

## NAIL VARIATIONS IN PAPULO-SQUAMOUS DISORDERS: A CLINICAL INVESTIGATION

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### Abstract

**Background:** Nail diseases account for about 10% of all dermatological conditions. Any abnormality that affects any part of the nail unit is classified as a nail condition. The plate, matrix, bed, proximal and lateral folds, hyponychium, and underlying distal phalanx are all part of the nail unit. Heredity, skin problems, infections, systemic disease, and the ageing process, as well as internal and external drugs, physical and environmental agents, trauma, and benign and malignant tumours, can all affect these tissues. Papulo-squamous disorder is one of the main causes. Nail changes in Papulo-squamous disease have received insufficient attention, with only a few research available.

**Aims & Objectives:** This study attempts to shed some information on the frequency and patterns of nail involvement in Papulo-squamous illnesses.

**Methodology:** This is a descriptive research project. Over the course of two years, it was conducted at the dermatology department of a tertiary healthcare centre in central India. Examinations of the general, systemic, and dermatological systems were performed. The nails were meticulously examined. In pertinent cases, special examinations such as skin biopsy and potassium hydroxide (KOH) mount were performed.

**Results:** Papulo-squamous disorder affected 100 people. Psoriasis was the most frequent Papulo-squamous condition, followed by lichen-planus and PRP. Pitting was the most prevalent nail alteration (81%) while dorsal pterygium was the least common. **Conclusion:** The nail is an important appendage that affects a variety of dermatoses and serves as a diagnostic window. Knowing the normal and abnormal variations, as well as their relationship to various Papulo-squamous illnesses, aids not only in diagnosis but also in treatment.

**Key words:** Papulo-squamous disorder, nail changes, psoriasis, lichen-planus.

## I. INTRODUCTION:

The index to health is the nail, just as the index to mind is the face. The epidermal derivatives that produce the hardest epithelial derivatives that produce the hardest epithelial structure known in mammalian biology are known as nails<sup>1</sup>. Protection, tactile feeling, and social communication are all provided by nails. It provides dexterity and precision in picking up small things while protecting the terminal phalanx and fingertip from stress. Many dermatological and systemic illnesses can cause nail disease<sup>2</sup>. Nail alterations are linked to about ten percent of dermatological problems. The nosology of Papulo-squamous disorders is based on the morphology of clinical lesions, which is dominated by scaly papules and plaques<sup>3</sup>. Psoriasis, lichen-planus, lichen nitidus, lichen striatus, pityriasis rosea, pityriasis rubra pilaris, parapsoriasis, and pityriasis lichenoides are the most common disorders in this group, which are characterised by skin and nail lesions. The goal of this study was to discover the nail changes that occur in frequent Papulo-squamous illnesses, as well as their varied patterns<sup>4</sup>.

### Aims & Objectives:

This study attempts to shed some information on the frequency and patterns of nail involvement in Papulo-squamous illnesses.

### Method

This is a descriptive research project. Over the course of two years, it was conducted at the dermatology department. The study included all OPD patients with Papulo-squamous diseases identified clinically according to the ICD 10 classification. Females who were pregnant or lactating, as well as individuals who refused to consent to the study, were eliminated. Acrylic nails can cause severe onychodystrophy, onycholysis, and subungual hyperkeratosis, hence patients with a history of using artificial nails at any point in their lives were also eliminated. A detailed history was gathered, including age, duration, location of skin lesion, and any relevant co-morbid illness. Examinations of the general, systemic, and dermatological systems were performed. The length of time between nail changes and associated factors, as well as the different types of nail alterations, were

recorded. For those who needed it, routine blood tests like the CBC, LFT, and RFT were performed. In certain cases, further tests were required, such as a skin biopsy and a KOH mount.

Statistical data analysis: IBM SPSS 20.0 Version software will be used to analyse the data. For qualitative data analysis, Chi square analysis will be used to determine significance, while for quantitative data analysis, the t test will be used. A P value of less than 0.05 will be considered significant.

### Observation and Results

The study included 100 patients, 82 of whom were males and 18 of whom were girls. The participants ranged in age from 12 to 50 years old. Psoriasis, lichen-planus, and pityriasis rubra pilaris were the most frequent Papulo-squamous illnesses studied in this study. Parapsoriasis was the least common. Pitting was the most prevalent nail modification, followed by subungual hyperkeratosis and longitudinal melanonychia, while pterygium was the least common. Pitting (81%) was the most prevalent type of nail change found in 76 psoriasis patients, followed by subungual hyperkeratosis (42%), and onycholysis (4%). (29 percent). Spinter haemorrhage was the least common nail defect seen

(2 percent). The toe nail is less involved than the finger nail. Thumb, index, and ring fingers are the most commonly affected finger nails. Plaque psoriasis was the most frequent type of psoriasis, followed by scalp psoriasis, plamoplantar psoriasis, and guttate psoriasis. The study discovered a total of 12 cases of lichen-planus. Thinning of the nail plate (66 percent) was the most prevalent nail involvement in lichen-planus, followed by longitudinal melanonychia (50 percent). The dorsal pterygium and Beaus line were the least prevalent. Nail alterations in the finger nail are more common than in the toe nail. Thickening of the nail plate was the most common nail pattern aberration observed in PRP, followed by subungual hyperkeratosis and pitting. Only two cases of lichen striatus and pityriasis rosea were reported, both with nail plate thinning and Beaus lines. In psoriasis, the nail matrix has a neutrophilic infiltration, whereas the nail bed has epithelial hyperplasia and hypergranulosis. The nail plate has orthokeratosis and focal parakeratosis, and the nail bed has widespread hypergranulosis with colloid bodies in lichen-planus. Nail biopsies in patients with lichen striatus, pityriasis rubra pilaris, pityriasis rosea, and erythroderma revealed no particular nail alterations.

