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Clinical Profile of Patients Either with Psoriasis or Lichen Planus Attending Tertiary Care Hospital

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ABSTRACT

Prevalence rate of psoriasis is 0.1-3% worldwide. While it can begin at any age, psoriasis has 2 peaks of onset, the first at age 20-30 years and the second at age 50-60 years. Psoriasis has been reported to occur with almost equal frequency in males and females. Although the cause of psoriasis is unknown, there is evidence of a complex interaction between altered keratinocyte proliferation, differentiation, inflammation and immune dysregulation. The specimen obtained was subjected for tissue processing after fixation. Tissue sections was prepared from paraffin block and stained with haematoxylin and eosin followed by microscopic examination. Histochemical special stains was used whenever necessary. Among 44 cases of histologically diagnosed psoriasis patients, most common clinical presentation was erythema 95.5% followed by papules in 93.2 percent of cases. Among 40 cases of histologically diagnosed lichen planus the most common clinical presentation was violaceous papules (95%) followed by pigmentation in 92.5 percent of cases.

INTRODUCTION

Psoriasis (Gk. psora, the itch) is a chronic papulosquamous disease of unknown aetiology with unpredictable course of remission and exacerbation. However, both genetic and environmental factors are thought to play a role in initiation and progression of disease. It is one of the oldest recorded skin disease, the original description is attributed to Celsus (3540 AD). Galen is considered to have used the term psoriasis. Robert Williams (1757-1812) was the first to give an excellent description with illustrations of psoriasis as a clinical entity. Ferdin and Hebra (1816-1880) gave a complete and precise description of this disease^[1-2].

Prevalence rate of psoriasis is 0.1-3% worldwide. While it can begin at any age, psoriasis has 2 peaks of onset, the first at age 20-30 years and the second at age 50-60 years. Psoriasis has been reported to occur with almost equal frequency in males and females^[3].

Although the cause of psoriasis is unknown, there is evidence of a complex interaction between altered keratinocyte proliferation, differentiation, inflammation and immune dysregulation.

The rate of epidermal cell replication is markedly accelerated in active lesions of psoriasis, as shown by the higher than normal number of basal and suprabasal mitotic figures and the greater number of premitotic cells labelled by tritiated thymidine^[4].

Early calculations made it appear likely that in psoriatic lesions there was a great acceleration of the transit time of cells from the basal cell layer to the uppermost row of the squamous cell layer, from approximately 53 days in normal epidermis to only 7 days in the epidermis of active psoriatic lesions.

Further investigations have found that the germinative cell cycle is shortened from 31-36 hours, indicating that psoriatic keratinocytes proliferate approximately eightfold faster than do normal keratinocytes, 100% of germinative cells of the epidermis enter the growth fraction instead of only 60% of normal subjects^[5].

Cell-mediated immunity plays a major role in lichen planus. The infiltrating cells in lichen planus are predominantly T lymphocytes with very few B lymphocytes. More than 90% are activated T lymphocytes expressing HLA-DR antigen and some IL-2 receptor.

In the epidermis adjacent to the infiltrate, basal keratinocytes express HLA-DR surface antigen and ICAM-1 (409), both of which are implicated in the enhancement of the interaction between lymphocytes and their epidermal targets resulting in keratinocyte destruction (408). It is probable that these surface antigens are induced by cytokines (γ -IFN and TNF- α) released by lymphocytes from the infiltrate^[6].

The eosinophilia of the keratinocytes and the increase in thickness of the granular and cornified layers

suggest a decreased epidermal turnover. However, in spite of severely damaged basal cells, measurements of cell proliferation in lichen planus with tritiated thymidine have shown an increase in cell proliferation.

MATERIALS AND METHODS

The study includes clinically diagnosed/suspected and untreated cases of papulosquamous skin lesions attending to the Department of Dermatology.

Biopsy of clinically diagnosed/suspected cases of papulosquamous lesions was performed in the Department of Dermatology and sent to the Department of Pathology in 10% formalin. The specimen obtained was subjected for tissue processing after fixation. Tissue sections were prepared from paraffin block and stained with haematoxylin and eosin followed by microscopic examination. Histochemical special stains were used whenever necessary.

Type of Study: Prospective Study.

Inclusion Criteria:

- Cases with clinical features of papulosquamous disorders attending skin OPD.
- Cases which were already diagnosed and have discontinued treatment for 1-2 weeks in case of topicals and for 1 month in case of oral agents or phototherapy.

Exclusion Criteria: Skin disorders with infective etiology and other skin lesions which are not papulosquamous disorders and patients on treatment.

RESULTS AND DISCUSSIONS

Table 1: Distribution of Subjects According to age Group in Psoriasis Subjects

Age group	Frequency	Percent
11-20yrs	1	2.3%
21-30yrs	23	52.3%
31-40yrs	13	29.5%
41-50yrs	3	6.8%
51-60yrs	3	6.8%
>60yrs	1	2.3%
Total	44	100.0

Out of 44 cases of psoriasis, majority of the patients belong to 21-30 years (52.3%) of age group followed by 31-40 years (29.5%) of age group.

