenital nail disorders. (A) Isolated brachyonychia; (B) double nail; (C) vertically implanted nail; (D) congenital malalignment of the first toenail of both feet and pincer nail; (E) micronychia.

Congenital disorders

Brachyonychia (racket nails)

A congenital alteration in which the transverse diameter of the nail bed and plate is greater than the longitudinal diameter (Fig. 3a). It most frequently affects the first digit of the hands and feet and is usually associated with a distal phalanx shorter than normal. It may be an isolated

finding or part of syndromes such as Rubinstein–Taybi syndrome, Larsen syndrome, or tricho-rhino-phalangeal syndrome.¹

Double nail of the fifth toe

This corresponds to a nail that is wider than usual and divided by a longitudinal groove, producing a smaller accessory nail (Fig. 3b). It is usually asymptomatic and does not require treatment.¹¹

Vertical implantation of the fifth toenail

Conservative treatment consists of trimming or filing the nail to avoid friction (Fig. 3c).

Congenital malalignment of the great toenail (CMGT)

In most cases it affects the great toenail of both feet. The pathogenesis is unknown. It may result from alterations in nail support structures, genetic abnormalities, or disturbances during embryonic development, leading to lateral deviation of the great toenail. This predisposes to repeated microtrauma and dystrophic nail changes, which may acquire a grayish-brown color with transverse ridges resembling a seashell (Fig. 3d). These changes favor fungal superinfection and recurrent onychocryptosis. CMGT may resolve spontaneously during the first years of life. Conservative management includes appropriate footwear, nail filing, application of creams with high concentrations of urea, or taping. If it persists, treatment is usually indicated for aesthetic reasons or local discomfort. In severe cases, surgical treatment may be required.^{1,3,4,12}

Anonychia and micronychia

These correspond to the complete or partial absence of the nail (Fig. 3e). They may be isolated findings or part of inherited diseases such as nail-patella syndrome or Iso-Kikuchi syndrome, or secondary to exposure to teratogens during pregnancy, such as phenytoin, warfarin, or alcohol.^{3,5,6,13–15}

Pachyonychia congenita (PC)

This corresponds to a group of autosomal dominant hereditary diseases caused by variants in the genes encoding keratins KRT6a, KRT6b, KRT6c, KRT16, and KRT17. Clinically, it is characterized by nail dystrophy (thickened nails, color changes, and increased transverse curvature) and palmoplantar keratoderma, the latter located at pressure points on the feet, where it may cause significant pain. Recently, a new classification has been proposed that includes PC within the group of palmoplantar epidermal differentiation disorders (pEDDs).^{6,16}

Infectious disease

Acute paronychia

It is usually triggered by disruption of the cutaneous barrier, which facilitates the entry of microorganisms.¹⁷

Acute bacterial paronychia

Inflammation of the skin surrounding the nail plate, characterized by erythema, intense pain, and often purulent exudate (Fig. 4a). The most frequently isolated pathogens are *Staphylococcus aureus* and β -hemolytic *Streptococcus*. It typically affects a single digit and, in children, is associated with thumb-sucking or nail-biting habits. It is recommended to obtain a sample for culture and susceptibility testing. Drainage of the lesion is a therapeutic priority, whenever clinical conditions allow, together with oral antibiotic therapy.^{9,17}

