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Research Article

CLINICAL AND SEROLOGICAL CHARACTERISTICS OF NAIL PSORIASIS IN PATIENTS: FINDINGS FROM A CROSS-SECTIONAL STUDY

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ABSTRACT

A lifetime incidence of 80-90% of people with psoriasis are affected by nail involvement. As well as predicting joint disease, it may indicate the severity of cutaneous involvement. In spite of this, the therapy has been little studied and evaluated, particularly among Indian psoriatic patients. This study assessed nail involvement and quality of life impairment in psoriasis patients as well as nail involvement clinical profile. Our study focused on nail psoriasis patients with consecutive cutaneous (psoriasis area severity index score) and nail psoriasis. Nail disease was assessed using a quality of life score of 10. Inflammatory markers, anticyclic citrullinated peptide antibodies, and joint disease were assessed in all patients. The concomitant psoriatic arthritis was found in 12 of our 45 patients with nail psoriasis. In the survey, the average severity index was 16.2 ± 7.5. In the survey, ninety-two percent of respondents reported pitting, 89.9% onycholysis, and 84.8% subungual hyperkeratosis. The mean nail psoriasis severity index score was 81.5 ± 30.7 and mean nail psoriasis quality of life 10 was 2.2 ± 0.6. In 26/45 patients (59.2%), the erythrocyte sedimentation rate was raised and the CRP levels were elevated; rheumatoid factor was positive in 7/45 (17.1%) and anticyclic citrullinated peptide antibodies were raised in 5/45 (12.7%). Researchers have found that nail involvement does not correlate well with the extent of cutaneous disease in Indian patients with nail psoriasis. Additionally, nail disease has little effect on patients' quality of life. The quality of life should be measured using an Indian-specific questionnaire. Patients with concomitant arthritis had higher serum markers than those without.

Keywords :- Psoriasis, Peptide antibodies, Psoriatic arthritis.

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INTRODUCTION

Debilitating skin, nail, and joint disease, psoriasis is common and chronic. There is an estimated prevalence of 1%–3% of psoriasis in the population, varying according to ethnicity [1]. Psoriasis patients often have nails involved, affecting roughly 10%–50%. The lifetime prevalence of nail affliction increases with increasing disease duration, to an estimated 80%-90%. [2] Approximately 90% of joint disease patients develop nail involvement. [3] Smaller amounts of nail psoriasis exist in isolated cases, at 5%–10%. A relatively understudied clinical manifestation of psoriasis is nails involvement. There may be one or more of these manifestations before, developing simultaneously, or following the cutaneous manifestations. In addition to contributing to fine motor function of the fingers, healthy nails are cosmetically appealing. Therefore, psoriasis patients' quality of life is adversely affected by nail involvement. With special reference to psoriatic arthritis, the present research aimed to document clinical changes in Indian patients with nail psoriasis. It was also evaluated whether nail involvement impacted quality of life and whether the serological profile was abnormal.

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METHODS

After informed written consent, we recruited 45 consecutive psoriasis patients with nail psoriasis presenting to our tertiary care facility. Physical examination and a complete history were conducted. Photographs were taken to document nail changes. A nail psoriasis severity index was used to assess nail involvement severity [4], and a nail psoriasis quality of life scale was used to evaluate quality of life [5]. Psoriasis area severity index was also used to measure cutaneous disease severity. A group of patients with psoriatic arthritis (Group A) and one without (Group B) were classified according to the Psoriatic Arthritis Classification Criteria. [6]. Including erythrocyte sedimentation rate and Creative protein, every patient underwent a complete hemogram and biochemical evaluation. Using commercially available kits, a serological assessment was also performed following the manufacturer's instructions. With these kits, anticyclic citrullinated peptide and rheumatoid factor antibodies were tested. A sensitivity of 0.6 mg/dL was obtained for RHELAXCRP (Tulip Diagnostic, India), while a sensitivity of 10 IU/ml was obtained for RHELAXRF (Tulip Diagnostic, Goa, India). A commercial enzyme-linked immunosorbent assay IMTECCCP anti-bodies was used to analyze anticyclic citrullinated peptide antibodies. Observations were recorded and correlated both clinically and serologically. A version 20.0 of SPSS Statistics for Windows was used for data analysis (SPSS Inc., Chicago, IL, USA).

