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Review Article

Nail Psoriasis: An Over View

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A B S T R A C T

The nail unit is a dynamic complex which forms an important part of the integument. This complex consists of the nail matrix (NM), nail bed (NB), hyponychium, nail fold (NF) and the nail plate (NP). Psoriasis is a cutaneous disorder that causes increased cell proliferation and affects skin and nails. Nail psoriasis is the most common nail disorder that is associated with pitting, leukonychia, 'oil drop' (salmon patches), nail bed hyperkeratosis and cutaneous psoriasis. Topical therapy of nail psoriasis consists of high-potency corticosteroids applied around and under the nail with or without occlusion and other treatments such as PUVA (psoralen plus ultraviolet light of the A wavelength), methotrexate, cyclosporin, or etretinate are also available. The present review gives information about the different psoriatic conditions of the nail along with the treatment procedure.

Keywords: Psoriasis, pitting, leukonychia, corticosteroids and methotrexate.

A R T I C L E I N F O

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1. Introduction

A nail is a horn-like envelope covering the dorsal aspect of the terminal phalanges of fingers and toes in humans, most non-human primates, and afew other mammals [1]. The nail unit is a dynamic complex which forms an important part of

the integument. This complex consists of the nail matrix, nail bed, hyponychium, nail fold and the nail plate. Cells of the nail matrix, under the protection of the proximal nail fold mature and keratinized to form the Nail Plate [2]. Nail abnormalities are present in up to 50% of patients with psoriasis and may be the only manifestation of the disease. Psoriasis is a cutaneous disorder that causes increased cell proliferation and affects skin and nails. Nail psoriasis is the most common nail disorder that is associated with cutaneous disease [3]. Nail psoriasis is often associated with psoriatic arthritis and enthesitis. Clinical findings that are diagnostic for nail psoriasis include irregular pitting, salmon patches of the nail bed and onycholysis with an erythematous border. These signs are often seen together in the same patient and are localized to the finger nails. Minimal changes of the scalp, umbilicus orgluteal cleft can sometimes be found and confirm the diagnosis. When psoriatic arthritis of the fingers are present, there is an 86% chance of finding psoriasis in the nails [4].

2. Anatomy of Nail

The nail consists of the nail plate, the nail matrix and the nail bed below it, and the grooves like lunula, eponychium, nail fold and hyponychium surrounding the nail bed [5].Fig 1 shows the different anatomical parts of nail.

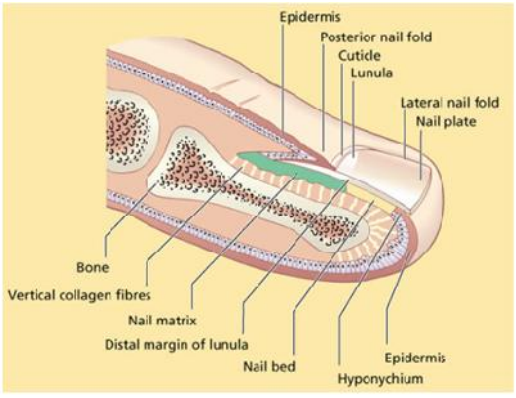

Figure 1: Anatomy of Nail

1. Nail plate (body): is the clear, firm & translucentportion made up of hard keratin and iscreated by the nail matrix. The width and thickness ofthe nail plate is determined by the size, length,and thickness of the matrix, while the shape ofthe fingertip itself determines if the nail plate isflat, arched or hooked.

2. Nail matrix:nail matrix is the tissue upon which the nail rests, the part of the nail bedthat extends beneath the nail root and containsnerves, lymph and blood vessels.The matrix isresponsible for the production of the cells thatbecome the nail plate.

3. Lunula: The lunula is the visible part of the matrix, thewhitish crescent-shaped base of the visible nail.The lunula is largest in the thumb and oftenabsent in the little finger.

