Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 3797 - 3812
Received 16 February 2021; Accepted 08 March 2021.

A Study on Analytical Study of Papulonodular Lesions of Legs

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Abstract

Papulonodular lesions of legs are common conditions seen frequently in dermatology OPDs. A papule is a small elevated lesion of skin less than one centimeter in diameter. A nodule is defined as a raised solid lesion more than 1 cm and maybe in the epidermis, dermis, or subcutaneous tissue. The Present study is to find out the different papulonodular lesions occurring over the legs and the related co-morbidities associated with each condition in patients

Keywords : Papulonodular lesions, histopathologist, tumors, dermis, diabetes mellitus, risk factors and PNL group

1. Introduction

Papulonodular lesion of the skin is a more common variety. Different kinds of infectious diseases, benign neoplastic diseases, and malignant tumors as well as metastatic tumor are also manifested with papulonodular lesions (1-3). So a brief idea about the clinical history, age, sex, and various sites of lesion is important. In past few years, various advances in pathology made diagnosis easier, but still it is a challenging job for the histopathologist to find out right diagnosis by using H&E stain with addition to various special stains, as well as immunohistochemistry (3-5).

A papule is defined as well-circumscribed, solid raised lesion and is less than 1 cm in diameter. Papules may have a variety of shapes in profile (domed, flat-topped, umbilicated) and may be associated with secondary features such as crusts or scales. A nodule is well defined raised solid lesion more than 1 cm and may be in the epidermis, dermis, or subcutaneous tissue (6-10).

2. MATERIALS AND METHODS

Study Design : Cross-sectional study.

Study Area : Skin Outpatient Department Sree Balaji

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Medical College and Hospital

Study Population : All patients attending skin OPD, who

present with papulo-nodular lesions of legs.
Study Method : Observational study. Sample Size : 200

Exclusion criteria:

- Not consenting for the study.

Inclusion criteria :

- Consenting for the study.
- The recruited patients were subjected to the following,

a) Full History Taking

b) Thorough General Dermatological Examination.

c) Photographs of the papulo-nodular lesions.

Statistical Analysis

Statistical Analysis was done by Statistical Package for Social Sciences (SPSS Version 16.0) statistical analysis software. The values were represented in number (%) and mean ± standard deviation. Suitable statistical tests of comparison were done. Continuous variables were analysed with the unpaired t-test. Categorical variables were analysed with the Chi-Square Test and Fisher Exact Test. Statistical significance was taken as $P < 0.05$.
Sample Size Estimation

The sample size was determined based on

Study

Retrospective study of papulonodular skin lesions and their clinicopathological correlation
Authored by

Rupali Patil et al

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 3797 - 3812
Received 16 February 2021; Accepted 08 March 2021.

Published in

International Journal of Medical Science and Public Health | 2015 | Vol 4 | Issue 5.In the present study, 69% of papulonodular lesions of skin were of infectious origin followed by 24% as benign origin and 7% as malignant origin.

Description:

- The confidence level is estimated at 95%.
- With a z value of 1.96.
- The confidence interval or margin of error is estimated at

+/-7.

- Assuming p% =69 and q%=31 .

$n = p\% \times q\% \times [z/e\%]^2$ $n= 69 \times 31 \times [1.96/7]^2$
n= 186.33 (rounded up to 187)

Therefore 187 is the minimum sample size required for the study at 80% power. In this study, I have recruited 200 subjects taking attrition into account.