RESULTS

Among the study population, the mean age was 33.7 ± 12.1 years. Women were outnumbered by men nearly two to one (29 vs. 16). It has been reported that patients with psoriasis have experienced it for 17 days to 30 years on average (mean = 23.2 ± 9.4 years). Based on psoriasis area severity index, the severity of cutaneous disease ranged from 0.5 to 35, with a mean of 15.9 ± 7.7. In addition to Pitting, Beau's lines, and Leukonychia, the most common nail bed changes are onycholysis and subungual hyperkeratosis. Neither acropustules nor red lunulas were observed (two and three patients, respectively). Twenty-two of forty-five patients (65.5%) had nail fold lesions. Based on the study cohort's nails, the mean severity index of nail psoriasis was 80.27 ± 42.044. A slightly higher score was obtained for toenails than fingernails (40.45 ± 17.567 vs. 37.49 ± 23.032). Patients with nail psoriasis severity index had a low impact on quality of life as measured by nail psoriasis quality of life 10: 2.2 ± 0.6. In addition, patients with concomitant arthritis had an increased severity index, but this difference was not statistically significant. There were higher nail psoriasis severity ratings among patients with nail fold lesions in comparison to those without (92.65 ± 32.14 vs. 52.78 ± 31.40; P = 0.002). Moreover, patients with oil spots were found to have a higher overall nail psoriasis severity index score than those without oil spots (105.28 ± 34.26 vs. 53.74 ± 51.32; *A P value of 0.001 was found.* Skin severity and nail severity index correlated weakly but statistically insignificantly (r = 0.22; P = 0.15), which suggests that hair loss worsens with psoriasis severity. Interestingly, the severity index of nail psoriasis and quality of life 10 had little correlation (Spearman's beta = 0.375, P = 0.02), indicating worsening quality of life with advanced forms of the disease. Accordingly, with increasing disease duration, the nail psoriasis quality of life 10 improved (Spearman's = 0.481, P = 0.002), indicating that quality of life was negatively impacted. According to the classification criteria for psoriatic arthritis, nine of the study subjects had joint involvement (Group A). Five of the eight patients had symmetrical polyarthritis, twice with prominent axial involvement, and once with asymmetrical oligoarthritic. Based on their baselines, Table 1 compares the groups. There was a comparatively higher mean age of patients in Group A, as well as a longer disease duration, a higher severity index for nail psoriasis, and a higher severity index for psoriasis area severity. Additionally, site-specific variations were found between the groups. Psoriatic arthritis Group A was significantly more likely to have scalp involvement, perianal lesions, and periungual lesions. Anemia was found in 8 out of 45 of the subjects (21.1%). Two others had chronic disease induced anemia with poor response to oral supplements, while six had iron deficiency or vitamin D deficiency anemia. As a result of severe anemia, one of the two subjects required blood transfusions. Two subjects had moderate liver dysfunction. Despite episodic proteinuria and marginally elevated serum creatinine levels in two patients with psoriatic arthritis, all renal parameters were normal. There was a case of membranous glomerulonephritis in one of them. He had proteinuria in the nephrotic range. Hepatitis B, C, and HIV I and II seronegative patients were all included in the study. In 26/45 subjects (59.2%) and 19/45 (33.8%), the serum markers, erythrocyte sedimentation rate, and creactive protein were elevated. There was a higher prevalence of anticyclic citrullinated peptide antibodies in 2/9 (20.5%) of psoriatic arthritis patients compared to 2/29 (8.2%) of psoriasis without arthritis patients. Psoriatic arthritis patients (Group A) were more likely to be positive for rheumatoid factor than patients in Group B [Table 1].

Table 1: An Analysis of Subjects with Nail Psoriasis and Arthritis (Group A) And Without Arthritis (Group B)

Variables	Group A (PsA), *n*=12	Group B (psoriasis without joint involvement), *n*=33	*P*
MEAN AGE AT PRESENTATION IN YEARS (years±SD)	37.2±13.2	37.8±14.2	0.427
MEAN DISEASE DURATION (years)	13.4±9.2	5.6±7.2	0.008*
PASI	19.4±5.6	12.2±12.1	0.314
NAPSI FINGERNAIL	49.2±20.2	39.2±21	0.094
NAPSI TOENAIL	54.8±24.2	37.2±17.3	0.064
NAPSI TOTAL	102.2±34.2	69.4±33	0.062
NPQ10	1.3±0.6	0.8±0.6	0.372
PERIUNGUAL LESIONS	9/12	20/33	0.223
INTERGLUTEAL LESIONS	8/12	13/33	0.001*
PERIANAL LESIONS	7/12	8/33	0.020*
SCALP LESIONS	9/12	21/33	0.409
INFLAMMATORY MARKERS			
ESR	9 (79.4)	17 (54.9)	0.175
CRP	7 (51.3)	12 (37.2)	0.355
RA FACTOR	3 (20.5)	4 (10.3)	0.363
ANTI‑CCP ANTIBODY	2 (20.5)	3 (8.2)	0.466

