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Successful treatment of eosinophilic gastroenteritis with suplatast tosilate

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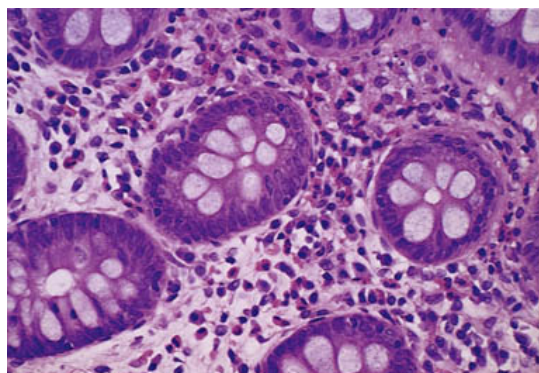
We report the first case of eosinophilic gastroenteritis successfully treated with suplatast tosilate, a novel antiallergic drug that suppresses cytokine production, including IL-4 and IL-5 from T_H2 cells. ^{1 3}

A 55-year-old man was admitted to our hospital with uncontrolled asthmatic symptoms. He had been given a prescription for theophylline and a short-acting inhaled β_2 -agonist on an as-needed basis at a local clinic. He had a 13-year history of asthma, chronic sinusitis, and urticaria and had several episodes of severe asthmatic attacks after the intake of nonsteroidal anti-inflammatory drugs (NSAIDs). Laboratory data on admission revealed a white blood cell (WBC) count of 6000/ μ L with 6% eosinophils and a total IgE of 340 U/mL. Skin prick testing and specific IgE analysis were positive for Japanese cedar pollen. Lung function tests revealed an FEV₁ of 78.1% of predicted, morning peak expiratory flow (PEF) of 43.9% of predicted, and PEF variability of 24.6%. Airway hyperresponsiveness and the diagnosis of aspirin-induced asthma were confirmed by provocative methacholine and sodium tolmetin inhalation challenges, respectively. Urinary leukotriene (LT) E4 concentration was 1559 pg/mg creatinine, which was markedly higher than the mean value

of 30 pg/mg creatinine of 5 subjects with non–aspirin-induced asthma.

Fluticasone propionate 800 µg and pranlukast 450 mg, an LT-receptor antagonist, were added to his treatment regimen, and his symptoms gradually improved. After 4 weeks, lung function tests revealed a morning PEF of 80.8% of predicted and PEF variability of 11.5%. The urinary LTE₄ concentration was 36 pg/mg creatinine. Although asthmatic symptoms subsided at this time, he began to have recurrent abdominal pain and diarrhea of an unknown cause. Urticaria and slight wheezes occasionally accompanied the gastrointestinal symptoms. Abdominal radiography, CT, and ultrasonography findings were all normal. Fecal examination did not reveal any parasitic infestation. The eosinophil percentage was elevated to 41% with a WBC count of 7900/µL, and serum eosinophil cationic protein was 54.0 µg/L (normal range < 15.7 µg/L). Upper and lower endoscopy findings were macroscopically normal, but gastric and colonic biopsy specimens revealed a diffuse, marked infiltrate of eosinophils (Fig 1), leading to the diagnosis of eosinophilic gastroenteritis.

Fig. 1. Biopsy specimen of the descending colon showing diffuse eosinophilic infiltration of the submucosa (hematoxylin-eosin stain; original magnification ×300).



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Churg-Strauss syndrome was thought to be unlikely because of the absence of pulmonary infiltrates and neuropathy and by a normal erythrocyte sedimentation rate and a negative serum myeloperoxidase-antineutrophil cytoplasmic antibody. After the administration of 300 mg of suplastat tosilate without the discontinuation of the pranlukast, the patient made a good clinical recovery with resolution of gastrointestinal symptoms and rapid normalization of blood eosinophilia after 3 weeks. At follow-up 3 months after the initial diagnosis, he remained asymptomatic. The eosinophil percentage was 4%, with a WBC count of 7200/µL.

Suplastat tosilate—(±)-[2-[4-(3-ethoxy-2-hydroxy-propoxy) phenylcarbamoyl] ethyl] dimethylsulfonium *p*-toluenesulfonate—is a selective T_H2 cytokine inhibitor that has inhibitory effects on allergen-induced eosinophilic infiltration, IgE production, and goblet-cell metaplasia in mice.^{1 3} A recent double-blind randomized study reported a considerable

steroid-sparing effect and effectiveness in treating steroid-dependent asthma,⁴ suggesting the usefulness of this drug in the treatment of other allergic diseases in which eosinophils play an important role.

Montelukast, an LT-receptor antagonist, has been reported to be efficacious in treating eosinophilic gastroenteritis.⁵ However, we speculate that it was unlikely that cysteinyl LTs were associated with the onset of the eosinophilic gastroenteritis in this patient because the LT antagonist was administered before the onset of gastrointestinal symptoms, and the urinary LTE₄ level after treatment was decreased. Furthermore, it is unlikely that the pranlukast was the cause of eosinophilic gastroenteritis because the symptoms improved without discontinuation. In addition to the ocular, nasal, and respiratory symptoms, patients with aspirin-induced asthma sometimes have gastrointestinal symptoms, including abdominal pain and diarrhea, after intake of NSAIDs.^{6 7} However, our patient differed from those patients in that no NSAIDs had been ingested. Further studies are needed to determine whether the development of eosinophilic gastroenteritis is associated with underlying aspirin-induced asthma and whether a T_H2 cytokine inhibitor is effective in the treatment of allergic diseases, including eosinophilic gastroenteritis, in which eosinophils play a crucial role.

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References

TOP

1. Yamaya H, Basaki M, Tokawa M, Kojima M, Kiniwa M, Matsuura N. Down-regulation of T_H2 cell-mediated murine peritoneal eosinophilia by antiallergic agents. Life Sci

1995;56:1647-54.

[MEDLINE](#)

[CROSSREF](#)

2. Zhao GD, Yokoyama A, Kohno N, Sakai K, Hamada H, Hiwada K. Effect of suplatast tosilate (IPD-1151T) on a mouse model of asthma: inhibition of eosinophilic inflammation and bronchial hyperresponsiveness. *Int Arch Allergy Immunol* 2000;121:116-22.

[MEDLINE](#)

3. Shim JJ, Dabbagh K, Takeyama K, Burgel PR, Dao-Pick TP, Ueki IF, et al. Suplatast tosilate inhibits goblet-cell metaplasia of airway epithelium in sensitized mice. *J Allergy Clin Immunol* 2000;105:739-45.

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4. Tamaoki J, Kondo M, Sakai N, Aoshiba K, Tagaya E, Nakata J, et al. Effect of suplatast tosilate, a T_H2 cytokine inhibitor, on steroid-dependent asthma: a double-blind randomised study. *Lancet* 2000;356:273-8.

[MEDLINE](#)

5. Neustrom MR, Friesen C. Treatment of eosinophilic gastroenteritis with montelukast [letter]. *J Allergy Clin Immunol* 1999;104:506.

[MEDLINE](#)

[FULL TEXT](#)

6. Bosso JV, Schwartz LB, Stevenson DD. Tryptase and histamine release during aspirin-induced respiratory reactions. *J Allergy Clin Immunol* 1991;88:830-7.

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7. Szczeklik A, Stevenson DD. Aspirin-induced asthma: advances in pathogenesis and management. *J Allergy Clin Immunol* 1999;104:5-13.

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