



Original Research Article

Lichen planus- A case control study on association of lichen planus with hepatitis C virus infection

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ABSTRACT

Background- The etiology of lichen planus is predominantly autoimmune, with various associations. A variable association of oral lichen planus with hepatitis- C infection has been reported extensively in the literature. The same association has not been studied in this geographical region. The present study was undertaken to evaluate the association of all clinical types of lichen planus with hepatitis-C virus infection in subjects hailing from this region.

Objectives: To evaluate the association of lichen planus with hepatitis-C infection.

Settings and design: The study was conducted in a tertiary care hospital. This was an observational, case control study.

Materials and Methods: The study comprised of 100 cases and an equal number of age and sex matched healthy controls. The serum of both the groups was subjected to 4th generation HCV tridot test to detect anti HCV antibodies.

Statistical analysis: The data was subjected to descriptive and inferential statistical analysis using mean, percentage, frequency and Chi square test.

Results: The seropositivity of HCV antibody could not be demonstrated in any of the cases or control subjects.

Conclusion : The association of lichen planus with hepatitis C virus infection could not be demonstrated in our study.

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1. Introduction

The exact aetiology of lichen planus still remains a mystery, the possible factors implicated include T cell mediated auto immune reactions, genetic factors, bacterial or viral infections, drug intake, liver disease and psychogenic factors.¹

In the past few years, lichen planus has been linked to hepatitis C virus (HCV) infections, with studies demonstrating a higher prevalence of anti HCV antibody titers in patients with cutaneous and oral lichen planus. However there are geographical variations in the reported prevalence of HCV infection in patients with lichen planus varying from 0% in England to 63% in Japan.²

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The association of lichen planus with hepatitis C and hepatitis B infections is not studied extensively in this part of our country. The prevalence of cutaneous and oral lichen planus in this region is considerably high. Hence, a clinical study of lichen planus with special reference to its association with hepatitis C infection is worth undertaking.

2. Materials and Methods

The study was designed to be an observational, hospital based case control study conducted in a tertiary care hospital. The study group comprised of 100 cases of clinically and histopathologically diagnosed subjects of lichen planus and an equal number of age and gender matched healthy controls. The study was conducted between January 2014 and October 2015 after obtaining

institutional ethical committee clearance. A detailed history and clinical examination was performed and the data was recorded in a proforma. The serum of both the group was examined for presence of HCV antibodies using a visual, quantitative, highly sensitive and specific 4th generation HCV tridot test. Among the cases, those who had drug induced lichen planus, chronic infections and dental filling were excluded. The data was compiled in Microsoft excel and was analyzed using SPSS2.0 version software. Qualitative data was represented by percentage and frequency test. HCV antibody frequency was compared in both groups using Pearson’s Chi square test.

3. Results

Among the cases, the most commonly observed age group was between 30-39 years (33%) with a mean of 34.67 and median age of 25.5 (Table 1). The youngest patient was 13 years old and the oldest 69 years. The female to male ratio was 3:2 with 60% females and 40% males.(Figure 1). The duration of lichen planus in majority of the cases was between 1 to 6 months with a mean of 3.34 months. The shortest duration was of 1 week and the longest was 5 years.

The most commonly observed morphological type of lichen planus was the classical variety (58%), (Figure 2) followed by hypertrophic (16%), (Figure 3) and annular variety (5%), (Table2). Involvement of oral mucosa was observed in 18 patients. Within the oral mucosal lesions reticular morphology was seen in 50%, (Figure 4), papules in 22.22% and plaque and atrophic types observed in 11.1% and 16.6% respectively. The genital mucosa was not afflicted in any of the cases. Nails were involved in the form of beau’s lines in 3 patients and alternate dark and white longitudinal lines in 2 patients.

The serum of both the cases and the controls were screened for HCV antibodies using a 4th generation tridot test. It was observed that in both the groups the HCV antibody test was not detected in any individual (P value-0.023) which was statistically significant. The value of the Pearson’s Chi square test was zero which was statistically not significant to suggest any association.