3. Results

Figure 1: Study Groups

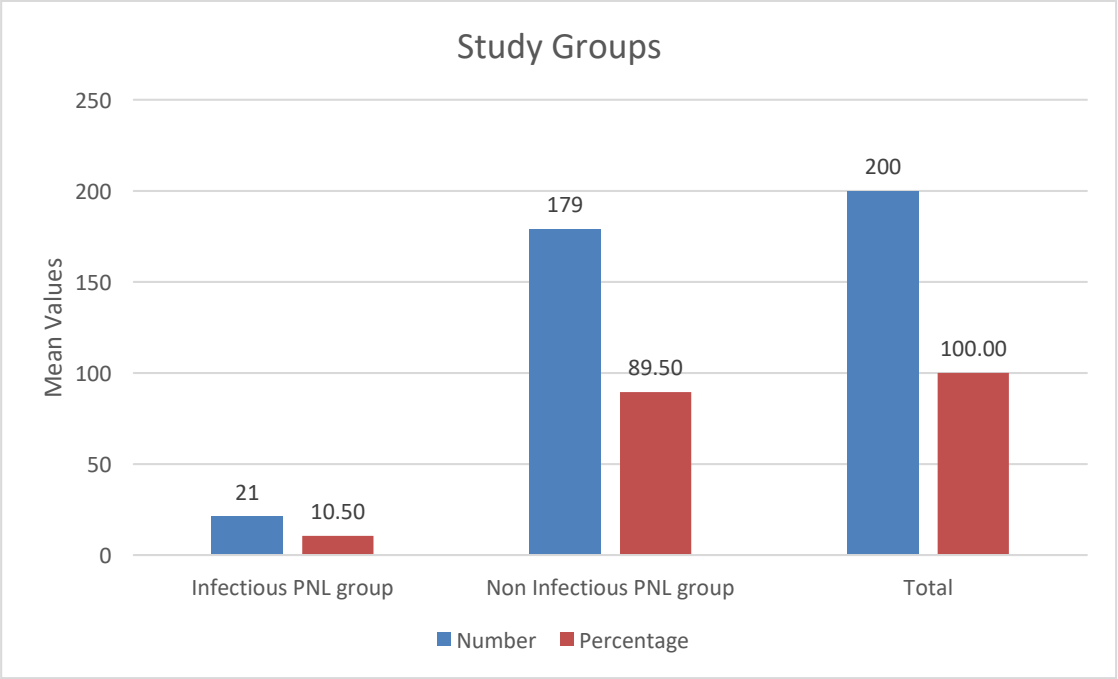

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TABLE 1: Study Groups

Study Groups	Infectious Papulonodular lesions (PNL) group	Non Infectious PNL group	Total
Number	21	179	200
Percentage	10.50	89.50	100.00

