Original Research Article

Onychoscopy as a diagnostic tool in dermatology – Observational study

G Sumalatha[1*], V Haritha[2], Madhavilatha Midde[3]

[1]Post Graduate, [2]Assistant Professor, [3]Professor, Department Of DVL, Santhiram Medical College and General Hospital, NH-40, Andhra Pradesh, INDIA
Email: sumasunrises@gmail.com

Abstract

Background: Nail abnormalities comprise about 10% of dermatological disorders. A pink and lustrous nail is an indication of good health. The nail unit shows only limited changes to a large number of diseases affecting it. **Objective:** To diagnose various onychoscopic features of nail unit disorders and nail fold capillary patterns. **Methods**: an observational study was done for all patients attending DVL OPD, santhiram medical college and general hospital from June 2019-November2019. All patients underwent thorough clinical examination, and affected nails were examined with dermatoscope and photographed. **Results**: Total 206 patients were included with following diseases: onychomycosis 63, psoriasis 42, infections 30, lichen planus 19, alopecia areata and onychophagia 12, periungual warts 9, systemic sclerosis and pregnancy 7, systemic lupus erythematosus 3, dariers 2. The most common onychoscopic pattern noted were spiked pattern in onychomycosis, onycholysis in psoriasis, greenish discolouration in infections, longitudinal melanonychia in lichen planus, trachynochyia in alopecia areata, crusting in onychophagia, haemorrhages in periungual warts, giant capillaries in systemic sclerosis, longitudinal melanonychia in pregnancy, tortuous capillaries in systemic lupus erythematosus, v-shaped nick in dariers. **Conclusion:** onychoscope is most important in evaluating nail disorders and reduces invasive procedures. It avoids unnecessary time-consuming investigations such as culture and biopsy.
Key Word: Onychoscopy.

[*]**Address for Correspondence:**
Dr G sumalatha, Department of DVL, santhiram medical college and general hospital, NH 40, Nandyal, Andhra Pradesh, INDIA.
Email: sumasunrises@gmail.com
Received Date: 16/11/2019 Revised Date: 29/12/2019 Accepted Date: 26/01/2020
DOI: https://doi.org/10.26611/10211326

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 03 February 2020

INTRODUCTION

Nail abnormalities comprise about 10% of dermatological disorders and diagnosis is still a challenge. The nail unit shows only limited changes to a large number of diseases affecting it. A simple visual examination does not help on diagnosing these conditions; thus, onychoscopy is thus a valuable aid in enhancing visible nail changes, and different nail fold capillary changes affecting it. The term dermoscopy was coined by saphier [1]. ronger *et al.* [2] detailed its use in studying nail pigmentation. Onychoscopy refers to examination of the nail unit using onychoscope. It has promising results in diagnosing various nail disorders and avoid time-consuming investigations such as culture and biopsy. Its utility is not only limited to pigmentary disorders of the nail unit but has been expanded to diagnose various inflammatory and infectious disorders and tumours. It also reveals different nail fold capillary patterns in connective tissue disorders. This study focuses on diagnosing nail unit disorders and incorporating it in daily practice.

MATERIALS AND METHODS

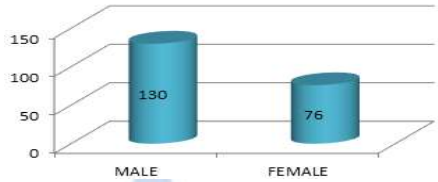
An observational study was done for a time period of one year from August 2018-19 at DVL OPD, santhiram medical college and general hospital. All patients willing to give consent were included in the study and underwent clinical examination, and affected nails were examined under onychoscope, and all uncooperative and unwilling patients were excluded from the study. Onychoscopy was performed on a hard, dull working surface, avoiding any

How to cite this article: G Sumalatha, V Haritha, Madhavilatha Midde. Onychoscopy as a diagnostic tool in dermatology – Observational study. *MedPulse International Journal of Medicine.* February 2020; 13(2): 77-80. https://www.medpulse.in/Medicine/

undue pressure by the patient or the examiner. For evaluation of vasculature, the hand was held at the level of the heart. Nail plate was cleaned with acetone or spirit to remove debris, dirt or external applications .5 Various interface media used in this study were alcohol-based hand sanitisers, ultrasound gel [3,4] which stays in control with nail surface for better visualisation.