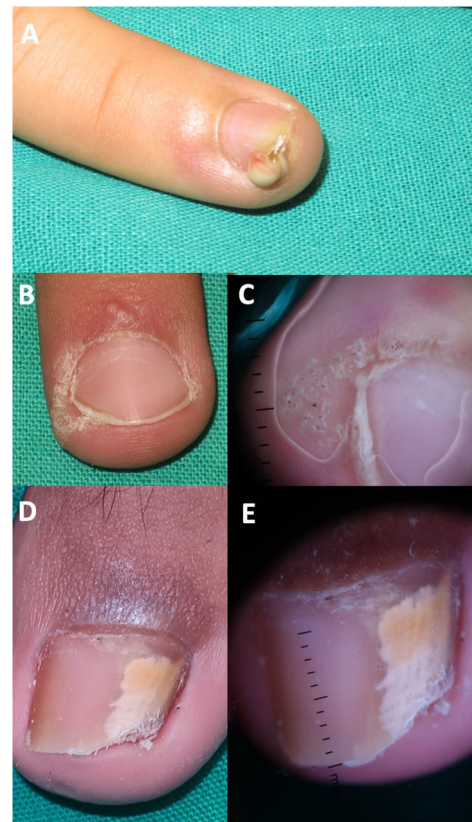


Fig. 4. Nail infections. (A) Bacterial paronychia; (B) periungual viral wart; (C) dermoscopic image of the previous patient showing hyperkeratosis and globules corresponding to thrombosed vessels; (D) onychomycosis; (E) dermoscopic image of the previous patient showing multiple colors of the nail plate (“aurora borealis”); (F) frontal image of the same patient with onychomycosis showing subungual hyperkeratosis and a “ruined nail” appearance.

Herpetic whitlow

A viral infection caused by herpes simplex virus, with the typical appearance of periungual vesicles. Autoinoculation after primary oral infection is common. It may be accompanied by fever, lymphadenopathy, and lymphangitis, and may recur. The treatment of choice is oral acyclovir.⁵

Chronic paronychia

Persistent inflammation of the nail folds, which may cause secondary onychodystrophy if the matrix is involved. It is common in children with chronic finger sucking and often coexists with *Candida* spp. overinfection.

Periungual and subungual viral warts

These are the most common cause of nail infection (Fig. 4b) and are caused by human papillomavirus (HPV). They present as hyperkeratotic papules or plaques, usually asymptomatic unless fissuring or secondary bacterial infection occurs. Predisposing factors include hyperhidrosis and local trauma such as onychophagia, onychotillomania, and manicure. Dermoscopy shows red-to-black globules or dots, sometimes with a white halo (thrombosed capillaries) (Fig. 4c). In darker phototypes, melanonychia may be present, and in subungual lesions distal onycholysis and elevation of the nail plate may be observed. It is necessary to rule out exostosis or osteochondromas in bulky lesions using imaging studies.¹⁸ Treatment should be individualized according to age, num-

ber, and location of lesions. Options include keratolytics, cantharidin, candidin, photodynamic therapy, 5-fluorouracil, imiquimod, nitrozin complex, vaccines, cimetidine, and oral acitretin. Some methods useful in other locations, such as cryotherapy or ablative lasers, are discouraged in the periungual region due to the risk of permanent matrix damage. In otherwise healthy children, observation may be chosen, as many warts resolve spontaneously.^{18,19}

Onychomycosis

Less frequent in children than in adults, although its incidence appears to be increasing.²⁰ The main causative agent is *Trichophyton rubrum*. Five clinical forms have been described. The most common are distal and lateral subungual onychomycosis (Fig. 4d). Other forms include superficial white, proximal subungual, endonyx, and total dystrophic onychomycosis. It is often associated with *tinea pedis* and household contact with affected individuals.¹⁰

Dermoscopy is a useful tool (Fig. 4e). Some of the most frequently observed signs in onychomycosis are “ruined nail,” longitudinal striae, onycholysis, a jagged edge with spikes, chromonychia, and splinter hemorrhages. Diagnosis is based on light microscopy visualization of hyphae in nail scales, culture on Sabouraud medium, nail clippings with PAS staining, fungal PCR, and immunochromatography.²¹ Topical treatment is a good alternative at this age because of greater nail permeability. Oral therapy is reserved for extensive involvement (≥ 3 nails, $>50\%$ of the nail plate) or failure of topical treatment. Griseofulvin is the only oral treatment authorized by the European Medicines Agency for children; however, given the superiority of other antifungals, griseofulvin is not the first-line option for onychomycosis. Terbinafine and itraconazole are supported in the literature, whereas fluconazole has limited evidence. Laboratory monitoring with terbinafine does not appear necessary in the short term, but should be individualized.^{5,7,8,22}

Pigmentary disorders

Nail matrix nevus (NMN)

