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CLINICAL PROFILE OF LICHEN PLANUS IN 46 PEDIATRIC PATIENTS- AN OBSERVATIONAL STUDY

Dr. Somya Singhal,[1*] Dr. Akansha Astik,[2] Dr. Pragya Kushwaha[3]

[1*] MD, Assistant Professor, Department of Skin and Venereal Disease, LalaLajpatRai Medical College and Hospital, Meerut, U.P.

[2]MBBS, Junior resident, Department of Skin and Venereal Disease, LalaLajpatRai Medical College and Hospital, Meerut, U.P.

[3]MD, Professor, Department of Skin and Venereal Disease, LalaLajpatRai Medical College and Hospital, Meerut, U.P.

Address for correspondence:

Dr. Somya Singhal

Department of Skin and Venereal Disease, LalaLajpatRai Medical College and Hospital, Meerut, U.P.Email id: drsomyasinghal@gmail.com

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ABSTRACT

Background: LP (Lichen Planus) is a disease having unknown etiology, and is considered a papulosquamous disease. The occurrence of lichen planus in children is an uncommon finding. The data in previous literature concerning the clinical profile of children with lichen planus are scarce and need further exploration with the majority of conducted studies being retrospective.

Aim: The present clinical study was conducted to assess the clinical profile of Lichen Planus in the pediatricsubjects. The present study also evaluated the risk factors associated with childhood lichen planus, if any.

Methods: The present study included 46 pediatric subjects of age less than 14 years and having an either histopathologic or clinical confirmed diagnosis of Lichen Planus. The study was carried out at LLRM Medical College, Meerut. For all the included subjects, detailed history, investigations, and examinations were carried out.

Results:46 cases of childhood LP were included in the study and they constituted 1.2% of the pediatric dermatoses. There were 25 males (54.34%) and 21 (45.65%) females with a male to female ratio of 1.2:1. The age ranged from 6 months to 14 years with a mean age of 11.1 ± 4.6 years. The duration of the disease ranged from 15 days to 5 years with a mean of 9.2 ± 3.2 months. A history of recent hepatitis B vaccination (HBV) was found in 8 (17.4%) patients, and exposure to X- ray radiation was seen in 5 (10.86%). A history of blood transfusion was present in 1 (2.2%) patient. Classical LP was the most common variant, found in 30 (65.21%) patients, followed by hypertrophic variant in 9 (19.56%) patients. Koebnerization was found in 31 (67.39%) of the patients. Oral mucosa was involved in 28.26% of patients, nail in 41.3% of patients, and scalp in 8.69% of patients.

Conclusion: The present study concludes that childhood lichen planus shares a resemblance in most of the aspects to the adult lichen planus. However, childhood lichen planus is still an under-reported condition.

Keywords: Childhood Lichen planus, classical lichen planus, hypertrophic lichen planus, Lichen Planus

INTRODUCTION

Lichen term has got its derivation probably from the Greek literature, where it means "to lick". However, it represents a symbiotic form of plant life which is a noun term adapted from both Latin and Greek. Erasmus Wilson in 1869 was the first to describe the dermatosis, Lichen Planus. Erasmus Wilson described lichen planus to be characterized by pruritic, polygonal, purple, and popular eruptions having unknown etiology. It was described that lichen planus usually affects the skin with the involvement of nails as well as mucous membrane.[1,2]

Although Lichen Planus is a disease of unknown etiology, its etiology is mainly attributed to an autoimmune T-cell mediated disease affecting the skin, nails, hair follicles, and mucous membranes. Traditionally, lichen planus of childhood is considered a rare entity owing to the scarce data present in the literature concerning childhood lichen planus. The rare occurrence of childhood lichen planus can also be attributed to various factors including rare coexistence with other autoimmune diseases manifesting in later stages of life, less exposure to the triggering factors in the environment, and underreporting of the entity. The etiopathogenesis, course, clinical profile, and management of childhood lichen planus differ considerably from adult lichen planus.[2,3]

Despite the rare incidence and occurrence of the childhood lichen planus, in Indian subcontinents, its occurrence does not appear to be uncommon. The majority of the large studies on childhood lichen planus are from India where the largest study having 100 pediatric subjects of age less than 14 years is from 2009 where subjects were followed for more than 6.5 years.[4]

One hypothesis state that the overall rarity of lichen planus in children can be attributed to a few agents that can act as environmental triggers and can initiate childhood lichen planus including infective agents, dental restorative materials, and/or drug exposure. The paucity of the reporting can be due to too overall rare occurrence of lichen planus in pediatric subjects. Nearly 2-3% of the total lichen planus is reported to occur in children of age below 20 years. One study conducted in India showed that nearly 11% of total lichen planus reported is in children which points towards the under-reporting of data influencing the rare occurrence of Lichen planus.[5]

The present clinical study was conducted to assess the clinical profile of Lichen Planus in the pediatric subjects. The present study also evaluated the risk factors associated with childhood lichen planus, if any.