Figure 2:Infectious PNL group

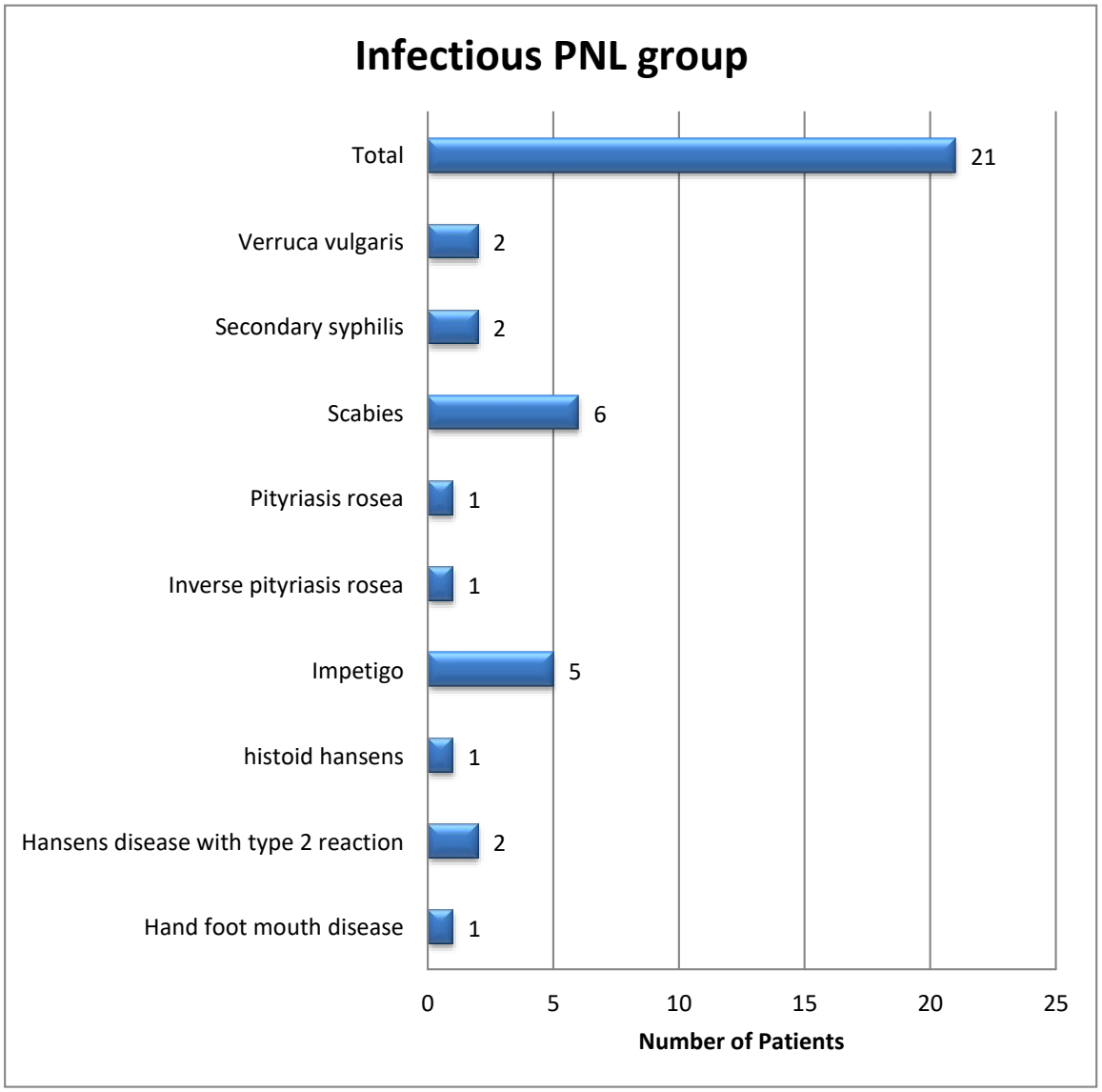

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TABLE 2: Infectious PNL group

Infectious PNL group	Number	%
Hand foot mouth disease	1	4.76
Hansens disease with type 2 reaction	2	9.52
Histoid hansens	1	4.76
Impetigo	5	23.81
Inverse pityriasis rosea	1	4.76
Pityriasis rosea	1	4.76
Scabies	6	28.57
Secondary syphilis	2	9.52
Verruca vulgaris	2	9.52
Total	21	100.00

