ORIGINAL ARTICLE

Correlation Between Tonsillectomy and Psoriasis – Our Experience

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Abstract:

Introduction and Background:

Psoriasis is chronic immunological, inflammatory disease characterised by remissions and exacerbations. Streptococcal tonsillopharyngits acts as significant trigger for psoriasis or even lead to new onset possibly by sensitizing T-cells to keratin epitomes in the skin. Palatine tonsills generate autoreactive T-cells which forms the basis for tonsillectomy as one of the treatment options for psoriasis.

Aim:

Aim of the present study was to understand the role of tonsills, Streptococcal tonsillopharyngits in Psoriasis and establishing correlation between tonsillectomy and reduction in severity of psoriasis.

Materials and Methods:

Eighty-six psoriasis patients who had exacerbation after recurrent attacks of tonsillopharyngits were selected for the study and out of these, 43 patients were subjected to tonsillectomy. Disease course was followed for one year and disease severity was assessed by observer blinded dermatologist using psoriasis area and severity index score (PASI).

Results:

The results showed that, 83% patients who underwent Tonsillectomy had a significant reduction in PASI score ranging from 45-90% whereas no improvement was observed in control group. Most patients experienced improvement at 3 months and maintained improvement for one year. Majority of patients showed 50% reduction in psoriatic lesions, experienced improvement at 3 months and maintained improvement for one year.

Keyword: Psoriasis, Tonsillopharyngitis, Tonsillectomy.

Introduction:

Psoriasis is chronic recurrent immune mediated inflammatory skin disorder that affects 1-3% of general population worldwide. It is characterized by relapse, remissions and exacerbations1. Psoriasis is classified into different subtypes such as plaque, guttate, vulgaris, pustular and erythrodermic, commonest subtype is plaque psoriasis. As psoriasis is chronic disorder, it can recur intermittently thereby imposing large psycosocial and financial burden on patients[1].

It is associated with increased incidence of mood disorders such as anxiety and depression. Psoriasis has also been found to be associated with suicidal tendancies. Moderate to severe psoriasis associated with significant comorbidity and has a substantial impact on patient quality of life. Severe psoriasis is associated with increased in mortality and decrease in life expectancy[2].

The therapeutic approach to psoriasis depends on disease severity; it includes topical drugs, phototherapy, systemic drugs and more recently biological drugs. Psoriasis has high direct, indirect and intagible cost; the more the severe disease, the higher the cost. Direct cost of psoriasis includes those related to prescription drugs, hospital admissions, medical

examinations, phototherapy, tests etc. The indirect costs associated with psoriasis include those related to reduced work productivity due to days of work missed because of the disease, time spent in examination and diagnostic procedures[3]. Additionally psoriasis has been shown to have a significant effect on productivity and income [4].

The negative impact of psoriasis on patients quality of life can be attributed to the fact that it interferes with day-to-day activities and impacts interpersonal and social relations[5].Patients with psoriasis can have recurrence or worsening of the disease after an upper respiratory tract infection especially streptococcal tonsilopharyngitis[6,7].

As psoriasis is supposed to be T-cell mediated disease, it has been proposed that certain T-cells primed against streptococcal M-proteins in the tonsils may cross react with epitomes from human keratins which are responsible for exacerbations of psoriasis. With removal of tonsils subsequent decrease in the skin homing T-cells may result in improvement of psoriasis[8].

Association between psoriasis and streptococcal infection is probably explained by superantigen theory. S-pyrogenes has the M-protein which acts as superantigen. Superantigens are the products that can bypass normal immunological pathways and cause powerful stimulation of immune system.

This leads to the productions of T-lymphocytes which plays significant role in psoriasis development[9]. In this study we have tried to find out and establish the correlation between tonsillectomy and psoriasis.

Materials and Methods:

Eighty six dermatologically diagnosed psoriasis patients who had exacerbation of psoriasis after recurrent attacks of tonsillopharyngitis were selected for the study between June 2018 and May 2019. Patients were divided in two groups A and B by simple random sampling.

Group A: - Psoriasis patients underwent Tonsillectomy (43). Group B: - Psoriasis patients not undergone tonsillectomy (43Controls). This was a single blind case control study. Local Institutional Ethical committee approval taken for the study. Out of 86 patients, 51 were males and 35 were females in age group of 21-58 years with mean age being 43 years.

After tonsillectomy the disease course was followed for one year and disease severity was assessed by observer blinded dermatologist using psoriasis area and severity index score (PASI).

Observations :

Sample Size : 86
Group A : 43 – Tonsillectomy group
Group B : 43 – Control

Table No. 1: Age-wise distribution of Psoriasis patients

Age group	Male	Female	Total
0-10	0	0	0
11-20	01	0	01
21-30	17	10	27
31-40	21	15	36
41-50	04	07	11
51-60	07	03	10
61-70	01	0	01
Total	51	35	86

Most common in 3rd and 4th decade. M : F = 1.4:1

Table No. 2 : Types of psoriasis group.

Sr.	Type	Group A	Group B	Total
1	Guttate	17	13	30
2	Vulgaris	07	10	17
3	Chronic Plaque	15	15	30
4	Generalised pustulosis	04	05	09
Total		43	43	86

- Most common type of psoriasis in group A : Guttate followed by chronic plaque type.
- Most common type of psoriasis in Group B : Chronic Plaque followed by guttate type.