METHODS AND MATERIALS

The present clinical study was conducted to assess the clinical profile of Lichen Planus in the pediatric subjects. The present study also evaluated the risk factors associated with childhood lichen planus, if any. The present study was conducted on the pediatric subjects visiting

tooutpatient department of Dermatology, Venereology and Leprosy, LLRM Medical College and SVBP Hospital, Meerut from January 2019 to March 2020 after obtaining clearance from the concerned Ethical committee.

The study population was comprised of the inclusion criteria for the study were subjects having confirmed clinical or pathologic diagnosis of lichen planus, subjects of age 6 months to 14 years. The exclusion criteria were subjects of age less than 6 months or more than 14 years and the subjects who were not willing to participate in the study.

After final inclusion, detailed history and clinical examination were done for all the subjects. This was followed by the investigations including complete blood count (CBC), ESR (Erythrocyte sedimentation rate), Liver function test (LFT), lipid profile, thyroid function test, HbsAg, and anti-HCV.

The screening was done for all the subjects to reach a confirmed diagnosis of Lichen Planus depending on the clinical examination. In doubtful cases, a confirmed diagnosis was made with histopathologic examination. After explaining the detailed study design, informed consent was taken from all the study subjects before enrollment.

Itchingin the study subjects was graded as mild on scores of 0-4, moderate from scores of 5-7, and severe for the scores of 8-10. For pruritis, the intensity of scratching during the day and frequency of sleep disturbance was measured by guardians/parents for subjects age <10 years and by subjects themselves for subjects of age >10 years. The collected data were subjected to statistical evaluation. The data were expressed in percentage and number.

RESULTS

The present clinical study was conducted to assess the clinical profile of Lichen Planus in the pediatric subjects. The present study also evaluated the risk factors associated with childhood lichen planus, if any. A total of 46 patients with clinically and/or histopathologically confirmed diagnoses of LP were included in the study. The study included 45.65% (n=21) females and 54.34% (n=25) males male to female ratio of 1.2:1. The demographic characteristics of the study subjects are listed in Table 1. The age range in the present study was 6 months to 14 years with a mean age of 11.1 ± 4.6 years. The duration of illness was from 15 days to 5 years with a mean duration of 9.2 ± 3.2 months. Progressive disease (appearance of new lesions in the last 6–12 weeks) was seen in 37 (80.43%) patients, whereas 9 (19.56%) patients had stable disease (no new lesions in the last 6 months).The itching was severe in 20 (43.48%) patients, moderate in 14 (30.43%), and mild in the rest of the patients. On evaluating the associated risk factors, a history of recent hepatitis B vaccination (HBV) was found in 8 (17.4%) patients, and exposure to X- ray radiation was seen in 5 (10.86%). A history of blood transfusion was present in 1 (2.2%) patient. Treatment history was present in 15 patients (32.6%), of which 6 (13%) gave a history of homeopathic medication, and 9 (19.56%) gave a history of intralesional injections. Diabetes,

Psoriasis, vitiligo, thyroid disease, and lichen planus was seen in 17.4% (n=8), 10.9% (n=5), 4.34% (n=2), 4.34% (n=2), and 2.2% (n=1) subjects (Table 1).

On assessing the occurrence of various variants of Lichen Planus in the study subjects, it was seen that the most common variant seen was common variant seen in 65.21% (n=30) study subjects followed by hypertrophic variant in 19.56% (n=9) study subjects. Zosteriform variant was seen in 4.34% (n=2) of study subjects. Follicular variant in 4.34% (n=2) study subjects, and eruptive variant in 6.52% (n=3) study subjects as shown in Table 2 and Graph 1.

On investigating the patients, 12(26.08%) patients werefound to have anemia, 6 (13.04%) had abnormal liver function tests, 5 (10.87%) had altered lipid profiles, and 2 patients (4.34%) had hypothyroidism. None showed sero-positivity for hepatitis B or hepatitis C. ESR was not increased in any patient. For the extra-cutaneous involvement, oral mucosa was seen involved by lichen planus in 28.26% (n=13) subjects, nails were involved in 41.3% (n=19) study subjects, and scalp in 8.69% (n=4) study subjects as depicted in Table 3 and Graph 2.