Figure 3:Non-Infectious PNL group

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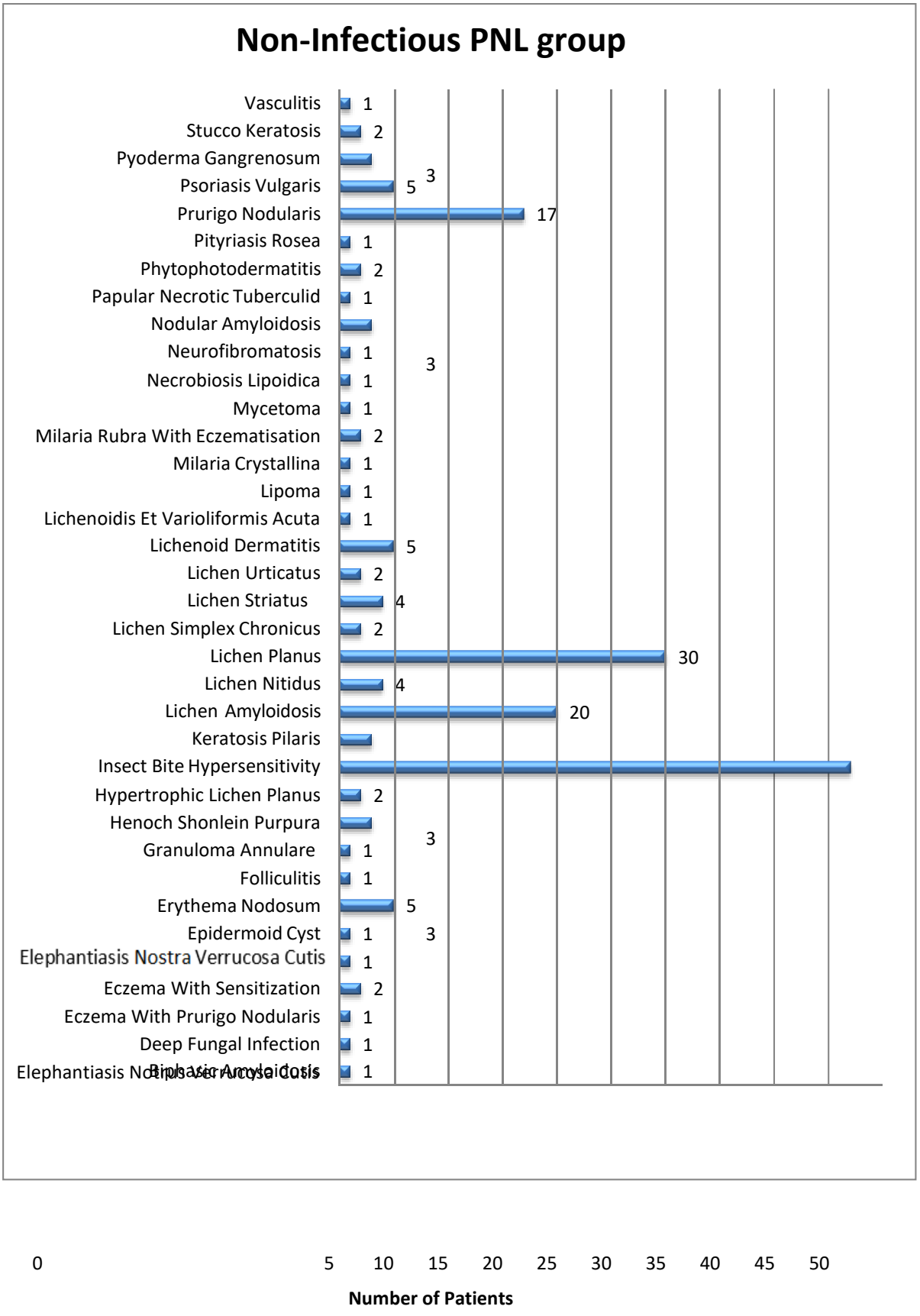

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Table 3: Non-Infectious PNL group

Non-Infectious PNL group	Number	%
Biphasic Amyloidosis	1	0.56
Deep Fungal Infection	1	0.56
Eczema With Prurigo Nodularis	1	0.56
Eczema With Sensitization	2	1.12
Elephantiasis Nostrus Verrucosa Cutis	1	0.56
Epidermoid Cyst	1	0.56
Erythema Nodosum	5	2.79
Folliculitis	1	0.56
Granuloma Annulare	1	0.56
Henoch Shonlein Purpura	3	1.68
Hypertrophic Lichen Planus	2	1.12
Insect Bite Hypersensitivity	47	26.26
Keratosis Pilaris	3	1.68
Lichen Amyloidosis	20	11.17
Lichen Nitidus	4	2.23
Lichen Planus	30	16.76
Lichen Simplex Chronicus	2	1.12
Lichen Striatus	4	2.23

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Lichen Urticatus	2	1.12

Lichenoid Dermatitis	5	2.79
Lichenoidis Et Varioliformis Acuta	1	0.56
Lipoma	1	0.56
Miliaria Crystallina	1	0.56
Miliaria Rubra With Eczematisation	2	1.12
Mycetoma	1	0.56
Necrobiosis Lipoidica	1	0.56
Neurofibromatosis	1	0.56
Nodular Amyloidosis	3	1.68
Papular Necrotic Tuberculid	1	0.56
Phytophotodermatitis	2	1.12
PityriasisRosea	1	0.56
PrurigoNodularis	17	9.50
Psoriasis Vulgaris	5	2.79
Pyoderma Gangrenosum	3	1.68
Stucco Keratosis	2	1.12
Vasculitis	1	0.56
Total	179	100