DISCUSSION

Especially in Indian settings, psoriasis and nail involvement are underexplored and neglected. 45 psoriasis patients with nail involvement were evaluated for their clinical and serological profiles. Pitting, onycholysis, and subungual hyperkeratosis dominated our series of clinical nail changes. Our findings confirm earlier published findings [7,8]. Nail fold lesions were found in a significant percentage of patients (22/45; 65.5%) and in a larger proportion of patients with psoriatic arthritis (8/9; 88.9%). Psoriasis subjects reported 7.9% (3/45) red lunulas, which were thought to be less common. The mean nail psoriasis severity index score in our study was higher than that in previous studies both from India and elsewhere. As well as known, patients with concomitant arthritis have higher nail psoriasis severity index scores [9-13]. There was also a weak correlation between nail psoriasis severity index and psoriasis area severity index ($r = 0.22$; $P = 0.15$), indicating that the severity of the skin disease correlated with nail involvement. Despite high severity index scores (overall high), quality of life 10 scores was relatively low (mean 2.2 ± 0.6) in our study cohort. The outcome of this study is not significant compared to Western studies that document a greater impact. Klaassen *et al*. reported mean nail psoriasis quality of life 10 score of 9.9 ± 14 in their study. A self-assessed nail psoriasis quality of life 10 survey was also correlated [13]. This discrepancy might be caused by India not having many relevant questions in this questionnaire. Despite their lower socioeconomic status, our patients had a good family and social support system, which is common in Indian joint families. It is irrelevant to analyze people's ability to drive a car if they are seeking care at a government-run facility. The support system we provide our patients allows them to lock and unlock doors independently. Patients were often unaware of their nail disease or didn't bother about it. Our subjects also did not care about Cosmosis. The quality of life of Indian patients with nail psoriasis needs to be assessed with a more practical questionnaire.

A majority of patients with psoriatic arthritis develop intergluteal, perianal, and periungual lesions. Particulate involvement at these sites is also associated with psoriatic arthritis [14,15] and should be closely monitored and appreciated to aid in early diagnosis. Nail psoriasis severity index scores were also higher in people with periungual disease. It triggers a cascade of inflammatory mediators, leading to chronic inflammation. Disease activity and treatment response can be assessed by inflammation markers. Common and easily obtainable are creactive protein and erythrocyte sedimentation rate. While they are both considered inflammation markers, they serve different roles. Injuries slowly raise erythrocyte sedimentation rate, which declines slowly after the stimulus is removed but remains elevated for weeks afterwards. Its half-life is 6–8 hours, indicative of acute inflammation. It disappears rapidly with treatment. ESR offers long-term monitoring of disease activity based on Creactive Protein levels. [16] Creaky proteins are sensitive inflammation markers, but not specific. [17,18] A multicenter study, examining 1306 Italian patients with psoriatic arthritis, found 52.6% were elevated [19]. Among patients with psoriatic arthritis, raised creactive protein was detected in 62% of patients [11]. We found raised creactive protein in 19/45 (33.8%) patients and raised erythrocyte sedimentation rate in 26/45 (59.2%).

Several markers of rheumatoid arthritis have

been established, including anticyclic citrullinated peptide antibodies. The latter is 69% sensitive and 85% specific for rheumatoid arthritis. [20] Against citrullinated peptides, anticyclic citrullinated peptide antibodies are considered a more specific marker for rheumatoid arthritis (53% to 68%) but less sensitive (53%–68%). In a study, 93% of patients with undifferentiated arthritis who had anticyclic citrullinated peptide positive tissue developed rheumatoid arthritis over a 3-year period compared to 25% in anticyclic citrullinated peptide negative patients.

Generally speaking, psoriatic arthritis is a seronegative condition, but 10% of patients may have positive rheumatoid factor levels which has been reported positive results in eight out of 62 (12.9%) patients. Some psoriatic arthritis patients have rheumatoid factor positivity. It is possible, however, that rheumatoid arthritis patients have higher serum levels of rheumatoid factor than those with psoriasis or psoriatic arthritis. Rheumatoid factor positivity was found in 7/45 (17.1%) patients. Compared to patients without arthritis (10.3%), it was higher in psoriatic arthritis patients (20.5%). The findings are consistent with other studies. Anticyclic citrullinated peptide antibodies are variable in patients with psoriasis [23-29]. Anticyclic citrullinated peptide antibodies are detected in 5%–20% of psoriatic arthritis patients. Seronegative patients have more severe arthritis. As low as 0/15 (0%) in psoriasis without arthritis to as high as 11/62 (17.7%) have been reported with anticyclic citrullinated peptide. The cohort had 5/45 (12.7%) positives for anticyclic citrullinated peptide antibodies, 20.5% of patients with psoriatic arthritis and only 8.2% of patients with psoriasis without arthritis. Because results in different studies are highly variable, it is difficult to draw definitive conclusions. A larger study population is needed. A greater degree of inflammatory mediators and serological markers was observed in patients with psoriatic arthritis such as erythrocyte sedimentation rate, creative protein, and rheumatoid factor. As per existing diagnostic criteria, inflammatory markers may support a diagnosis of psoriatic arthritis, whereas serological markers may hinder a definitive diagnosis. Knowing and understanding psoriatic arthritis may assist in long-term treatment plans and prognoses in undifferentiated seropositive arthritis.

CONCLUSIONS

In the context of Indian psoriasis, our study focuses on nail changes. As measured by nail psoriasis quality of life 10, there was no correlation between nail involvement and quality of life. There are probably scoring systems that need adaptation for the Indian population based on this lack of congruency. Immune and serological markers were also elevated in a high proportion of patients. A word of caution should be offered in interpreting such reports in other arthropathies. In summary, psoriatic patients with nail disease should be closely monitored and followed up. Before definite conclusions can be drawn, controlled studies with a larger population sample size are needed.

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