



Histopathological nail-clipping examination for the diagnosis of isolated childhood nail psoriasis: A case report

Çocukluk çağı izole tırnak psoriasis tanısında tırnak plak parçasının histopatolojik incelemesi: Bir olgu sunumu

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To the Editor,

Psoriatic nail disease occurs in most patients following the appearance of skin lesions. However, psoriasis presents with isolated nail disease in 5% of cases. Isolated nail disease causes diagnostic difficulties¹. Histopathological examination of nail clippings can provide important clues about the diagnosis of psoriatic nail. Herein, we present a pediatric patient with isolated nail psoriasis, who was diagnosed by this method.

An 11-year-old boy presented with a 2-year history of nail changes. Dermatologic examination revealed the presence of pitting and subungual hyperkeratosis on the third and fourth right-hand fingernails and the first and third left-hand fingernails (Figure 1a-c). Dermoscopic findings were consistent with the clinical features (Figure 2a, b). Examination results of the overall skin and toenails were normal. Personal and family history was negative for psoriasis. The patient was treated several times with topical and systemic antifungal

agents; however, he had not responded to therapies. Direct microscopic examination of the nail sample using potassium hydroxide did not show any fungal elements, and there was no growth on fungal culture. A nail clipping was obtained from the distal portion of the nail plate using nail nippers, with a presumed diagnosis of psoriasis, and histopathologic evaluation of hematoxylin and eosin-stained slides revealed parakeratosis in the nail plate keratin layer, neutrophil leukocyte infiltration, and serous lakes (Figure 3a, b). No fungi hyphae and spores were detected in the Periodic acid-Schiff (PAS) and methenamine silver-stained slides.

Many studies on histopathologic findings in nail clippings have investigated the features of onychomycosis, psoriatic nail, and normal nails. In normal nails obtained from healthy individuals, no fungal elements, neutrophils, or serous lakes were found in the histopathologic examination². Histomycology is the microscopic examination of nail clippings after PAS staining to detect the presence of fungi³.

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It is a method with the highest sensitivity and highest negative predictive value in the diagnosis of onychomycosis². Hyphae, pseudohyphae, yeasts, and arthroconidia can be identified in the histopathology of

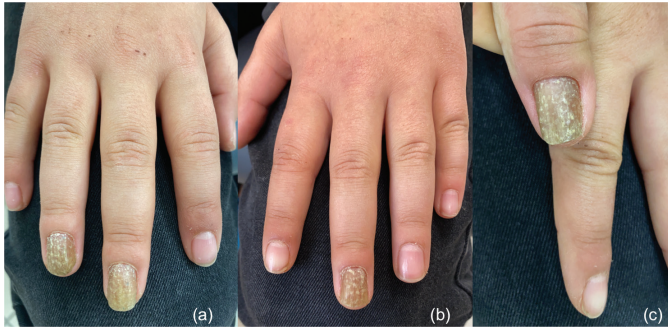


Figure 1. (a-c) Clinical photographs reveal yellowish discoloration and numerous pittings in the right third and fourth fingernails and left first and third fingernails. Other nails in the photograph reveal few pitting and punctate leukonychia

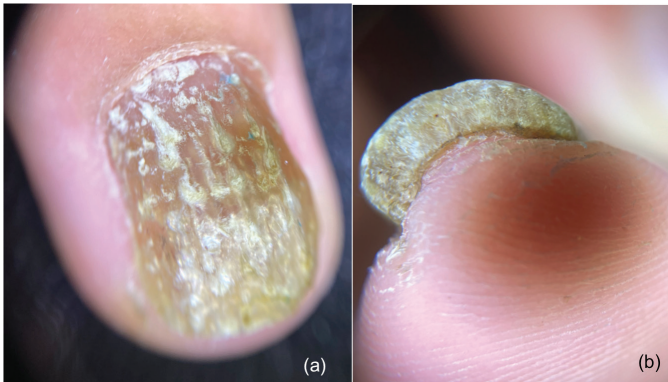


Figure 2. (a, b) Dermoscopic photographs reveal pitting and intense subungual hyperkeratosis

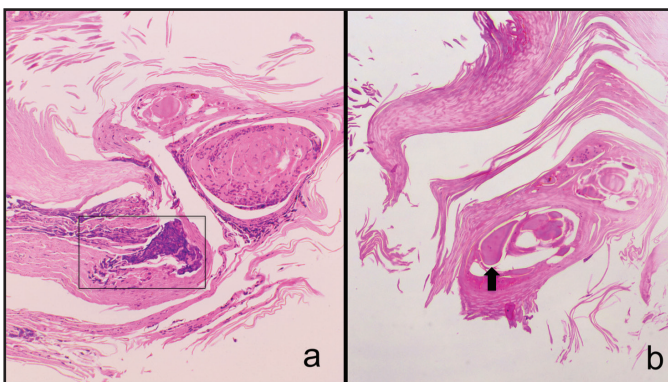


Figure 3. (a, b) Parakeratosis, neutrophil leukocyte infiltration, and serum exudation are seen in the keratin layer of the nail plate (hematoxylin-eosin, original magnification, x200). **(a)** Neutrophil leukocyte infiltration and parakeratosis in the area marked with a rectangle. **(b)** The arrow points to focal areas of serum exudation among epidermal hyperkeratosis areas

onychomycosis³. As for psoriasis, the nail-clipping method was first used by Machler et al.⁴ in 1998 in adult patients diagnosed with psoriasis. Although not as common as in skin biopsies, neutrophils are detected in the microscopic examination of nail clippings in psoriatic nails². However, neutrophils can also be present in onychomycotic nails; thus, a careful search for fungal elements is necessary. The presence of neutrophils in nail clippings, without fungi, is a diagnostic clue for psoriatic onychodystrophy². Parakeratosis, onychokaryosis (presence of nuclei in nail plate), and serous lakes are other important and frequent histopathologic findings in nail clippings. In patients with psoriasis, these microscopic findings, although more prominent in dystrophic nails, can be also detected in clinically normal-looking nails².

Nail disease has been reported between 17% and 39.2% in pediatric patients with psoriasis. A detailed examination may show all pediatric patients with psoriasis to have a nail involvement. In a study examining 81 nail clippings obtained from 52 children with psoriasis, the presence of neutrophils and serous lakes was associated with higher psoriasis area severity index scores, and the presence of serous lakes was associated with higher nail psoriasis severity index scores⁵.

In conclusion, as a non-invasive method, histopathologic examination of nail clippings appears to be an important tool in the diagnosis of psoriatic nail disease, especially in pediatric patients. Informed consent was obtained.

Ethics

Informed Consent: It was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: M.Ç.O., Concept: F.G., Design: M.Ç.O., F.G., Data Collection or Processing: M.Ç.O., Ç.D.A., F.G., Analysis or Interpretation: M.Ç.O., Ç.D.A., F.G., Literature Search: M.Ç.O., F.G., Writing: M.Ç.O., Ç.D.A., F.G.

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