RESULTS

A Total 206 patients were included with males being 130 and females being 76. Following diseases were included: onychomycosis 63, psoriasis 42, infections 30, lichen planus 19, alopecia areata and onychophagia 12, periungual warts 9, systemic sclerosis and pregnancy 7, systemic lupus erythematosus 3, dariers 2. The most common onychoscopic pattern noted were spiked pattern in onychomycosis, oncholysis in psoriasis, greenish discolouration in infections, longitudinal melanonychia in lichen planus, trachynochyia in alopecia areata,onychoschizia in onychophagia, haemorrhages in periungual warts[17], giant capillaries in systemic sclerosis, longitudinal melanonychia in pregnancy, giant capillaries in systemic lupus erythematosus, v-shaped nick in dariers.

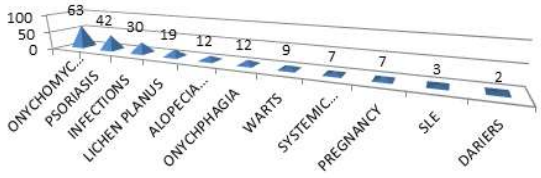


Graph 1: Sex wise distribution

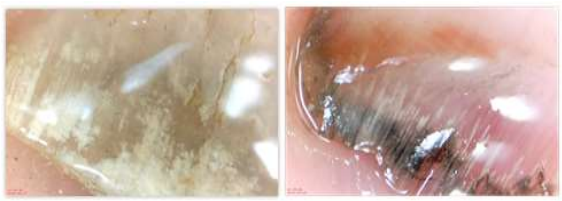
Table 1: onychoscopy patterns

Disease	Onychoscopic pattern	Total number of patients
ONYCHOMYCOSIS	SPIKED PATTERN	63
PSORIASIS	ONYCHOLYSIS	22
PSORIASIS	SPLINTER HEMORAAGES	2
PSORIASIS	SALMON PATCH	3
PSORAISIS	PITS	15
INFECTIONS	GREENISH DISCOLOURATION	30
LICHEN PLANUS	LONGITUDINAL MELANONYCHIA	19
ALOPECIA AREATA	TRACHYNOCHIA	12
ONYCHOPHAGIA	ONYCHOSCHIZIA	12
PERIUNGUAL WARTS	HEMORRAGES	9
SYSTEMIC SCLEROSIS	GIANT CAPILLARIES	7
PREGNANCY	LONGITUDINAL MELANONYCHIA	7
SYSTEMIC LUPUS ERYTHEMATOSUS	GIANT CAPILLARIES	3
DARIERS DISEASE	V SHAPED NICK	2