This is the most common cause of melanonychia in children; it may be linear or involve the entire nail. It is characterized by an increased number of melanocytes arranged in nests along the matrix. NMN may be congenital or develop between 2 and 4 years of age. It is more frequent on the hands. Its size and color may change over time and it may even disappear. Dermoscopy may show brown or black globules, homogeneous or irregular lines, zigzag lines, proximal periungual pigmentation resembling Hutchinson sign, and distal fibrillar “brush” pigmentation (Fig. 5).²³ Unlike in adults, in childhood these dermoscopic patterns are not considered warning signs.^{24,25} Therefore, in most cases a conservative approach is recommended, with clinical, dermoscopic, and photographic follow-up. Nail biopsy is not routinely indicated, as it is a painful procedure that may cause permanent nail dystrophy. Accordingly, it is only indicated when there is well-founded diagnostic uncertainty or suspicion of malignancy. Fortunately, nail melanoma in the pediatric age group is exceptional.^{3,8,10,24,26}

Longitudinal melanonychia due to melanocytic activation

Linear brown-to-black pigmentation that may be physiological in individuals with darker phototypes, generally adults. Furthermore, it may be observed in nail infections, mainly fungal or due to *Pseudomonas* spp. Other etiologies include systemic diseases such as psoriasis, lichen planus, Peutz-Jeghers syndrome, Addison disease, and thyrotoxicosis. Repeated trauma such as onychotillomania, onychophagia, or friction from footwear may also cause it.¹¹ Medications such as phenolphthalein, antimalarials, minocycline, gold salts, zidovudine, and some chemotherapeutic agents may also induce changes in nail coloration.¹

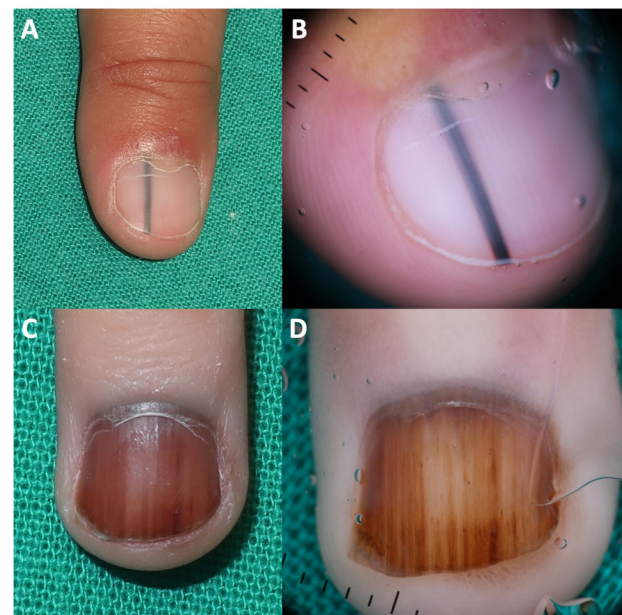


Fig. 5. Congenital nail matrix nevi (melanonychia). (A) Longitudinal melanonychia in a child; (B) dermoscopic image showing a homogeneous pattern; (C) melanonychia covering the entire nail plate in an infant; (D) dermoscopy showing irregular longitudinal lines, globules, periungual pigmentation, and the distal “brush” sign at the hyponychium.

Inflammatory disorders

Lichen striatus

An inflammatory dermatosis, usually unilateral, of unknown cause. It has been proposed that local trauma may act as a trigger over an area of postzygotic mosaicism, particularly on the extremities. Clinically, flat papules of skin color, slightly erythematous papules, or hypopigmented macules are observed following the lines of Blaschko. If the nail matrix is involved, onychodystrophy, onychorrhexis (Fig. 6a), or thinning of the nail plate may be seen; if the nail bed is affected, onycholysis or subungual hyperkeratosis may occur. Cutaneous lesions may precede or follow nail involvement. Exclusive nail involvement is uncommon. The course is usually self-limited within 6–12 months, although nail alterations may persist longer. In symptomatic cases, topical anti-inflammatory treatment with corticosteroids, calcineurin inhibitors, or emollients may be used.^{5,27,28}

Pustular parakeratosis

A rare inflammatory condition that mainly affects children younger than 5 years old. Lesions begin as vesiculopustules on the hyponychium (Fig. 6b) and evolve into erythematous scaly plaques that may extend to the lateral folds and dorsal nail surface. They are usually asymptomatic and resolve spontaneously. Diagnosis is one of exclusion. Improvement may occur with topical corticosteroids.²⁹