Table No. 3: PASI Score for improvement in study group - A

Type of Psoriasis➔ / PASI Score⬇	Guttate	Vulgaris	Chronic plaque	General Pustulosis	Total
0-25%	01	03	0	03	07
25-50%	03	02	04	01	10
50-75%	04	02	09	0	15
75-100%	09	0	02	0	11
Total	17	07	15	04	43

83% patients undergone tonsillectomy showed significant reduction in PASI score ranging from 45-90%

Discussion:

The aim of this study is to focus on the relationship between chronic plaque psoriasis exacerbations and streptococcal throat infections especially tonsillo-pharyngitis. There are some studies with beneficial outcomes and some studies did not find statistically significant differences in the benefit of tonsillectomy.

Our study reinforces the growing evidence of relationship between chronic psoriasis and tonsillectomy with therapeutic relevance.After tonsillectomy psoriatic lesions clearly improved with significant reduction of PASI score thereby improving patients psycosocial disability. It was also observed that after tonsillectomy, duration of drug treatment and adverse effect were reduced.

In 2012 Thorleissdorr et al. performed the first randomized clinical trial of tonsillectomy in chronic plaque psoriasis. Twenty nine patients of chronic plaque psoriasis were subjected to tonsillectomy and their disease course was followed for 2 years and disease severity was assessed. The results showed that 86% of patients who underwent tonsillectomy had significant reduction in PASI score ranging from 30% to 90%. Most patients showed improvement at 2 months and maintained improvement for 2 years[10].

In 1976 Nyfors Rasmussen PA et. al. in their study of 74 patients of chronic plaque psoriasis that underwent tonsillectomy and followed up for 5years, found that 32% patients showed no benefit and 7% patient showed disease worsening[11].

Tara D, Rachakonda MD, Armstrong MD in their study of 410 reported cases of patients with psoriasis who underwent tonsillectomy, 290 experienced improvement in psoriasis and severity index score[12].

Takahara et. al. in a case series of 116 chronic plaque psoriasis undergoing tonsillectomy found that 94% of patients showed subjective improvement and 88% patients improved by palmoplantar pustulusis area and severity index (PPPASI) scoring[13]. In a study by Home et. al. out of 13 (plaque and Guttate Psoriasis) patients subjected to tonsillectomy, 53% showed disease clearence, 23% showed improvement in disease, 24% showed no benefit and 1% had disease worsing in the followup period of 26 months[14].

Nyfors A, et. al. in a retrospective study of 74 cases of plaque psoriasis undergoing tonsillectomy did not find statistically significant difference in the benefit of tonsillectomy. The benefit of tonsillectomy was not found to be linked to gender, age, duration of psoriasis or number of tonsillitis episodes. Further research is needed to identify which groups of psoriasis patients are likely to respond best to tonsillectomy [11].

Clinical recommendation of tonsillectomy for the treatment of PPP or psoriasis should be made in the context of understanding the other indications and risks of this surgical procedure. In adults the most common indications for tonsillectomy are chronic recurrent infections or upper airway obstruction due to tonsillar hypertrophy. Other indications may include obstructive sleep appoea asymmetrictonsills, halitosis, perironsillar abscess, infectious mononucleosis [15].

In children the most common indications include recurrent throat infections, chronic tonsillitis. In our study of 43 cases of psoriasis undergoing tonsillectomy, 36 cases (83%) showed significant reduction in PASI score ranging from 45- 90%, whereas no improvements in PASI score was seen in controls.

Majority of patients showed 50% reduction in psoriatic lesions experienced improvement at 3 months and maintained improvement for one year. No improvement in lesions was observed in 3 (7%) patients. Guttate followed by chronic palque was the most common type of psoriasis reported in Group A whereas chronic plaque followed by guttate was the most common forms of psoriasis reported in Group B.

The immunological role of palatine tonsils in relation to the plaque psoriasis studied by Thorleifsdottir et.al. Showed that there exists close relation between degree of clinical improvement in psoriasis patients receiving tonsillectomy and reduction in the frequency of streptococcal and keratin deptide reactive IFM-Y positive C D – 8 positive skin homing T-cell in their circulation. These findings indicate that palatine tonsils may generate effector T-cells that recognize keratin peptides in the skin and worsen psoriasis after Tonsillectomy the subsequent decrease in the skin homing T-cells may result in improvement of psoriasis[10].

Molecular studies of PPP suggests that tonsillar and peripheral blood CD-4 positive T-cells in patients with PPP recognize streptococcal antigens and express higher amounts of immune markers such as Beta-1 integrin and CCR6.This provides biologically plausible module for the benefit of tonsillectomy in PPP [16].

Sustained, functional activation of IL-1 and IL-36 inducing neutrophil chemokine expression, infiltration and pustule formation suggests that IL-1 / IL-36 inflammatory axis is the driving force in the pathogenesis of psoriasis [17].

Conclusion:

Tonsillectomy may be effective potential treatment option for psoriasis associated with recurrent attacks of tonsillopharyngitis. In our study, we observed that psoriasis patients undergoing tonsillectomy showed significant improvement in lesions as per PASI Score over the follow up period of one year. Tonsillectomy appears to reduce the frequency of auto reactive T-cells, thereby improving psoriatic lesions. Further long term studies are needed to determine and clarify exactly which psoriasis patients are most likely to benefit from tonsillectomy.

Certain factors may remain unanswered beyond psoriasis sub type that might predict which psoriasis

patients are most likely get benefit from tonsillectomy. It might be expected that patients who report a history of psoriasis exacerbation with tonsillitis might respond better to tonsillectomy than psoriasis patients who do not flare with episodes of tonsillitis.

Sources of Support - Nil
Conflict of Interest - Nil

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Received date: 03/09/2020 Revised date: 16/10/2020 Accepted date: 22/10/2020

How to cite this article: Shashin Khadkekar, Aatish Gujrathi and Manoj Harnalikar, Correlation Between Tonsillectomy and Psoriasis - Our Experience. Walawalkar International Medical Journal 2020; 7(2):81-86 http:// www. wimjournal.