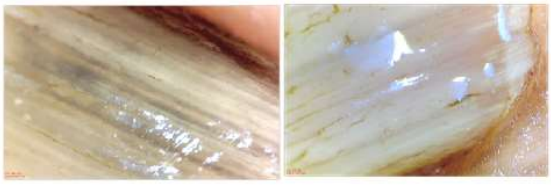
GRAPH 2: Diseases included



ONYCHOMYCOSIS

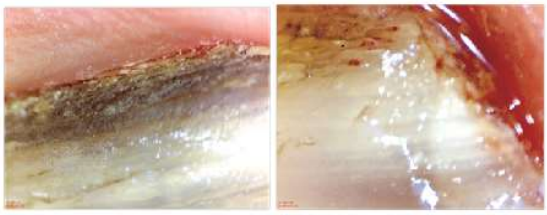


JAGGED PATTERN
LICHEN PLANUS ALOPECIA AREATA



LONGITUDINAL MELANONYCHIA TRACHYNOCHIA

INFECTION WARTS



GREENISH DISCOLOURATION SPLINTER HEMORRAGES

PSORIASIS

ONYCHOLYSIS PITS

PSORIASIS ALOPECIA AREATA

SPLINTER HEMORRAGES TRACHYNOCHIA

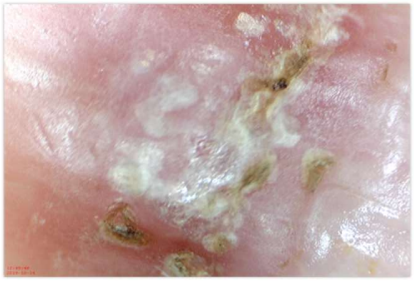
ONYCHOPHAGIA SLE

ONYCHOSCHZIA DILATED TORTOUS CAPILLARIES

SYSTEMIC SCLEROSIS DARIER

Giant capillaries
V-shaped nick

PSORIASIS



BEAUS LINES WITH PITS

DISCUSSION

Nail abnormalities comprise about 10% of dermatological disorders[20] Onychoscopy of normal healthy nail plate appears pale pink in color with a smooth shiny surface.[5] Onychoscopy was limited to nail pigmentations, but now it is used for diagnosis of other nail disorders like onychomycosis [6], psoriasis[7], infections[8], lichen planus[9], alopecia areata[10], onychophagia [11], systemic lupus erythematous, pregnancy [18,19], systemic sclerosis [12 13 14],dariers disease [15] In our study, the onychoscopy findings observed in onychomycosis were a jagged pattern, spikes that were directed to the proximal fold, white-yellow longitudinal striae in the onycholytic nail plate (aurora borealis pattern), and distal irregular termination pattern. Nakamura *et al.* performed dermoscopy in 500 cases of nail disorders, and in onychomycosis, they identified chromonychia, onycholysis, opacity, and longitudinal stripes.[16] The next common onychoscopy disease in our study was nail psoriasis. Psoriasis can involve any structure of the nail apparatus. The dermoscopic findings observed in nail psoriasis include pitting, onycholysis, salmon patch, dilated blood vessels, splinter haemorrhages, and subungual hyperkeratosis. Fine pits could be appreciated well with a dermatoscope. In our study, we found pits, onycholysis, splinter hemorrages, salmon patch. The most common infection noted in the nail plate was pseudomonas that had greenish discolouration of the nail plate. Onychoscopy findings in lichen planus include thinning of the nail plate, splitting, trachyonychia, dorsal pterygium; violaceous lines in the nail plate, pup tent sign, longitudinal ridging, longitudinal melanonychia

and longitudinal erythonychia. in our study we found trachynochia, splitting, longitudinal melanonychia.

The normal onychoscopy features of alopecia areata include pits, trachynochyia, red lunulae, nail thinning and ridging, longitudinal punctate leuconychia, splitting, dystrophy, onycholysis, onychomadesis. In our study, we found trachynochia as an onychoscopic pattern in alopecia areata. The normal onychoscopic features of darier disease include longitudinal red and white streaks, subungual hyperkeratosis, thinning of the nail plate, splintering, and triangular nicking of the free edge. In our study, we found a v-shaped nick in darier disease as the onychoscopy pattern. The nail fold capillary changes in scleroderma include architectural disorganisation, giant capillaries, hemorrages, loss of capillaries, avascular areas. In our study, we found longitudinal tortuous giant capillaries as an onychoscopic pattern. The nail folds capillary changes in systemic lupus erythematosus are nail fold erythema and telangiectasia. Capillary loop density is normal, but individual capillaries are tortuous and cork screw-shaped. In our study, we found tortuous capillaries. In pregnancy, normal physiological changes of the nail unit include increased brittleness, distal onycholysis, subungual hyperkeratosis, transverse grooving, longitudinal melanonychia. In our study, we found a longitudinal melanonychia.