Nail psoriasis

The most common signs is pitting, characterized by irregular punctate depressions on the nail plate. Other findings include nail thickening, subungual hyperkeratosis, leukonychia, Beau’s lines, onycholysis, onychoschizia, longitudinal ridging, salmon-colored erythema around areas of onycholysis, oil-drop patches (yellow-orange discoloration), and splinter hemorrhages (Fig. 6c–e).⁶ Differential diagnosis includes traumatic onychodystrophy, onychomycosis, and subungual warts. In cases of diagnostic uncertainty with infectious processes, a nail clipping may

be performed by sending a piece of fresh nail to pathology and obtaining scale samples for microbiological study.³⁰ It is important to explore family history of psoriasis and to search for skin plaques and signs of arthritis. Nails should be kept short and local trauma such as nail biting or sucking should be avoided to prevent the Köebner phenomenon.⁶ Therapeutic options include urea-based creams, clobetasol nail lacquers, calcipotriol, tazarotene, topical corticosteroids or combination therapies, methotrexate, and, in severe cases, biologic drugs.^{8,31} Intralesional corticosteroids are rarely used in children due to the pain associated with infiltration.

Nail involvement in alopecia areata (AA)

Up to 66% of patients with AA may present nail signs. The most frequent is pitting (Fig. 6f), usually superficial and, unlike psoriasis, regularly distributed. Beau's lines, trachyonychia, or onychomadesis may also be observed. Nail involvement is more widely associated with extensive forms (total or universal) and is considered a poor prognostic factor.⁹ Treatment should be directed toward controlling the systemic disease and includes oral corticosteroids, although there is still no consensus regarding the most appropriate type or dosage.¹² Other therapeutic alternatives include immunosuppressants such as methotrexate, cyclosporine, or azathioprine, and more recently JAK inhibitors, which have shown good results for both hair and nails.^{13,32}

Nail involvement in atopic dermatitis (AD)

The periungual skin often presents erythema, edema, and scaling. Chronic inflammation may lead to loss of the cuticle and, if the matrix is involved, cause pitting or Beau's lines. Patients with AD have a higher risk of paronychia. Treatment is based on control of AD and maintenance of the skin barrier.⁶

Nail lichen planus (NLP)

A rare mucocutaneous disease in children whose most common nail manifestation is onychorrhexis (Fig. 6g and h). Pitting, trachyonychia, chromonychia, nail plate atrophy, and dorsal pterygium may also occur. Clinically, 4 subtypes can be distinguished: classic NLP, trachyonychia, atrophic NLP, and hypertrophic NLP.

It is important to search for lichen planus lesions on the skin, mucosa, or scalp to support the diagnosis of NLP. This condition may leave permanent sequelae. Treatment is complex, and therapeutic options include topical, intralesional, or systemic corticosteroids, retinoids, methotrexate, antimalarials, dapsone, and biologic therapies (adalimumab, secukinumab).^{6,7,33}

Trachyonychia

Two subtypes of trachyonychia have been described based on the clinical presentation: opaque or "sandpaper" trachyonychia and shiny trachyonychia. It usually begins between 2 and 7 years of age and may affect one or multiple nails (Fig. 6i).¹⁰ It may occur as an isolated condition or secondary to inflammatory diseases such as AA, psoriasis, or lichen planus. Diagnosis is clinical. Treatment ranges from emollients to corticosteroids (topical, intralesional, or systemic), keratolytics, or oral retinoids. In many cases observation is appropriate, since up to 50% resolve spontaneously within 5 years without sequelae.⁹

Tumoral disorders

Subungual exostosis

A benign bone tumor located in the distal phalanx (Fig. 7a), usually secondary to trauma. It most widely presents as a subungual nodule on the first toe of adolescents, elevating the nail plate and sometimes

associated with onycholysis. Diagnosis is confirmed by radiography, and treatment is surgical.³

Periungual fibroma

Skin-colored or pink millimetric papules or tumors located in periungual or subungual areas. If they compress the matrix, they may induce longitudinal grooves in the nail plate. They are more frequent on the feet and are related to local trauma. If >3 lesions are present, tuberous sclerosis complex should be ruled out (Fig. 7b). They are generally asymptomatic and do not require treatment. Therapeutic options include electrocauterization, CO₂ laser, or surgical excision.