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Figure 4: Age

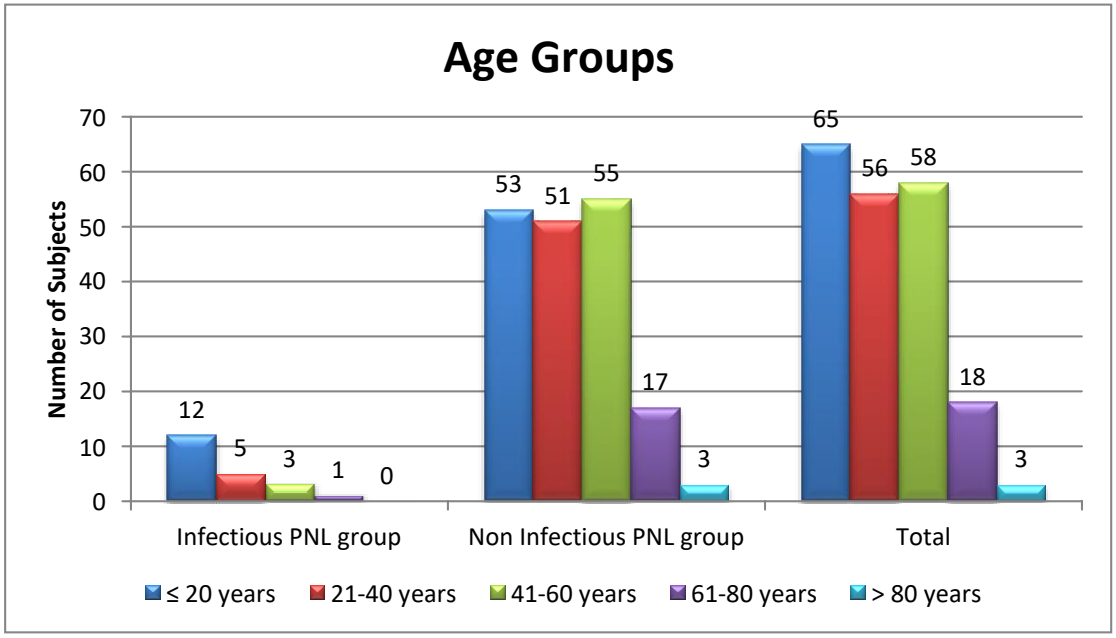

Table 4: Age

Age Groups	Infectious PNL Group	%	Non Infectious PNL group	%	Total	%
≤ 20 years	12	57.14	53	29.61	65	32.50
21-40 years	5	23.81	51	28.49	56	28.00
41-60 years	3	14.29	55	30.73	58	29.00
61-80 years	1	4.76	17	9.50	18	9.00
> 80 years	0	0.00	3	1.68	3	1.50
Total	21	100.00	179	100.00	200	100.00

