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Case Report

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To Compare the pragmatism of Ultrasonography versus Dermoscopy in diagnosing a case of psoriatic nail disorder

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Abstract

Nail diseases are mostly diagnosed on the basis of clinical examination and biopsies. Still, there is a need for non-invasive methods to complement clinical examination of the nails. Ultrasound and Dermoscopy may provide an appropriate and more widely available alternative. So, hereby we report a case of 34-year-old male who presented with Erythematous scaly plaques, distorted toenails with severe arthritis since 2years diagnosed by using both ultrasound and dermoscopy.

Keywords: Ultrasonography, Dermoscopy, and Psoriatic nail disorder

Introduction

The nails have functional and aesthetic importance to the patients.[1]Nail diseases are usually diagnosed on the basis of clinical examination, although biopsies and scrapings can also provide clinically significant information. Biopsies are not perceived positively by most patients, however, and may have negative cosmetic consequences because of scarring. So there is a need for non-invasive methods to complement clinical examination of the nails.[2] Ultrasound and Dermoscopy may provide an appropriate and more widely available alternative. Previous studies were there which were using ultrasound to measure, nail plate thickness, nail plate volume, and to describe normal nail anatomy.[3-5] It has also been shown to be useful for examination of various nail diseases, such as nail abnormalities in autoimmune connective tissue disorder, psoriasis, and in patients with subungual tumors.[6]In Psoriasis ultrasonography, measurement of the distance between the nail and the underlying bone has been suggested as a possible method for quantification of disease severity.[7]

On the other hand, dermoscopy is used to study the nail plate surface, nail pigmentation, onycholysis, distal nail margin, periungual folds and hyponychial changes. [8]Even several nail tumors, such as onychopapilloma and onychomatricoma, are now easily diagnosed with dermoscopy.[9]

Case Report

A biopsy-provencase of 34-year-old male who presented with Erythematous scaly plaques, distorted toenails with severe arthritis since 2years.On examination, lesions were in the form of multiple erythematous scaly papules and plaques with well-defined irregular margins of size ranging from 0.2x.3 cm to those covering a whole posterior aspect of the leg with Complete dystrophy of toenails with subungual hyperkeratosis and nail pitting over fingernails. A detailed clinical examination and laboratory investigations revealed no abnormalities. Ultrasonography of the nail lesions showed irregular wavy nail plate, thickened nail bed and erosion at DIP joint (Figure 1,2) and Dermoscopy showed pitting and crumbled nail plate (Figure 3,4).

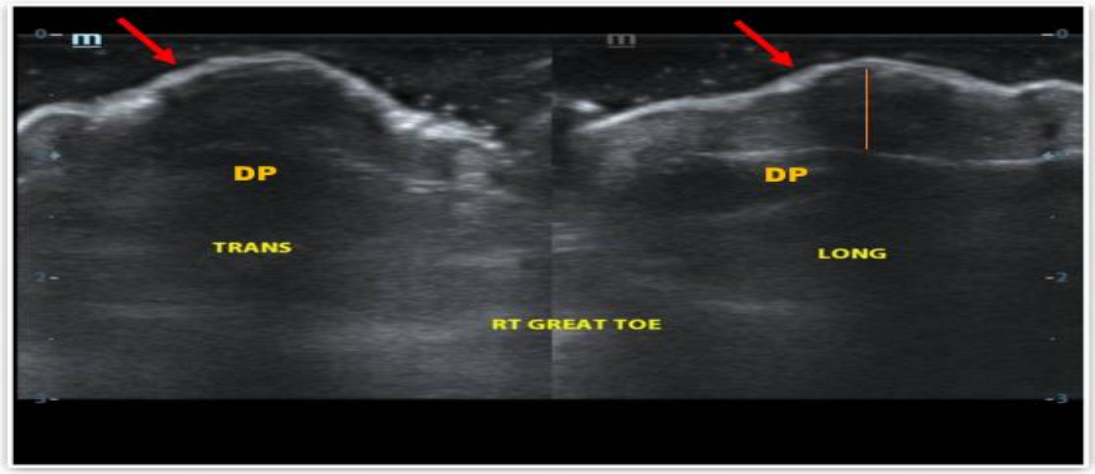

Fig .1 Psoriatic onychopathy. Gray scale sonograms obtained in transverse (A) and Longitudinal (B) views show, thickened and fused nail paltes with their irregular undulations apperaring as single wavy hyperechoic layer (arrows). Nail bed is thickened with darkness measuring about 4.1.mm. Red vertical line represents where was taken. DP represents distal phalanx.

Fig 2. Gray scale sonograms obtanied at distal interphalangeal joint show synovial thickening and bony erosions (arrow)

Fig 3. Crumbled nail plate

Fig 4. Nail pits

Discussion

To the best of our knowledge, very few studies have evaluated the dermoscopic features of nail psoriasis.[10-12] Recently, Tulika *et al*[10] andIorizzo *et al*[11] conducted a study similar to assess the diagnostic value of dermoscopy for nail psoriasis. Tulika *et al.*studied the dermoscopic features of nails in 68 patients with chronic plaque psoriasis, found that pitting was the most common manifestation, followed by streaky nail bed capillaries and onycholysis.[10]In another evocative dermoscopic study, Nakamura and Costa studied the most common onychopathies, including onychomycosis, nail psoriasis, nail lichen planus and nail fragility syndrome, in 500 patients.[12]

Similarly, very few studies have evaluated the ultrasonographic features of nail psoriasis. A study by Wortsman et al.[13]consistent with our study described 4 types of US changes in psoriatic nails: focal hyperechoic involvement of the ventral plate without involvement of the dorsal plate (type I), loosening of the borders of the ventral plate (type II), appearance of wavy plates (type III) and loss of definition on both plates (type IV). Whereas, Wollina et al.[14] found no special pattern of thenail in psoriasis patients by Ultrasound.

Being a pioneer study, not much has been reported in literature about the comparison of Ultrasonography versus Dermoscopy in diagnosing a case of nail psoriasis.

High-frequency ultrasonography probes and sensitive color and power Doppler technique permitted us to quantify in our case with chronic moderate-to-severe cutaneous psoriasis, both morphostructural changes i.e. Irregular wavy nail plate with lost interplate space, thickened nail bed and increased blood flow in the nail unit.

Whereas Dermoscopy improves the visualization of nail surface changes i.e. nail pitting, splinter hemorrhages, onycholysis, subungual hyperkeratosis, salmon patch.

Conclusion

USG and Dermoscopy both are non- invasive techniques, provides valuable information regarding morphological changes in nail unit in psoriasis but Dermoscopy is more useful for surface and periungual changes whereas USG is more valuable for deeper assessment of nail unit.

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Conflict of interest: None declared

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