

中文題目：腸道相關淋巴組織切除及隨後的自體免疫疾病風險之關聯性：一人口基礎、臺灣的世代研究

英文題目：Association between the subsequent autoimmune disease risk and the patients with prior GALTectomy: A population-based Taiwanese cohort study

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Background:

The appendix and tonsils function as immune organs, as part of the gut-associated lymphoid tissue (GALT), and play specialized roles in immune function. It has been speculated that removal of these tissues (GALTectomy) may alter intestinal immunity and change gut microbiome and predispose to autoimmune diseases (ADs). Thus, we investigated the possible additive risk of GALTectomy and the subsequent risks of ADs using a population-based database in Taiwan.

Method:

Patients who underwent appendectomy, tonsillectomy or dual appendectomy and tonsillectomy from January 1, 2006, through December 31, 2015, were identified from the National Health Insurance Research Database (NHIRD). Patients without surgery were randomly selected from the NHIRD and assigned to the control group. All patients were followed up until diagnosis of ADs. We identified SLE, RA, systemic sclerosis (SSc), Sjogren's syndrome (SjS), polymyositis/dermatomyositis (PM/DM), Takayasu arteritis, temporal arteritis, polyarteritis nodosa, myasthenia gravis and inflammatory bowel disease (IBD). We used Cox regression models to estimate the adjusted hazard ratio (aHR) and 95% confidence intervals (CIs) for the risks of ADs in each cohort. Then we used Kaplan Meier method to evaluate the cumulative incidence for overall ADs, organ specific ADs and systemic ADs

Results:

This study identified 407 patients who underwent dual appendectomy and tonsillectomy; 196,036 patients who underwent appendectomy; 29,342 patients who underwent tonsillectomy and 23,513,690 controls. Significant increased risks of overall ADs was found in the dual appendectomy and tonsillectomy group (aHR: 4.24, 95% CI 1.94-9.26); followed by tonsillectomy (aHR: 1.72, 95% CI 1.50-1.97) and appendectomy group (aHR: 1.07, 95% CI 1.24-1.38), compared with the control group, after adjustment for age, sex, and comorbidities. After further stratifying the ADs, patients who received dual tonsillectomy and appendectomy had an increased risk of Henoch-Schonlein purpura (HSP), inflammatory bowel disease (IBD) and Sjogren's syndrome (SjS). In patients who received tonsillectomy, an increased risk of Hashimoto's thyroiditis, IBD, ankylosing spondylitis (AS), and SjS were found. In patients who received appendectomy, increased risks of Addison's disease, type 1 diabetes mellitus, Graves' disease, Hashimoto's thyroiditis, HSP, IBD, AS, psoriasis, and systemic

lupus erythematosus (SLE) were found.

Discussion:

In this study, we noticed that patients who had received dual tonsillectomy and appendectomy had an increased risk of acquiring overall ADs, HSP, IBD and SjS; Patients who received appendectomy had higher risks of Addison' s disease, type 1 DM, Hashimoto' s thyroiditis, HSP, IBD, AS, SLE and psoriasis. Patients who received tonsillectomy had higher risks of overall ADs, Hashimoto' s thyroiditis, IBD, AS, and SjS. A population-based cohort study in Sweden also showed similar results. In this study, both appendectomy and tonsillectomy increase the risk of ADs, which may imply the role of dysbiosis in the development of AD. The strength of this study including three large sample size, large validation cohort and the long-term ascertainment of ADs. The limitations including that:

1. disease miscoding or misclassification.
2. the relationship between disease activity and the severity of ADs were not analyzed.
3. some laboratory or clinical data were not available in the database.

Conclusion:

In this nationwide population-based cohort study, we found evidence that GALTectomy may increase the risk of autoimmune diseases.