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Figure 5: Age distribution

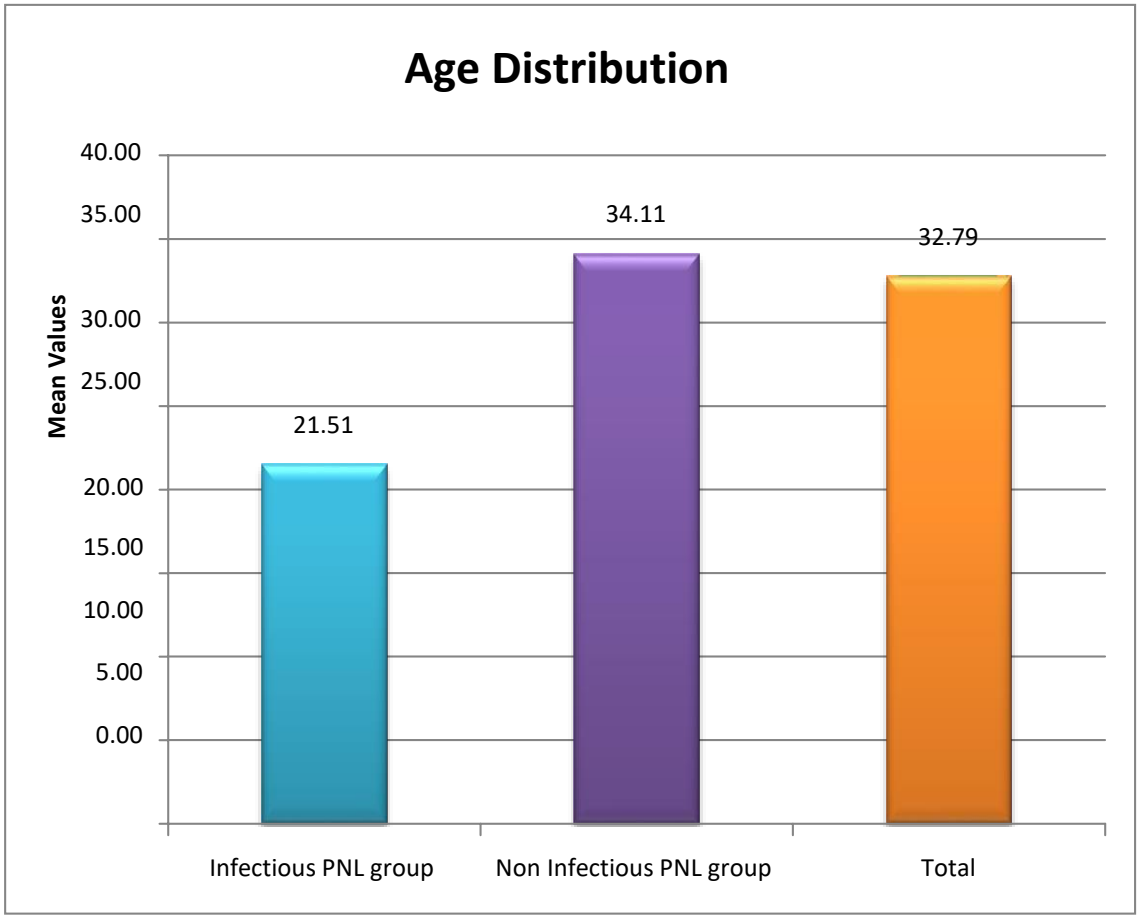

Table 5: Age distribution

Age Distribution	Infectious PNL group	Non Infectious PNL group	Total
Mean	21.51	34.11	32.79
SD	20.41	21.39	21.59
P value Unpaired Test			0.013