There was a female predominance with 56.8% forming a male to female ratio of 1: 1.3.

Table 2: Clinical Presentation in Psoriasis Subjects

	N	%
Papule	41	93.2%
Plaque	29	65.9%
Scale	40	90.9%
Erythema	42	95.5%

Among 44 cases of histologically diagnosed psoriasis patients, most common clinical presentation was erythema 95.5% followed by papules in 93.2 percent of cases.

Table 3: Microscopic Features in Psoriasis Subjects

Microscopy	Psoriasis	
	N	%
Hyperkeratosis	29	65.9%
Parakeratosis	44	100.0%
Munro micro abscess	35	79.5%
Hypogranulosis	23	52.3%
Acanthosis	27	61.4%
Spongiosis	6	13.6%
Elongated rete ridges	22	50.0%
Increased density of blood vessels	44	100.0%
Perivascular inflammatory cell infiltrate	44	100.0%
Perifollicular acanthosis	1	2.3%
Perifollicular inflammatory cell infiltrate	1	2.3%

Among 44 cases of histologically diagnosed psoriasis patients, parakeratosis, increased density of blood vessels, perivascular inflammatory cell infiltrate was seen in all 44 cases followed by Munro micro abscess (79.5%) and hyperkeratosis in 65.9 percent of cases.

Table 4: Distribution of Subjects According to age Group in Lichen Planus Subjects

Age group	Frequency	Percent
11-20yrs	0	.0%
21-30yrs	0	.0%
31-40yrs	14	35%
41-50yrs	16	40%
51-60yrs	7	17.5%
>60yrs	3	7.5%
Total	40	100.0

Among 40 cases of lichen planus, 75% of patients belonged to 5th and 6th decade of life and there was a male predominance (60%) with male to female ratio of 1.5: 1.

Table 5: Clinical Presentation in Lichen Planus Subjects

	Lichen Planus	
	N	%
Papule	38	95%
Plaque	11	27.5%
Scale	1	2.5%
Erythema	3	7.5%
Pigmented	37	92.5%

Among 40 cases of histologically diagnosed lichen planus the most common clinical presentation was violaceous papules (95%) followed by pigmentation in 92.5 percent of cases.

Table 6: Microscopic Features in Lichen Planus Subjects

Microscopy	Lichen Planus	
	N	%
Hyperkeratosis	40	100.0%
Hypergranulosis	22	55.0%
Acanthosis	36	90.0%
Elongated rete ridges	29	72.5%
Basal cell degeneration	32	80.0%
Melanin incontinence	36	90.0%
Civatte bodies	15	37.5%
Max Joseph space	15	37.5%
Band like inflammatory cell infiltrate	40	100.0%
Perivascular inflammatory cell infiltrate	39	97.5%
Perifollicular acanthosis	1	2.5%
Perifollicular inflammatory cell infiltrate	1	2.5%

Among 40 cases of histologically diagnosed lichen planus patients, hyperkeratosis, band like inflammatory cell infiltrate seen in all 40 cases followed by perivascular inflammatory cell infiltrate (97.5%), acanthosis (90%), melanin incontinence (90%) and basal cell degeneration in 80 percent of cases.

Table 7: Comparing Distribution of Cases According to age Group in Psoriasis in Present Study with other Studies

Study	Age group (years)
Karumbaiah et al ^[7]	20-30
Agrawal et al ^[8]	31-40
Present study	21-30

In the present study psoriasis was most commonly seen in the age group of 21-30 years which is similar to study done by Karumbaiah *et al.*

In the study done by Agrawal *et al.* psoriasis was most commonly seen in the age group of 31-40 years.

Table 8: Comparing Incidence of Gender in Psoriasis in Present Study with other Studies

Gender	Reddy et al ^[9]	Present study
Male	76.4%	43.2%
Female	23.6%	56.8%

In present study female preponderance was seen in psoriasis whereas study done by Reddy *et al.* showed male preponderance.

The present study showed parakeratosis, vascular changes and dermal infiltration of inflammatory cells in all 44 cases, similar findings in 89% of cases was observed in the study done by Barman *et al.* with lesser frequency in the study done by Karumbaiah *et al* and Reddy *et al.*

In the present study, out of 49 cases, 42 (85.71%) cases clinically diagnosed as psoriasis were confirmed histologically, while 7 (14.28%) were histologically had other diagnosis. Because some of the histological features overlap with lesions like pityriasis rosea, seborrheic dermatitis. However, some of the histological features are specific and characteristic for each entity.

In the study done by Agrawal *et al.* 60% of clinically diagnosed cases of psoriasis were confirmed histologically while 40% cases had histologically different diagnosis.