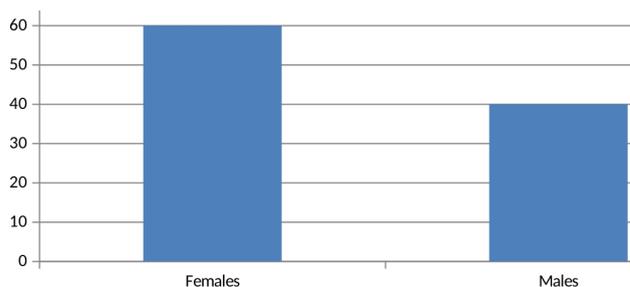


Fig. 1: Showing distribution of lichen planus in different gender

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Fig. 2: Showing classical (papules) lichen planus over upper back



Fig. 3: Showing hypertrophic lichen planus over flexors of both forearm



Fig. 4: Showing reticulated pattern of lichen planus in buccal mucosa

4. Discussion

The association of lichen planus with HCV infection was suggested for the first time in the year 1991 by Mokni M

Table 1: Showing age distribution of cases

Age in years	Frequency	Percentage
10-19	3	3
20-29	33	33
30-39	39	39
40-49	14	14
50-59	6	6
60-69	5	5
Total	100	100

Table 2: Showing percentage of morphological types of LP and seropositivity

Morphological type	Number of cases seropositive for HCV antibodies	Frequency	Percentage
Cutaneous LP			
Classical	0	54	54
Hypertrophic	0	16	16
Plaque	0	8	8
Atrophic	0	8	8
Annular	0	5	5
Bullous	0	5	5
Follicular	0	4	4
Total	0	100	100
Oral LP			
Reticulate	0	9	50
Papular	0	4	22.2
Atrophic	0	3	16.6
Plaque	0	2	11.1
Total	0	18	100

et al.³ Several studies have described a high prevalence of hepatitis C infection in patients with lichen planus.^{4–18} Other studies have noted a significant association of oral lichen planus with hepatitis C.^{14–18} But there are studies which contradict these views. Studies conducted in India by Narayan S et al, Irshad M et al. Das et al, Prabhu S et al have failed to demonstrate statistically significant association between HCV and lichen planus similar to the findings in the present study.^{19–22}

The association of HCV antibodies in lichen planus patients is reported to vary from one geographical area to another. An epidemiological association of lichen planus with hepatitis C infection has been recorded, especially in patients from Italy, certain parts of France, Spain, Japan and Pakistan while no association has been noted in patients from Northern Europe including the UK. USA or Nepal^{19,23,24} It has been suggested that the observed geographical differences with regard to HCV infection and lichen planus could be related to immunogenetic factors such as the HLA –DR6 allele, significantly expressed in Italian patients with oral lichen planus and HCV infection.

In the present study none of the patients with lichen planus were seropositive for hepatitis C antibodies. The control group also was negative for hepatitis C antibodies. This study thus suggests that the prevalence of hepatitis C antibodies in the general population in this geographical

area is low and that the patients with lichen planus do not have an increased prevalence of hepatitis C antibodies in their serum.

5. Conclusion

The association of lichen planus and hepatitis C infection could not be demonstrated in the present study. Hence, we would like to suggest that screening patients of lichen planus for hepatitis C infection in this region is not entirely rewarding.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Singh OP, Kanwar AJ. Lichen planus in India, An appraisal of 441 cases. *Int J Dermatol.* 1976;15(10):752–6.
2. Nagao Y, Sata M, Tanikawa K, Itoh K, Kameyama T. Lichen planus and hepatitis C virus in the Northern Kyushu region of Japan. *Eur Clin Invest.* 1995;25:910–4.
3. Mokni M, Rybojad M, Puppini D, Catala S, Venezia F, Djian R, et al. Lichen planus and hepatitis C virus. *J Am Acad Dermatol.* 1991;24:792.