4. Cuticle or (Eponychium): The eponychium is the small band of epitheliumthat extends from the posterior nail wall onto thebase of the nail. Often and erroneouslycalled the"proximal fold" or "cuticle", the eponychium isthe end of the proximal fold that folds back uponitself to shed an epidermal layer of skin onto thenewly formed nail plate [5,6].

5. Nail fold : The nail wall is the cutaneousfold overlapping the sides and proximal end ofthe nail.

6. Nail bed: The nail bed is the skin beneath the nail plate.Like all skin, it is composed of two types oftissues: the deeper dermis, the living tissue fixedto the bone which contains capillaries and glands,and the superficial epidermis, the layer justbeneath the nail plate which moves forward withthe plate.

7. Hyponychium: Thehyponychium is the epithelium located beneath the nail plate atthe junction between the free edge and the skin ofthe fingertip. It forms a seal that protects the nailbed. The onychodermal band is the seal betweenthe nail plate and the hyponychium. It is foundjust under the free edge, in that portion of the nailwhere the nail bed ends and can be recognized byits glassy, greyish colour (in fair-skinned people).It is not perceptible in some individuals while it ishighly prominent on others[7].

3. Clinical Features of Nail Psoriasis

The clinical features of psoriasis of the nails depend upon which part of the nail unit is involved (Table 1)

Table 1: Clinical features of nail psoriasis

Location	***Features***
Nail matrix	pitting
	leukonychia
	red spots in lunula
Nail bed	'oil drop' (salmon patches)
	nail bed hyperkeratosis
	splinter hemorrhages
Proximal nail fold	cutaneous psoriasis
Hyponychium	Hyperkeratosis

Pitting:

Pits are superficial depressions within the nail plate that vary in morphology and distribution. A pit indicates a defect in the uppermost layer of the nail plate, which arises from the proximal nail matrix. Although nail pitting is primarily associated with disease of the proximal nail matrix, the proximal nail fold can also contribute to this process, because the ventral surface of the proximal nail fold closely overlies the

nail matrix. It is believed that the parakeratotic and inflammatory cells originating from this structure become entrenched into the surface of the nail plate as parakeratotic foci [8].(Figure 2.A) Pitting is the most common sign of nail psoriasis and indicates nail matrixinvolvement. There may be small pits or large transverse furrows, indicating longerduration of psoriasis in the matrix .Pitting occurs when small fociof parakeratotic cells occur in the nail plate and then fall out after the nail pit grows pastthe cuticle, leaving a depression in the nail plate causing Lukonychia

Lukonychia: In Lukonychia the nail plateloses its transparency and lookswhite because of the presence of parakeratotic cells within its ventralportion. Fig 2.B shows lukonychia attacked nail. It occurs because of disturbance in distalnail matrix keratinization and it presents with three morphologicvariants:

Punctate leukonychia:

The nail plate shows small opaquewhite spots that move distally with nail growth and sometimesdisappear before reaching the distal nail.

Striate leukonychia:

The nail plate shows one or more transversewhite opaque parallel lines.

Diffuse leukonychia: The nail plate is completely oralmost completely opaque and white [9].

Other signs of nailpsoriasis are 'oil-drop' discoloration (Fig 2.D) or salmon-colored areas of varying sizein the nail. These are due to nail bed and, sometimes, distal nail matrix psoriasis. As thenail grows, the 'oil drop' moves distally and eventually becomes nail bed hyperkeratosis and onycholysis.

Onycholysis:

Onycholysis, which occurs when the nail plate is separated from the nail bed, results in white discoloration of the affected area. Separation may result if the nail is lifted mechanically off the bed or if a blow to the nail causes bleeding between the nail and the bed (fig 2.E). Onycholysis can accompany psoriasis when the distal portion of the nail matrix is affected and can be termed as psoriatic oncholysis [10].

Hyperkeratosos: Hyperkeratosisis thickening of the stratum corneum, often associated with the presence of an abnormal quantity of keratin and also usually accompanied by an increase in the granular layer. As the corneum layer normally varies greatly in thickness in different sites, some experience is needed to assess minor degrees of hyperkeratosis (Fig.2C). It is associated with resulting of concave shape to the nails and results yellow coloring of nails [11].