DISCUSSION

The present clinical study was conducted to assess the clinical profile of Lichen Planus in the pediatric subjects. The present study also evaluated the risk factors associated with childhood lichen planus, if any. A total of 46 patients with clinically and/or histopathologically confirmed diagnoses of LP were included in the study. In India, different studies have quoted the prevalence of LP among dermatology patients to be 0.38%–1.4%.[5,6]Rarity of childhood LP is due to underreporting of cases and lack of concerned data.

The age range in the present study was from6 months to 14 years. The earliest reported age in previous studies is 2 weeks.[2]The mean age of our study population was 11.1 ± 4.6 years, whereas the mean age in larger studies has been 7.1–8.4 years.[3,7]As the majority of children in our study were in the age group of 12–14 years (54.34%), we had a higher mean age.The male to female ratio was 1.2:1 which shows a higher male preponderance and coincides with the earlier studies that have shown either equal sex ratio or male preponderance.[3]The duration of disease ranged from 15 days to 5 years with a mean of 9.2±3.2. The duration was more than 1 year in most of the patients (34.78%), which indicates a delay in reporting to the clinician. Lichen planus is hence could be considered as a subacute entity to childhood chronic disease. Progressive disease was seen in 80.43% of patients, whereas 19.56% had stable disease suggesting that the disease was active at the time of presentation in the majority of patients.

Nearly 13% of the patients had taken homeopathic medication and 19.56% had a history of intralesional injections indicating that various modalities of treatment were explored before presenting to us. Homeopathy has also gained considerable popularity for managing pediatric skin disorders. Some of these drugs contain heavy metals which may contribute to the aggravation of LP. A history of recent Hep-B Vaccination was found in 17.4% of patients. Cross- reactivity between antigen in HBV and epitopes on keratinocytes has been suggested.[8]

However, the causal relationship between LP and HBV cannot be established. One of the common risk factors associated with the lichen planus is the Hepatitis C virus (HCV). Positive associations have been suspected in studies from Japan, Italy, and India;[9] however, none could prove such an association.

Nearly 10.86% of patients gave a history of exposure to X- ray radiation, but none had a history of LP lesions appearing on the site of exposure. LP at the site of radiation exposure has been reported and is called "isoradiotopic response."[10]The family history of LP was present in 2.2%. The incidence of familial childhood LP is 1%–2% according to various studies.[11]Classical clinical forms differ considerably from the familial lichen planus in various aspects including frequent relapse, prolonged course, more occurrence of linear, ulcerative, and erosive form, common mucosa involvement, more generalized involvement, and earlier onset age. A history of autoimmune disease in the family was present in 39.1% of the patients. The findings showed that lichen planus is an autoimmune disease that has strong predilection and is associated with other autoimmune diseases. The coexistence of both psoriasis and vitiligo, together with LP has been reported.[12] A study from Pakistan reported the prevalence of thyroid disease in cutaneous LP to be 1.5%.[13]

Classical LP was the most common variant in 65.21% of our patients. The findings were consistent with the observation in various studies where classical LP ranged between 42% and 70%.[3]Hypertrophic variants occurred in 19.56% of patients and was mainly on the extensor aspect of legs and foot. Other studies have reported a lower incidence of LP hypertrophic in children (8%–10%).[2,7]Zosteriform LP constituted a total of 4.8% of the patients, which is lower than various studies that report a prevalence of 8%–12%.[3]Eruptive variant was present in 6.56% of the patients.[2,3]Koebner phenomenon was seen in 67.39% of patients, which is higher compared to other studies that report an incidence between 24% and 28%.[3,7]

Mucosal involvement with cutaneous lesion was found in 28.26% of patients which was in agreement with other studies quoting a frequency of 13.7%–30%.[3,8]Nail findings were found in 41.3% of our patients. Nail involvement in pediatric cases is usually underreported by the clinician. Melanonychia was the most common finding in 26.2% of the patients, followed by periungual hyperpigmentation and longitudinal striation in 15.7%. Patients with multiple nail changes were seen in 30.3% of patients. Tosti*et al.* reported nail involvement in 11% of childhood LP cases.[14] The most common changes are an exaggeration of the longitudinal lines and linear depressions, elevated ridges, and pterygium unguis.[15]Scalp involvement with cicatricial alopecia was seen in 8.69% of our patients, which is in agreement with various studies.[7,16]