4. Cribier B, Samain F, Vetter D. Systemic cutaneous examination in HCV infected patients. *Acta Derm Venereol.* 1998;72:435–9.
5. Chaung TY, Stitle L, Brashear R. HCV and Lichen planus: a case control study in 340 patients. *J Am Acad Dermatol.* 1999;41:787–9.
6. Imhof M, Popal H, Lee JH, Zeuzem S, Milbradt R. Prevalence of Hepatitis C Virus Antibodies and Evaluation of Hepatitis C Virus Genotypes in Patients with Lichen planus. *Dermatol.* 1997;195:1–5.
7. Lodi G, Giuliani M, Majorana A, Sardella A, Bez C, Demarosi F, et al. Lichen planus and hepatitis C virus: a multicentre study of patients with oral lesions and a systematic review. *Br J Dermatol.* 2004;151:1172–81.
8. Divano MC, Parodi A, Rebora A. Lichen planus, Liver Kidney Microsomal (LKM1) Antibodies and Hepatitis C Virus Antibodies. *Dermatol.* 1992;185(2):132–3.
9. Sanchez PI, Castron D, Buezo GF. Lichen planus and hepatitis C virus. Prevalence and clinical presentations of patients with lichen planus and hepatitis C Virus infection. *Br J Dermatol.* 1996;134:715–9.
10. Mahboob A, Haroon TS, Iqbal Z. Frequency of anti - HCV antibodies in patients with lichen planus. *J Coll Physicians Surg Pak.* 2003;13:248–51.
11. Yaron N, Dagon N, Shinar E, Gorsky M. Association between hepatitis C virus infection and oral lichen planus in Israeli patients. *Isr Med Assoc J.* 2007;9:370–2.
12. Cribier B, Garnier C, Laustriat D, Heid E. Lichen planus and hepatitis C virus infection: An epidemiologic study. *J Am Acad Dermatol.* 1994;31(6):1070–2.
13. Tonsi A, Samdani AJ. Association of lichen planus with hepatitis C virus infection. *Ann Saudi Med.* 2005;25:243–6.
14. Mignogna MD, Muzio LL, Favia G, Mignogna RE, Carbone R, Bucci E, et al. Oral lichen planus and HCV infection: a clinical evaluation of 263 cases. *Int J Dermatol.* 1998;37(8):575–8.
15. Bagan JV, Ramon C, Gonzalez L. Preliminary investigation of the association of oral lichen planus and Hepatitis C. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1998;85:532–8.
16. Figueiredo LC, Carrilho FJ, de Andrade H, Migliari DA. Oral lichen planus and hepatitis C virus infection. *Oral Dis.* 2002;8:42–6.
17. Klanrit P, Thongprasom K, Rojanawatsirivej S, Theamboonlers A, Poovorawan Y. Hepatitis C virus infection in Thai patients with oral lichen planus. *Oral Dis.* 2003;9:292–7.
18. Gimenez-Garcia R, Perez-Castrillon JL. Lichen planus and hepatitis C virus infection. *J Eur Acad Dermatol Venerol.* 2003;17(3):291–5.
19. Narayan S, Sharma RC, Sinha BK, Khanna V. Relationship between lichen planus and hepatitis C virus. *Indian J Dermatol Venereol Leprol.* 1998;64:281–2.
20. Irshad M, Achary SK, Joshy YK. Prevalence of hepatitis C virus antibodies in the general population and in selected groups of patients in Delhi. *Indian J Med Res.* 1995;102:162–4.
21. Bhattacharya N, Neogi D, Saha B, Das A, Das J, Majumdar G, et al. No association between seropositivity for Hepatitis C virus and lichen planus: A case control study. *Indian J Dermatol Venereol Leprol.* 2006;72(3):198–200.
22. Prabhu S, Pavithran K, Devi GS. Lichen planus and hepatitis C virus (HCV) - is there an association? A serological study of 65 cases. *Indian J Dermatol Venereol Leprol.* 2002;68:273–4.
23. Breathnach SM, Black MM. Lichen planus and Lichenoid disorders. Oxford: Black well Science Ltd; Rook's text book of dermatology; 2004. p. 42.1–42.32.
24. Tucker SC, Coulson IH. Lichen Planus is Not Associated with Hepatitis C Virus Infection in Patients from North West England. *Acta Derm Venereol.* 1999;79:378–9.

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