

Throat swab culture in chronic plaque type psoriasis

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Abstract *Objective* To determine any association between streptococcal throat infection and plaque type psoriasis.

Patients and methods A cross-sectional study conducted on 30 psoriatics and 30 household controls at Bangabandhu Sheikh Mujib Medical University, Dhaka. Throat swabs of 60 patients were collected with all aseptic measures and sample were incubated in optimum condition for 3 days. After this *Streptococcus* was identified by examining colonial morphology and sensitivity with bacitracin disc.

Results Streptococcal infection was found in 4 (13%) psoriasis patients and 1 (3%) in control group ($p=1.964$).

Conclusion In our study, we found no association between streptococcal throat infection and chronic plaque type psoriasis.

Key words

Throat swab culture, chronic plaque type psoriasis, streptococcal throat infection.

Introduction

Psoriasis is a genetically determined disease of dysregulated epidermal hyperproliferation and inflammation, which is initiated and maintained by multiple mechanisms of immune system. Recent findings suggest a pathological collaboration between innate immunity and acquired immunity.¹

Approximately 80% of patients with psoriasis present with plaque-type psoriasis, with varying degree of erythema, scaling and thickness (also

referred to as elevation and indurations), size and location.²

The exact etiology of psoriasis is unknown but the present evidence indicates that interactions between genes and the environmental factors have been linked to psoriasis, and have been implicated in initiation and exacerbation of pre-existing disease.

Acute guttate psoriasis is strongly associated with preceding and concurrent streptococcal infection particularly of the throat.³ In one study streptococci were isolated from the throat of 97% patients with guttate psoriasis.⁴ Although streptococcal throat infection can clearly trigger the guttate psoriasis only 20-30% throat culture cases were positive in chronic plaque type

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Table 1 Comparative data of case and control groups.

		Group A (Psoriasis) (n=30)	Group-B (control) (n=30)	p-Value
Age (years)	Range (years)	42 (16-58)	46 (14-60)	0.716
	Mean±SD (years)	34.16±11.26	35.33±13.48	
Sex	Male	16 (53%)	21(70%)	
	Female	14 (47%)	9(30%)	
Duration of disease (months)		3.4±2.3	Not applicable	
PASI score	Range	18.1 (7.2-25.3)	Not applicable	
	Mean±SD	13.8±5.02	Not applicable	
Positive throat swab culture		4 (13%)	1 (3%)	1.924

PASI= Psoriasis area and severity index

psoriasis.⁵ A study showed that recurrent throat sore was three times commoner in chronic plaque type psoriasis than age-matched controls and positive throat swab for β-hemolytic streptococci were 10 times commoner in psoriatics than controls.⁶ Furthermore, long-term remission of moderate to severe plaque type psoriasis following tonsillectomy indicates the relation between streptococcal infection and plaque type psoriasis.⁷

Patients and methods

A cross-sectional study was conducted in the department of dermatology and venereology Bangabandhu Sheikh Mujib Medical University, Dhaka. Patients were diagnosed as chronic plaque type psoriasis clinically and histopathologically were included in the study. Sampling technique was purposive non-randomized and sample size was 30 for group A or psoriasis group. Another 30 healthy household controls were enrolled as group B. History, physical examination and psoriasis area and severity index (PASI) scoring was recorded in a preformed data sheet for group A. Sample of throat swab was taken with all aseptic measures by rubbing a sterile cotton stick on both faucial tonsils and posterior pharynx and the sample was cultured on blood agar media in the department of microbiology BSMMU. The media was incubated at 37°C with presence of 5% carbon dioxide for 3 days. At the fourth day

of incubation, morphology of growth in culture media was examined and streptococci were identified according to colonial characteristics. Sensitivity of *Streptococcus pyogenes* was confirmed with no growth against bacitracin disc. All data were preserved in computer device and analyzed with appropriate statistical tools and presented as text and tables.

Results

The mean age of psoriasis group was 34.16±11.26 years and control group was 35.33±13.48 years ($p=0.716$). In group A, 16 (53%) respondents were male and 14 (47%) were female. In control group (B), 21 (70%) were male and 9 (30%) were female. Duration of disease in psoriatics was 3.4±2.3 months and baseline psoriasis area and severity index (PASI) score was 13.8±5.02. Streptococcus infection was found in 4 (13%) in group A and 1 (3%) in group B ($p=1.924$) [Table 1].

Discussion

Guttate psoriasis is a distinctive acute form of psoriasis, and typically erupts explosively over large areas of the skin surface, usually 1-2 weeks after an episode of acute tonsillitis or pharyngitis. If left untreated, guttate psoriasis may clear spontaneously after a period of months or may develop into chronic plaque psoriasis.⁸ Epidemiological evidence implicates

bacterial infection as a common triggering stimulus for psoriasis. Recent studies suggest that continuing, subclinical streptococcal and staphylococcal infections might be responsible not only for relapse of acute guttate psoriasis but also for a new episode of chronic plaque psoriasis.⁹

Extensive evidence supports that psoriasis can be provoked or exacerbated by a variety of different environmental factors, particularly *Streptococcus pyogenes*, which has been recognized for at least 50 years and implicated in both acute and chronic forms of the disease. The link between psoriasis and infections is probably explained by the “superantigen theory”.⁸ Some author suggest that chronic plaque type psoriasis is a post-streptococcal disease like rheumatic fever and glomerulonephritis.¹⁰

In our study only 4 (13%) patients were positive for streptococcus and only 1 (3%) patient was positive in control group where difference was not significant. Our study was close to the result of a study conducted in Pakistan where they found 12.5% patients were positive on throat swab culture.¹¹

Conclusion

In our study we found no association between streptococcal throat infection and chronic plaque type psoriasis. In light of our findings antibiotics prophylaxis is useless in chronic plaque type psoriasis.

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