**Table 1: Diagnosis**

Diagnosis	No. of Patients
Psoriasis	76
Lichen-planus	12
Pityriasis rubra pilaris	4
Pityriasis rosea	2
Lichen Niditus	2
Lichen striatus	2
Parapsoriasis	2

**Table 2: Nail changes in psoriasis**

Nail changes in psoriasis	Total number of patients
Pitting of nails	62 (81%)
Subungual hyperkeratosis	32 (42%)
Onycholysis	22 (29%)
Onychomedesis	16 (21%)
Oil drop	4 (5%)
Longitudinal melanonychia	4 (5%)

**Table 3: Nail changes in lichen-planus**

Nail changes in lichen-planus	Total number of patients
Thinning of nail plate	8 (66%)
Longitudinal melanonychia	6 (50%)
Trachonychia	6 (50%)
Pterygium	2 (16%)
Dystrophy	2 (16%)

### Discussion

This study comprised 100 individuals with Papulo-squamous illnesses presenting with nail alterations, with 82 males (84%) and 18 females participating (18 percent). The male majority in our analysis matched that of Armesto et al., who found that 47 percent of 661 patients had nail involvement, with a male preponderance of 13.5 percent<sup>5</sup>. According to a

related study, 80-90 percent of psoriasis patients would have nail involvement at some point in their lives, which is higher than the 78 percent nail changes found in SN et al study<sup>6</sup>. Involvement of the nails has been documented in 50% of psoriasis cases, however the frequency rises to 80-90 percent with time. In a study by Al-Mutairi N et al, nail pitting was found to be the most prevalent symptom (61.84 percent), followed by onycholysis (30.26 percent), and nail plate

discolouration (7.9 percent)<sup>7</sup>. Pitting (81 percent), onycholysis (42 percent), and subungual hyperkeratosis were the most prevalent nail abnormalities seen in people with psoriasis in our study (29 percent). In a research by De Jong et al., the most common nail deformation was nail pitting. They assessed 1728 psoriasis patients, and found that 51% of them had pitting of the nails, which was similar to what we found in our study. In psoriasis patients, Ghosal et al. and Jiaravuthisan MM et al. found that 32% of finger nails and 26% of toe nails are affected, which is similar to our findings<sup>8</sup>. Pitting was more common in finger nails and subungual hyperkeratosis was more common in toe nails, similar to the findings of Solomon J et al. and Natarajan et al., who found nail changes in 66.66 percent (48/72) of psoriasis patients<sup>9</sup>. Pitting, onycholysis, and subungual hyperkeratosis were the most common fingernail changes, while onycholysis and subungual hyperkerato According to Brazzelli et al., the fourth fingernail is the most afflicted in both hands, while the great toe nail of the right leg is the most commonly impacted toe nail<sup>10</sup>. The thumb and index finger, on the other hand, are the most commonly involved finger nails, according to our research. Ahmed and Nasreen discovered that 27 (46 percent) of 59 psoriasis patients had fingernail psoriasis, 19 (32 percent) had toenail psoriasis, and 13 (22 percent) had both finger and toenail psoriasis. Roughening was the most common nail finding, with 55 (93%) individuals having it, followed by transverse ridging and pitting, colour change, thickness, dystrophy, subungual hyperkeratosis, onycholysis, and leukonychia<sup>11</sup>. This conclusion is not supported by our research. Goettmann et al. conducted a clinical investigation in which 98 percent of 67 patients with nail lichen-planus had fingernail involvement. In contrast, 5 (86%) of the 7 lichen-planus patients had finger nail alterations, while 1 (14) had toe nail changes<sup>12</sup>. The most common nail changes in Pityriasis rubra pilaris were thickening of the nail plate, followed by subungual hyperkeratosis and pitting, which is similar to the study by Mortimer P. S. et al. Tosti et al. discovered that nail lichen striatus is frequently associated with skin lesions, but it can also be found on its own. This is supported by our research<sup>13</sup>.<sup>14</sup>. Lichen striatus affecting the nail plate along the line of cutaneous lesions was documented by Donald and Owens.

### Conclusion

The nail is an important appendage that affects a variety of dermatoses and serves as a diagnostic window. It has been proven that nail modifications in conjunction with Papulo-squamous illnesses have clinical importance. The clinician can distinguish between various Papulo-squamous disorders by looking at specific alterations in the nails. The correlation of nail alterations aids dermatologists in reaching a conclusive diagnosis and appropriate disease management.

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