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Figure 6: Gender

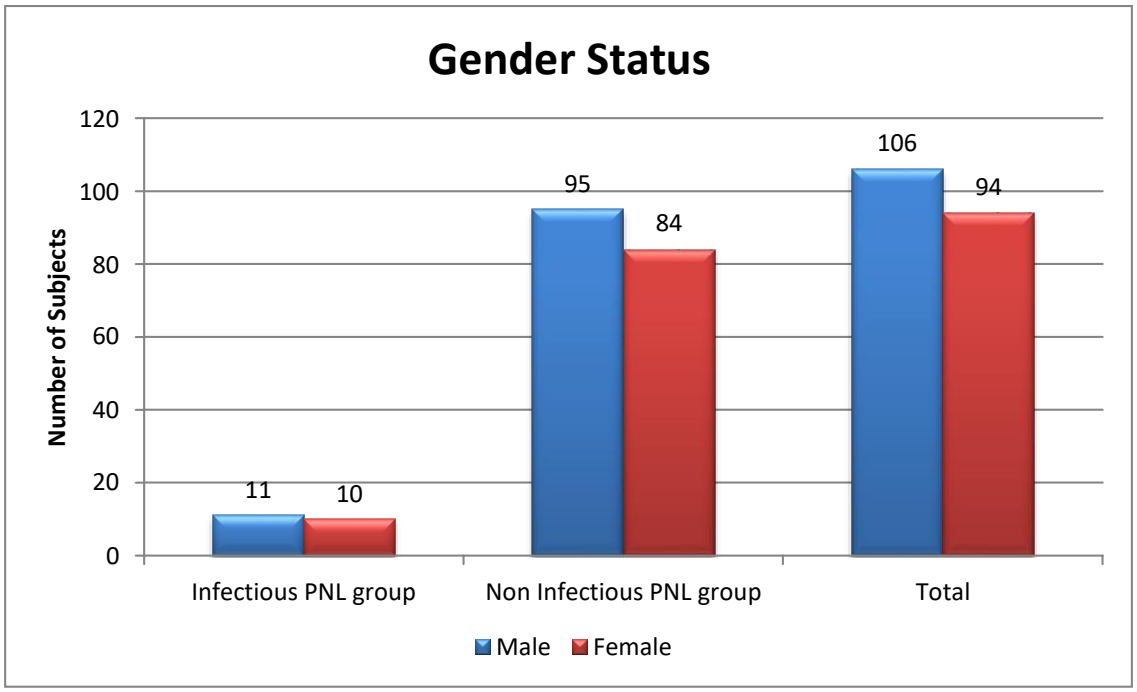

Table 6: Gender

Gender Status	Infectious PNL group	%	Non Infectious PNL group	%	Total	%
Male	11	52.38	95	53.07	106	53.00
Female	10	47.62	84	46.93	94	47.00
Total	21	100.00	179	100.00	200	100.00
P value Chi Squared Test					0.954	

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Discussion

STUDY GROUPS

In this cross-sectional study, an analytical approach was adopted to assess the incidence of papulo-nodular lesions of legs and its associated risk factors among patients. Data collected from 200 selected subjects were internally compared, tabulated, analysed and interpreted by using descriptive and inferential statistics based on the formulated objectives of the study.

INFECTIOUS PNL GROUP

In our study 21 out of 200 patients belonged to infectious PNL group (10.50%). It can be observed that majority of infectious PNL group subjects had scabies (n=6, 28.57%) followed by impetigo (n=5, 23.81%)

NON-INFECTIOUS PNL GROUP

Similarly in our study 179 out of 200 patients belonged to non-infectious PNL group (89.50%). It can be observed that majority of non-infectious PNL group subjects had insect bite hypersensitivity (n=47, 26.26%) followed by lichen planus (n=30, 16.76%)

AGE DISTRIBUTION

It is evident from the age distribution table that majority of infectious PNL group subjects belonged to ≤ 20 years age category (57.14%) with a mean age of 21.51 years and a majority of non-infectious PNL group subjects belonged to 41 - 60 years age category (30.73%) with a mean age of 34.11 years. The overall majority of the study group subjects belonged to ≤ 20 years age category (32.50%) with a mean age of 32.79 years. The data subjected to unpaired test reveals the existence of statistically significant association between the age distribution and study groups ($p < 0.05$).

In our study, the age distribution between infectious PNL group and non- infectious PNL group was meaningfully significant. This is evident by the 37% decreased mean age in infectious PNL group compared to non- infectious PNL group (mean decreased difference of 12.60 years) (11-14).

GENDER

It is evident from the gender status table that majority of infectious PNL group subjects were males (52.38%) and majority of non-infectious PNL group subjects were males too (53.07%). Overall majority of the study group subjects belonged to male gender (53.00%). The data subjected to the chi-squared test reveals the existence of statistically non - significant association between gender status and study groups ($p > 0.05$).

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FAMILY HISTORY OF SIMILAR LESIONS

It is evident from the family history of similar lesions status table that 23.81% of infectious PNL group subjects had a positive family history compared to 2.23% of non-infectious PNL group subjects having positive family history. Overall 4.50% of the study group subjects had positive family history (15-17). The data subjected to fishers exact test reveals the existence of statistically significant association between the family history of similar lesions status and study groups ($p < 0.05$).In our study, the family history of similar lesions status between infectious PNL group and non- infectious PNL group was meaningfully significant. This is evident by the 91% increased incidence of positive family history of similar lesions in infectious PNL group compared to non- infectious PNL group (increased percentage difference of 21.57%).