Pyogenic granuloma

A benign vascular and friable tumor that bleeds easily. It is often due to trauma such as nail biting or onychocryptosis (Fig. 7c), or induced by drugs (retinoids, EGFR inhibitors, VEGFR inhibitors, taxanes, anti-retrovirals, ravulizumab, capecitabine, rituximab, and TKI, MEK, ERK, and BRAF inhibitors).³⁴ Although they may resolve spontaneously, most cases require treatment with curettage, surgery, laser, cryotherapy, phenolization, corticosteroids, topical beta-blockers, or even table salt.^{35,36}

Traumatic disorders

Onychocryptosis ("ingrown nails")

Embedding of the nail into the lateral fold, which may be associated with malalignment of the first toe, hyperhidrosis, hypertrophy of the nail folds, improper nail trimming, and repeated microtrauma. It is more frequent in adolescents and in males. Patients usually consult due to pain that interferes with walking. Edema, erythema, seropurulent exudate, granulation tissue, and hypertrophy of the periungual folds may be observed. Treatment alternatives include topical corticosteroids and antibiotics, elevation of the affected nail edge using cotton, bandages or dental floss, phenolization of the matrix, or matricectomy.³⁷

Retronychia

More frequent in young women. Repeated microtrauma at the level of the nail unit causes cessation of nail plate growth. One consequence is the superposition of ≥ 2 nail plates, which facilitates displacement of the upper plate toward the proximal nail fold, promoting its subcutaneous embedding. It is often associated with paronychia and may lead to thickening of the proximal nail plate, giving it a yellowish appearance (xanthonychia) with transverse grooves (Fig. 7d and e). Patients usually consult due to pain and often report that their nails "do not grow."^{38,39} Ultrasound is a useful tool in the differential diagnosis and allows retronychia to be distinguished from tumors or arthritis. Some ultrasound criteria used in the diagnosis of retronychia include the presence of a hypoechoic halo surrounding the origin of the nail plate and a distance between the nail plate origin and the base of the distal phalanx ≤ 5.1 mm in the first finger or toe.⁴⁰ Treatment in mild cases consists of topical or intralesional corticosteroids, while in more severe cases surgical nail avulsion is required.^{6,41}

Subungual hematoma

Accumulation of blood beneath the nail caused by trauma or microtrauma, for example repeated friction of the nail plate against footwear. It is common in adolescents, typically affecting the first nail of one or both feet. Dermoscopy may show a reddish-violaceous color with a filamentous distal end, erythematous-violaceous globules that move distally as the nail grows (Fig. 7f) and fading of the color at the periphery of the lesion. It does not require treatment. In case of pain, drainage by perforation of the nail plate may be performed.⁴²



Fig. 6. Inflammatory nail disease. (A) Lichen striatus in a child with flat skin-colored papules arranged linearly on the dorsum of the first finger, associated with nail plate onychorrhexis; (B) pustules and hyperkeratosis in a patient with pustular parakeratosis affecting a finger; (C) nail pitting in a patient with psoriasis; (D) oil-drop sign, distal onycholysis, and subungual hyperkeratosis in a patient with psoriasis; (E) onychodystrophy and splinter hemorrhages in a patient with nail psoriasis; (F) superficial pitting in a patient with alopecia areata; (G) melanonychia, nail dystrophy, and erythema of the nail bed in a child with nail lichen planus; (H) dermoscopy showing nail bed and lunular erythema, splinter hemorrhages, and melanonychia in the previous patient; (I) trachyonychia.