CONCLUSION

Onychoscopy is a noninvasive, and cost-effective diagnostic tool that allows detection of nail changes that are not visible to the normal eye. Onychoscope reduces invasive procedures and is important in evaluating nail disorders. It avoids unnecessary and time-consuming investigations.

REFERENCES

1. Saphier J. Dermatoscopy. I. Communication. Arch Dermatol Syph 1920;128:1-19.
2. Ronger S, Touzet S, Ligeron C, Balme B, Viallard AM, Barrut D, *et al.* Dermoscopic examination of nail pigmentation. Arch Dermatol 2002;138:1327-33
3. Tasli L, Oguz O. The role of various immersion liquids at digital dermoscopy in structural analysis. Indian J Dermatol Venereol Leprol 2011;77:110.
4. Gewirtzman AJ, Saurat JH, Braun RP. An evaluation of dermoscopy fluids and application techniques. Br J Dermatol 2003;149:59-63.
5. Grover C, Jakhar D. Onychoscopy: A practical guide. Indian J Dermatol Venereol Leprol 2017;83:536-49
6. Piraccini BM, Balestri R, Starace M, Rech G. Nail digital dermoscopy (onychoscopy) in the diagnosis of onychomycosis. J Eur Acad Dermatol Venereol 2013;27:509-13.
7. Farias DC, Tosti A, Chiacchio ND, Hirata SH. Dermoscopy in nail psoriasis. An Bras Dermatol 2010;85:101-3
8. Piraccini BM, Bruni F, Starace M. Dermoscopy of non-skin cancer nail disorders. Dermatol Ther 2012;25:594-602.
9. Nakamura R, Broce AA, Palencia DP, Ortiz NI, Leverone A. Dermatoscopy of nail lichen planus. Int J Dermatol 2013;52:684-7.
10. Kossard S , Zagarella S . Spotted cicatricial alopecia in dark skin . A dermoscopic clue to fibrous tracts . Australas J Dermatol .1994;11:112-15
11. Haneke E , Baran R . Nail surgery and traumatic abnormalities . In : Baran R ,Dawber RPR ,editors.Diseases of the nails and their management . 2nd ed . oxford : Blackwell scientific Publications;1994.p.345-415
12. Ohtsuka T. Dermoscopic detection of nail fold capillary abnormality in patients with systemic sclerosis. J Dermatol 2012;39:331-5
13. Hasegawa M. Dermoscopy findings of nail fold capillaries in connective tissue diseases. J Dermatol 2011;38:66-70.
14. Hughes M, Moore T, O'Leary N, Tracey A, Ennis H, Dinsdale G, *et al.* Astudy comparing videocapillaroscopy and dermoscopy in the assessment of nailfold capillaries in patients with systemic sclerosis-spectrum disorders. Rheumatology (Oxford) 2015;54:1435-42.
15. Burge SM , Wilkinson JD.Dariers disease.Aclinical study.Br J Dermatol . 1991;125 Suppl 38:14-5
16. Nakamura RC, Costa MC. Dermatoscopic findings in the most frequent onychopathies: Descriptive analysis of 500 cases. Int J Dermatol 2012;51:483-5.
17. Piraccini BM, Bruni F, Starace M. Dermoscopy of non-skin cancer nail disorders. Dermatol Ther 2012;25:594-602.
18. John RH, Izakovic J. Dermatoscopy/ELM for the evaluation of nail-apparatus pigmentation. Dermatol Surg 2001;27:315-22. Back to cited text no. 30
19. Braun RP, Baran R, Le Gal FA, Dalle S, Ronger S, Pandolfi R, *et al.* Diagnosis and management of nail pigmentations. J Am Acad Dermatol 2007;56:835-47.
20. Samman PD. The Nail in Disease. 2nd ed. London: Heineman W; 1972. pp. 1–176.

Source of Support: None Declared
Conflict of Interest: None Declared