A high incidence of anemia (26.08%) in our patients could be incidental, considering the high prevalence of anemia in the Indian population.Dyslipidemia was seen in 10.87% of our cases, which can be explained by the fact that lymphocytes attack keratinocytes resulting in the generation of reactive oxygen species. During this process, keratinocytes release more cytokines

that in turn attack more lymphocytes.[17] These cytokines involved in LP pathogenesis (such as tumor necrosis factor‐ alpha, interleukin [IL]‐ 6, IL‐ 10, and IL‐ 4) could explain the association with dyslipidemia.[17]

CONCLUSION

Within its limitations, the present study concludes that lichen planus of childhood is an underreported entity that bears close resemblance with the adult lichen planus in the majority of the aspect. The family history of thyroid disease, vitiligo, psoriasis, diabetes, and other autoimmune disease is strongly associated with lichen planus. No association was seen of Lichen Planus with Hepatitis B vaccination and viral markers. However, the present study had a few limitations including small sample size, shorter monitoring period, no HLA typing in familial cases, and geographical area biases. Hence, more longitudinal studies with larger sample size and longer monitoring period will help reach a definitive conclusion.

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TABLES

Characteristics	**Parameters**	**N**	**%**
Age (years)	<5	19.56	9
	5-10	26.1	12
	>10	54.34	25
Illness duration (months)	1-3	30.43	14
	3-6	21.74	10
	6-12	13.04	6
	>12	34.78	16
Disease Progression	Progressive	80.43	37
	Non-progressive	19.56	9
Itching	Mild	43.48	20
	Moderate	30.43	14
	Severe	26.09	12
Risk factors	Recent Hepatitis B vaccination	17.4	8
	Exposure to X-ray	10.86	5
	Blood transfusion history	2.2	1
Family History	Diabetes	17.4	8
	Psoriasis	10.9	5
	Vitiligo	4.34	2
	Thyroid Disease	4.34	2
	Lichen planus	2.2	1

Table 1: Demographic and disease characteristics of the study subjects

Clinical Variant	**N**	**%**

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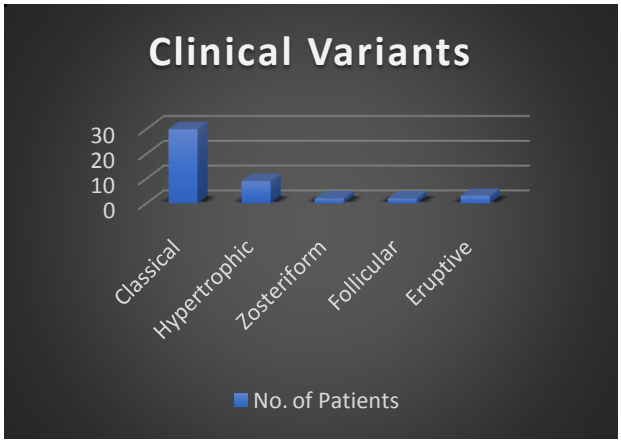
Classical	30	65.21
Hypertrophic	9	19.56
Zosteriform	2	4.34
Follicular	2	4.34
Eruptive	3	6.52

Table 2: Clinical Variants in the study subjects

Extracutaneous involvement	**N**	**%**
Oral mucosa	13	28.26
Nails	19	41.3
Scalp	4	8.69

Table 3: Extracutaneous involvement in the study subjects

GRAPHS



Graph 1: Clinical variants of Lichen Planus in the study subjects

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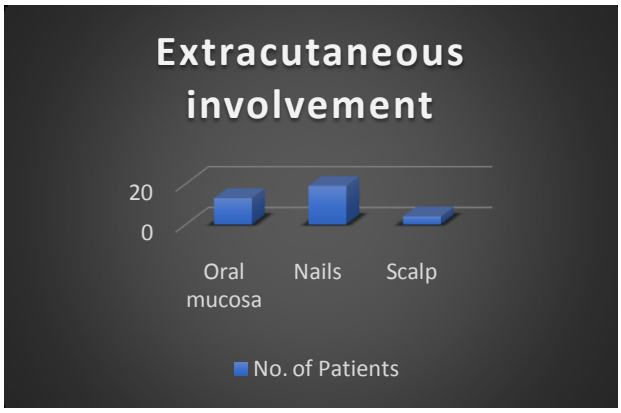

Graph 2: Extracutaneous involvement in childhood LP

involvement in childhood LP