Splinter hemorrhages:

Splinter hemorrhages (or haemorrhages) are tiny blood clots that tend to run vertically under the nails (Fig 2.F). Psoriasis of nails often associated with the splinter hemorrhages causing a plum color to the nails and then darkens to brown or black in a couple of days [12].

Figure 2: A-Pitting, B-Leukonychia, C-Nail bed hyperkeratosis, D-Oil-drop discoloration, E-Psoriatic onycholysis, F-Splinter hemorrhages

4. Treatment of Nail Psoriasis

At present, psoriasis of the nails does not have a cure. The goal of treatment is to improve the function and appearance of the nails. If the nails have a fungal infection it can be treated using antifungal medication. So depending on the condition the treatment of nail psoriasis vary and if the treatment may not give sufficient result, removal of nail using surgery is the only remedy for nail psoriatic condition. The treatment can be divided into Topical treatment, Systemic treatment and surgical treatment [13].

Topical treatment:

Topical therapy of nail psoriasis consists of Creams or ointments that are to be rubbed on and around the nail, including vitamin A and vitamin D derivatives, antimetabolite drugs such as 5-flourouracil and occasionally, antifungal solutions to treat fungal infections if any. But topical treatments may not be effective in all cases because delivery of medications to the nail area is difficult because of the barrier presented by the nail plate.

Steroids:

It can applied to the skin under the nail or injected under the nail; injection under the nail may be more effective than when steroids are applied in cream or ointment form. High-potency corticosteroids applied around and under the nail with or without occlusion. Topical calcipotriol and tazarotene can be tried. The most effective treatment for nail psoriasis isintralesional cortisone injection of triamcinolone acetonide into the proximal nail fold for pitting due to matrix involvement (Fig 3). With nail bed involvement, theintralesional injections are performed in the lateral nail fold so that the drug diffuses intothe nail bed. The usual dose is 2.5–3 mg/ml diluted with plain lidocaine and injectedwitha 30-gauge needle after the nail fold is sprayed with a coolant to reduce discomfort [14].

PUVA: It is a combination of the prescription medicine, psoralen, and exposure to UVA ultraviolet light andalso methotrexate, cyclosporin, or etretinate are sometimes used, but these drugs are usually reserved for extensive cutaneous psoriasis rather than for psoriasis limited to the nails.

Systemic therapy: Systemic therapy may be appropriate if you have both skin and arthritis symptoms or if the skin and nail symptoms are severe. It includes using the drugs in pill or injectable form, including Methotrexate tablets, Triamcenolone injections.

Surgical Treatment:

If other treatments don't work, the psoriatic nails can be removed either chemically or surgically. Chemical removal of the nail involves putting an ointment on the nails for seven days. The nail comes off by itself with no bleeding and in case of surgical removal, the area is numbed with a local anesthetic before the nail is removed [15].

Figure 3: Intralesional injections of cortisone into the proximal nail fold for psoriasis

5. Conclusion

The nail apparatus is a complex integumental structure. The nail can be affected by many diseases psoriasis one among them. The clinical manifestations like pitting, leukonychia, 'oil drop' (salmon patches), nail bed hyperkeratosis and cutaneous psoriasisdepends on location involved. The treatment of nail psoriasis vary and if the treatment may not give sufficient result, removal of nail using surgery is the only remedy for nail psoriatic condition. The treatment can be divided into Topical treatment, Systemic treatment and surgical treatment. Topical treatment includes treating with creams and ointments containing vitamins, antimetabolites and corticosteroids like calcipotriol and tazarotene and Systemic treatments include using the drugs in pill or injectable form, including Methotrexate tablets, Triamcenolone injections. This review gives an understanding about nail psoriasis and associated symptoms and also the treatment options of Nail psoriasis.

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