In the study done by Barman *et al.* 100% of concordance found between clinical diagnosis and histological diagnosis. However, the number of cases was less in their study.

Table 11: Comparing Distribution of Cases According to age Group in Lichen Planus in Present Study with other Studies

Study	Age group (years)
Karumbaiah et al ^[7]	31-40
Balaji C et al ^[11]	21-30
Present study	41-50

In the present study lichen planus was most commonly seen in 41-50 years of age group and study by Karumbaiah *et al.* showed most cases in 31-40 years of age group and study by Balaji C *et al.* had most cases in 21-30 years of age group.

In present study female (60%) preponderance was seen in lichen planus which was in concordance with Balaji^[71] (58.82%). Whereas study done by Karumbaiah^[70] had male preponderance.

In the present study hyperkeratosis, acanthosis, band like inflammatory cell infiltrate, pigment incontinence

Table 9: Comparison of Histopathological Findings in Psoriasis with other Studies

Histopathological finding	Reddy et al ^[9]	Karumbaiah et al ^[7]	Barman et al ^[10]	Present study
Hyperkeratosis	28 (82.5%)	17 (77.27%)	77.77%	29 (65.9%)
Parakeratosis	27 (79.4%)	16 (72.72%)	88.88%	44 (100%)
Acanthosis	28 (82.5%)	19 (86.36%)	88.88%	27 (61.4%)
Suprapapillary plate thinning	13 (38.23%)	09 (40.90%)	66.66%	
Hypogranulosis	08 (23.5%)	05 (22.72%)	44.44%	23 (52.3%)
Munro micro abscesses	10 (29.4%)	05 (22.72%)	44.44%	35 (79.5%)
Elongated rete ridges	24 (73.5%)			22 (50%)
Vascular changes	20 (58.8%)	19 (86.36%)	88.88%	100 (100%)
Dermal infiltration of inflammatory cells	32 (94.1%)	18 (81.81%)	88.88%	100 (100%)

Table10: Comparing Correlation of Clinical Diagnosis and Histopathological Diagnosis in Present Study with others

Study	Clinical diagnosis	Total number of cases	Cases correlating on histopathology (no.) (%)	Cases not correlating on histopathology (no.) (%)
Agrawal et al. ^[8]	Psoriasis	30	18 (60%)	12 (40%)
Barman et al. ^[10]	Psoriasis	10	10 (100%)	
Present study	Psoriasis	49	42 (85.71%)	07 (14.28%)

Table12: Comparing Incidence of Gender in Lichen Planus in Present Study with other Studies

Gender	Balaji C et al ^[11] (no. of cases-51)	Karumbaiah et al ^[7] (no of cases-17)	Present study (no of cases-40)
Female	30 (58.82%)	06 (35.29%)	24 (60%)
Male	21 (41.18%)	11 (64.70%)	18 (40%)

Table 13: Comparison of Histological Findings in Lichen Planus with other Studies

Histological findings	Narayankar SL et al ^[12] (12)	Barman et al ^[10] (24)	Reddy et al ^[9] (24)	Present study (40)
Hyperkeratosis	11 (91.66%)	17 (70.83%)	24 (100%)	40 (100%)
Acanthosis	10 (83.3%)	17 (70.8%)	24 (100%)	36 (90%)
Hypergranulosis	12 (100%)	14 (58.3%)	16 (66.6%)	22 (55%)
Basal cell degeneration	12 (100%)	20 (81.33%)	19 (79.1%)	32 (80%)
Max joseph space	2 (16.66%)	1 (4.16%)	05 (20.8%)	15 (37.5%)
Civatte bodies	3 (25%)		05 (20.8%)	15 (37.5%)
Pigment melanin incontinence	11 (91.66%)	13 (54.16%)	21 (87.5%)	36 (90%)
Band like inflammatory cell infiltrate in the dermis	12 (100%)	22 (91.6%)	18 (75%)	40 (100%)

were seen in most number of cases, similar findings seen in study done by Reddy *et al* and Narayankar SL *et al*. Basal cell degeneration was seen in 80% of cases in our study similar to Reddy *et al* and Barman *et al*. Max Joseph space was encountered in maximum number of cases as compared to other studies shown in table.

CONCLUSION

Most common clinical presentation of psoriasis was erythematous papules with scales, most commonly seen in 21-30 years (52.3%) of age group, females (56.8%) were most commonly affected. Histologically most commonly seen features were parakeratosis, increased density of blood vessels in dermis, perivascular inflammatory cell infiltrate followed by Munro micro abscess, hyperkeratosis, acanthosis, elongated rete ridges and hypogranulosis. Most common histological features of Lichen Planus are hyperkeratosis, band like inflammatory cell infiltrate, perivascular inflammatory cell infiltrate followed by irregular acanthosis, pigment melanin incontinence, basal cell degeneration, hypergranulosis, max joseph space and civette bodies.

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