DIABETES MELLITUS

It is evident from the diabetes mellitus status table that 4.75% of infectious PNL group subjects had associated diabetes mellitus compared to 17.32% of non-infectious PNL group subjects having associated diabetes mellitus (18-19). Overall 16.00% of the study group subjects had associated diabetes mellitus. The data subjected to fishers exact test reveals the existence of statistically significant association between diabetes mellitus status and study groups ($p < 0.05$). In our study the diabetes mellitus status between infectious PNL group and non- infectious PNL group was meaningfully significant. This is evident by the 73% decreased incidence of associated diabetes mellitus in infectious PNL group compared to non- infectious PNL group (decreased percentage difference of 12.56%).

SYSTEMIC HYPERTENSION

It is evident from the systemic hypertension status table that 0.00% of infectious PNL group subjects had associated systemic hypertension compared to 6.15% of non-infectious PNL group subjects having associated systemic hypertension. Overall 5.50% of the study group subjects had associated systemic hypertension (20). The data subjected to fishers exact test reveals the existence of statistically significant association between systemic hypertension status and study groups ($p < 0.05$). In our study, the systemic hypertension status between infectious PNL group and non- infectious PNL group was meaningfully significant. This is evident by the 100% decreased incidence of associated systemic hypertension in infectious PNL group compared to non- infectious PNL group (decreased percentage difference of 6.15%).

PERSONAL HISTORY OF ATOPY

It is evident from the personal history of atopy status table that 4.76% of infectious PNL group subjects had positive personal history of atopy compared to 23.46% of non- infectious PNL group subjects having positive personal history of atopy (21-23). Overall 21.50% of the study group subjects had positive personal history of atopy. The data subjected to fishers exact test

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reveals the existence of a statistically significant association between personal history of atopy status and study groups ($p < 0.05$). In our study the personal history of atopy status between infectious PNL group and non- infectious PNL group was meaningfully significant. This is evident by the 80% decreased incidence of positive personal history of atopy in infectious PNL group compared to the non- infectious PNL group (decreased percentage difference of 18.70%) (24-25).

4. CONCLUSION

In our study while assessing the incidence of papulo-nodular lesions of legs and its associated risk factors among patients on internal comparison the following significant conclusions were observed: Incidence of infectious. PNL increase as age decreases (High risk in ≤ 20 years) Incidence of non-infectious. PNL increase as age increases (High risk in > 40 years) Positive family history of similar lesions was more commonly associated with infectious PNL compared to non-infectious. PNL Associated diabetes mellitus comorbidity was more commonly associated with non-infectious PNL compared to infectious PNL. Associated systemic hypertension comorbidity was more commonly associated with non-infectious PNL compared to infectious PNL. Positive personal history of atopy was more commonly associated with non-infectious PNL compared to infectious PNL. Positive family history of atopy was more commonly associated with non-infectious PNL compared to infectious PNL. Positive personal history of atopy was more commonly associated with PNL patients associated with insect bite hypersensitivity compared to PNL patients not associated without insect bite hypersensitivity. Positive family history of atopy was more commonly associated with PNL patients associated with insect bite hypersensitivity compared to PNL patients not associat ed without insect bite hypersensitivity. Positive personal history of atopy was more commonly associated with prurigo nodularis patients compared to non prurigo nodularis patients. Insect bite hypersensitivity was common in younger age group and decreased with increasing age. The opposite was true in case of lichen amyloidosis and lichen planus which were common in the older age group. This study is a hypothesis proving study. Hence results have high clinical significance.

Funding: No funding sources
Ethical approval: The study was approved by the Institutional Ethics Committee

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGMENTS

The encouragement and support from Bharath University, Chennai is gratefully acknowledged. For provided the laboratory facilities to carry out the research work.

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