Clinical Analysis of Primary Eosinophilic Esophagitis

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Background/Aims
Eosinophilic esophagitis (EoE) is a chronic inflammatory disorder of the esophagus. Similar to asthma, EoE can induce irreversible structural changes in the esophagus as a result of chronic and persistent eosinophilic inflammation. The aim of this study was to analyse changes in symptoms, eosinophil counts and endoscopic findings after treatment.

Methods
Nine patients with EoE (6 men and 3 women; mean age, 36.44 years) were diagnosed with EoE based on typical symptoms, endoscopic abnormalities and infiltration of the esophageal epithelium with ≥ 15 eosinophils/high-power field. The average endoscopic follow-up period was 10 months, ranging from 1 to 25 months. Symptoms and endoscopic and pathological findings at initial observation and follow-up were evaluated.

Results
Seven of the 9 patients had dysphagia symptoms, which improved in 4 of 6 patients who were treated with proton pump inhibitor. Two patients were unresponsive to proton pump inhibitor and another 2 patients were treated with corticosteroid, which led to symptomatic relief. In 8 patients, esophageal eosinophilia was improved histologically at follow-up after treatment. Six of the 9 patients had typical endoscopic findings of EoE at initial examination. Despite treatment, these findings remained in 5 of the 6 patients at follow-up endoscopy.

Conclusions
After treatment, the symptoms and eosinophil counts were temporarily improved, but the endoscopic findings of EoE were generally not improved. This indicates that deformity of esophageal structure due to eosinophilic inflammation might be irreversible despite proper management.

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Key Words
Endoscopy; Eosinophilic esophagitis; Inflammation

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Introduction

Primary eosinophilic esophagitis (EoE) is a chronic inflammatory disorder associated with eosinophilic infiltration of the esophagus. The first case was described by Landres et al more than 30 years ago, and in 1993 Attwood et al reported the first study of 12 adult patients with esophageal eosinophilia with dysphagia. Recently, EoE has been increasingly recognized and actively investigated in Western countries. However, in Asian populations there are very few reported adult cases of EoE and only limited studies have been performed. In our hospital, EoE has been actively studied and clinical implications and clinicopathological features have been reported.

In adults, EoE is predominantly observed in male patients and the average age of onset is between the twenties and forties. Dysphagia with solid food impaction is the most common symptom in adult patients with EoE. Heartburn or chest pain has also been reported. In some cases typical symptoms persist despite prolonged treatment with proton pump inhibitor (PPI) or normal pH monitoring of the distal esophagus. EoE with typical symptoms and endoscopic findings is confirmed by a high degree of esophageal eosinophilic infiltration (≥15/high power field [HPF]).

A recent study from Japan reported symptoms, endoscopic and pathological findings, and treatment outcomes for 12 patients with EoE. Seven patients treated with PPI or topical steroid therapy showed symptomatic and histological improvements. However, treatment outcomes were not evaluated in 5 patients and only 2 patients, who were treated with oral fluticasone propionate as topical steroid therapy, showed improved endoscopic findings at follow-up.

Another study investigated the natural history of 30 adult patients with EoE during a mean 7.2-year follow-up period and reported that endoscopic findings were not significantly changed at follow-up. Esophageal eosinophilic infiltration persisted in all symptomatic patients, but cell numbers decreased significantly. The authors suggested that chronic inflammation may lead to irreversible structural changes in the esophagus with a concomitant risk of impaired function.

Despite an increased understanding of inflammatory pathogenesis and possible irreversible structural changes in the esophagus, changes in endoscopic findings following treatment of EoE are not clearly defined. The aim of our study was to analyze changes in symptoms, eosinophil counts, and endoscopic findings after treatment in patients with EoE.

Materials and Methods

We reviewed patients with clinically, endoscopically, and histologically confirmed diagnoses of EoE, retrospectively. The diagnostic confirmation for EoE was defined as a peak of ≥15 eosinophils/HPF. Among patients with confirmed EoE, those who did not undergo endoscopic examination at follow-up were excluded. Consequently, 9 patients with EoE, who were diagnosed at 4 university hospitals between June 2006 and December 2011, were included. Before proceeding the study, we obtained the permission from the Institutional Review Board of Gangnam Severance Hospital, Yonsei University College of Medicine.

We considered baseline characteristics of sex, age, and body mass index (BMI). Allergic history included food allergy, allergic rhinitis, allergic dermatitis and asthma. Serum haematologic and chemistry sampling was performed and analysed.

Analysed symptoms were dysphagia, heartburn, chest pain, and sore throat. We assessed dysphagia intensity using the following scoring system: 1 = swallowing unhindered and without pain, 2 = slight retching disappearing spontaneously (spontaneous anterograde removal), 3 = short periods of obstruction necessitating intervention such as drinking, deep breathing or retching (induced anterograde removal), 4 = longer-lasting obstruction only removable by vomiting (forced retrograde removal) and 5 = continuous complete obstruction not removable by the patient (requiring endoscopic intervention).

We performed endoscopic examinations at first examination and follow-up. Typical findings were linear furrow, corrugated ring, stricture, friability, and white plaque. Endoscopic findings were classified using the following scoring system: 1 = absent, 2 = minimal (fine nodule or fine whitish reticular structure or linear furrow), 3 = moderate (bright-whitish scale-like, plaque-like structure or corrugated ring) and 4 = severe (mucosal lesion or fixed stenosis).

Reflex oesophagitis was also confirmed and graded. Endoscopic biopsy specimens were obtained from mid or lower esophagus of all patients, regardless of their symptoms and endoscopic findings. Tissue samples from endoscopic biopsy were analysed for eosinophil counts and other histologic findings at first examination and follow-up.

Treatment for EoE was PPI and/or inhaled or oral corticosteroid (fluticasone propionate) for 4-8 weeks. The treatment responses of pathologic condition (eosinophilic counts) were classified by the following degree of the result: persistence = ≥