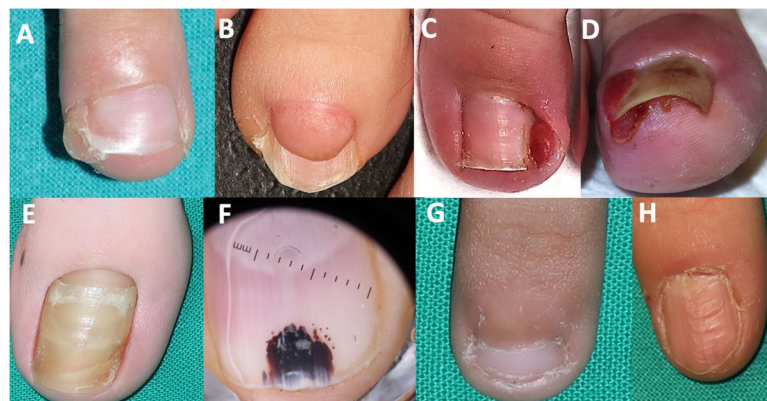


Fig. 7. (A) Subungual exostosis; (B) periungual fibroma in a patient with tuberous sclerosis; (C) pyogenic granuloma secondary to onychocryptosis in an adolescent; (D) frontal view of a pyogenic granuloma in a patient with onychocryptosis; (E) retronychia; (F) dermoscopic image of a subungual hematoma; (G) nail with reduced longitudinal diameter in a patient with onychophagia; (H) "Washboard nail" appearance in a patient with onychotillomania.

Psychiatric disorders with nail signs

Onychophagia and onychotillomania

The habit of manipulating, biting, and chewing the nails is included within the group of obsessive-compulsive disorders (OCD) in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*.^{6,7} Typically, there is an inability to stop the behavior (compulsion). In some cases, another psychiatric disorder may coexist. Onychophagia and onychotillomania are more frequent in school-aged children and adolescents.

In onychophagia, the nail plate is very short with irregular edges, and there is often enlargement of the distal nail fold (Fig. 7g).

In onychotillomania, horizontal grooves may be observed, giving a "washboard" appearance (Fig. 7h), as well as macrolunula. Habit-tic nail deformity is a related but distinct condition from onychotillomania (which involves broader and more destructive compulsive behavior). Dermoscopy is useful in doubtful cases. Hemorrhages may be observed in the periungual folds and lunula. In the nail bed, hyperpigmentation may also be present.⁴³ These habits predispose to complications such as paronychia, transmission of viral warts, and dental alterations including malposition and fractures, as well as oral infections.⁴³ The differential diagnosis includes onychomycosis, psoriasis, lichen planus, chronic paronychia, and nail-patella syndrome, among others.⁴⁴ Treatment of OCD can be challenging and should include a multidisciplinary approach.

Therapeutic alternatives include nail lacquers, cognitive-behavioral therapy, and certain antidepressants. N-acetylcysteine, by modulating the glutamate pathway involved in impulse control, may also be useful.^{44–46}

Nail alterations related to cosmetics

The use of traditional, semi-permanent, or permanent nail polish (“gel or acrylic nails”) is an increasing trend in the pediatric population. Excessive filing of the nail plate may lead to loss of shine and increased nail fragility. Removal of the cuticles favors infections. Improper trimming techniques may cause onychocryptosis. Repeated use of nail polish may cause keratin granulation of the nail plate, producing pseudoleukonychia and simulating superficial white onychomycosis.⁴⁷ Some non-traditional nail-polishing techniques require the use of ultraviolet lamps, which may promote phototoxic and photoallergic reactions and onycholysis in patients taking photosensitizing drugs. The increased risk of skin cancer associated with exposure to these lamps remains controversial. A recent study published by Aguilera et al. concluded that the carcinogenic potential of these lamps is low compared with routine sun exposure. Photoprotection measures would reduce possible risks related to this exposure.^{47–49}

Nail polishes may contain acrylates, methacrylates, and isothiazolones, which can produce irritant contact dermatitis (ICD). In addition, sensitization to acrylates is an important concern, as it may predispose these children to future allergic contact dermatitis (ACD).^{50–54} Furthermore, adhesives used in nail cosmetics contain cyanoacrylate, a strong adhesive that may cause paronychia, onycholysis, and ICD. A rare but serious reaction is chemical burns, characterized by the absence of immediate pain and the development of symptoms after a period of exposure. In cases of accidental contact with these agents, it is essential to remove clothing and irrigate the affected area with abundant water.⁵⁵ The population should be educated about storing these adhesives in a safe place out of reach of children.

Conclusions

Nail disorders in pediatric age are common. Knowledge of the particular characteristics of children’s nails, their physiology, and the most frequent reasons for consultation allows the dermatologist to perform an adequate evaluation, avoiding unnecessary investigations and reassuring families.

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