Effect of tonsillectomy on psoriasis: A systematic review

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Background: Streptococcal infection is associated with psoriasis onset in some patients. Whether tonsillectomy decreases psoriasis symptoms requires a systematic review of the literature.

Objective: We sought to determine whether tonsillectomy reduces psoriasis severity through a comprehensive search of over 50 years of literature.

Methods: We searched MEDLINE, CINAHL, Cochrane, EMBASE, Web of Science, and OVID databases (from August 1, 1960, to September 12, 2013) and performed a manual search of selected references. We identified observational studies and clinical trials examining psoriasis after tonsillectomy.

Results: We included data from 20 articles from the last 53 years with 545 patients with psoriasis who were evaluated for or underwent tonsillectomy. Of 410 reported cases of patients with psoriasis who underwent tonsillectomy, 290 experienced improvement in their psoriasis. Although some patients who underwent tonsillectomy experienced sustained improvement in psoriasis, others experienced psoriasis relapse after the procedure.

Limitations: Fifteen of 20 publications were case reports or series that lacked control groups. Publication bias favoring reporting improved cases needs to be considered.

Conclusion: Tonsillectomy may be a potential option for patients with recalcitrant psoriasis associated with episodes of tonsillitis. Studies with long-term follow-up are warranted to determine more clearly the extent and persistence of benefit of tonsillectomy in psoriasis. (J Am Acad Dermatol 2015;72:261-75.)

Key words: outcomes research; psoriasis; streptococcal infection; systematic review; tonsillectomy; tonsillitis.

Psoriasis is a chronic, inflammatory, immune-mediated disease that affects 3.2% of adults in the United States.[1] Severe psoriasis is associated with cardiovascular events and other comorbid conditions.[2-6] Psoriasis is characterized clinically by erythema, scaling, and induration. A complex interplay of both genetic and environmental factors contributes to the development of psoriasis, including inflammatory cascade mediated by increased T-lymphocyte activity. Proposed exacerbating factors include cigarettes, stress, weather fluctuations, and alcohol use.[7-9]

For decades, physicians have noted a link between psoriasis and streptococcal infection,

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particularly that of the tonsils.[10-13] Patients with psoriasis report sore throat more frequently than those without psoriasis.[14,15] In many patients with psoriasis, upper respiratory infection appears to be a trigger for the onset of psoriasis.[16,17] This association appears to be particularly strong in guttate and plaque psoriasis.[12,18] Although the exact mechanism is unknown, a pathogenic streptococcal trigger residing in the palatine tonsils may act through the mechanism of molecular mimicry to activate skin-homing T cells in psoriasis.[19-22]

CAPSULE SUMMARY

- The benefit of tonsillectomy in patients with tonsillitis-associated psoriasis is unknown.
- Evidence is insufficient to support tonsillectomy in most patients with psoriasis; only those whose psoriasis exacerbations are closely associated with recurrent tonsillitis may benefit from tonsillectomy.
- Long-term, controlled studies are necessary to assess the effect of tonsillectomy in psoriasis.

Tonsillectomy, the removal of the palatine tonsils, is a controversial therapy for psoriasis; it may be performed alone or in conjunction with adenoidectomy. The major indications for tonsillectomy include recurrent and/or chronic tonsillitis and sleep-disordered breathing (including obstructive sleep apnea).[23] Several studies have described clearance and/or improvement of psoriasis after tonsillectomy.[13,20,21,24-27] It is thought that via the removal of the tonsils, the biologic instigator for skin-homing T-cell expression and activation is diminished.

Whether tonsillectomy results in improved dermatologic outcomes for patients with psoriasis has important implications for patients, dermatologists, and otolaryngologists alike. However, few have examined the current evidence to answer this key question. In this systematic review, we aimed to compile and assess the literature on the benefit of tonsillectomy in patients with psoriasis.

METHODS

Data search

We searched MEDLINE, CINAHL, Cochrane, EMBASE, Web of Science, and OVID databases for articles published from August 1, 1960, to September 12, 2013. For MEDLINE, the following Medical Subject Headings (MeSH) were combined using the AND command:

- Psoriasis [MeSH].
- Tonsillectomy [MeSH Major Topic] OR Tonsillitis [MeSH Major Topic].

We also combined the aforementioned terms in an identical manner to locate pertinent citations in the other electronic databases: EMBASE, CINAHL, OVID, Web of Science, and the Cochrane Database.

Inclusion and exclusion criteria

For this systematic review, the inclusion criteria were as follows: controlled studies or observational studies of patients with psoriasis (guttate or plaque) who underwent tonsillectomy and had at least 1 evaluation of their psoriasis postprocedure; we included case reports and case series. Exclusion criteria included studies addressing related conditions or dermatoses (eg, pustular psoriasis and palmoplantar pustulosis). The search strategy was supplemented by a manual search of relevant articles. Citations and abstracts were evaluated using the following criteria: controlled studies or observational studies (including case reports and case series) of patients with psoriasis (guttate or plaque) who underwent tonsillectomy. Case series were defined as studies that included at least 5 patients, whereas those with less than 5 patients were considered case reports.

Study selection and data extraction

All authors applied the predetermined criteria to the selected articles. All authors reviewed the articles independently; disagreements were resolved via discussion to achieve consensus. Data relevant to the scope of our study were extracted from each study regarding available subject information (baseline characteristics, gender, and age) and follow-up period post-tonsillectomy. We contacted the author of a meeting abstract to obtain additional information about the study cohort.[28]

Quality assessment

Although meta-analysis was not performed for this study because of heterogeneity in outcomes assessment, we applied relevant aspects of the Meta-Analysis in Observational Studies in Epidemiology (MOOSE) criteria.[29] The publications were assessed based upon the following characteristics: defining inclusion and exclusion criteria, outcome assessment, control of confounding, and evidence of bias.[5,30] The articles were assigned an integer score of 0 or 1 for each characteristic, with 1 indicative of a higher quality.

RESULTS

Based on the aforementioned inclusion and exclusion criteria, we identified 674 initial citations