

# HOSPITAL PHYSICIAN®

## PEDIATRIC GASTROENTEROLOGY BOARD REVIEW MANUAL

### STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Pediatric Gastroenterology Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in pediatric gastroenterology. Each manual reviews a topic essential to the current practice of pediatric gastroenterology.

### PUBLISHING STAFF

#### PRESIDENT, GROUP PUBLISHER

Bruce M. White

#### EDITORIAL DIRECTOR

Debra Dreger

#### SENIOR EDITOR

Robert Litchkofski

#### ASSOCIATE EDITOR

Tricia Faggioli

#### EDITORIAL ASSISTANT

Farrawh Charles

#### EXECUTIVE VICE PRESIDENT

Barbara T. White

#### EXECUTIVE DIRECTOR

#### OF OPERATIONS

Jean M. Gaul

#### PRODUCTION DIRECTOR

Suzanne S. Banish

#### PRODUCTION ASSOCIATE

Kathryn K. Johnson

#### ADVERTISING/PROJECT MANAGER

Patricia Payne Castle

#### SALES & MARKETING MANAGER

Deborah D. Chavis

#### NOTE FROM THE PUBLISHER:

This publication has been developed without involvement of or review by the American Board of Pediatrics.



Endorsed by the  
Association for Hospital  
Medical Education

## Eosinophilic Esophagitis

### Editor:

#### Elizabeth B. Rand, MD

*Associate Professor of Pediatrics, University of Pennsylvania School of Medicine; Medical Director, Liver Transplant Program; Director, Fellowship Training Program, Division of Gastroenterology, Hepatology and Nutrition, The Children's Hospital of Philadelphia, Philadelphia, PA*

### Contributor:

#### Chris A. Liacouras, MD

*Professor of Pediatric Gastroenterology, Hepatology and Nutrition, University of Pennsylvania School of Medicine; Attending Gastroenterologist, The Children's Hospital of Philadelphia, Philadelphia, PA*

## Table of Contents

Introduction .....	2
Etiology .....	2
Pathophysiology .....	3
Clinical Presentation and Diagnosis .....	3
Management .....	6
Conclusion .....	10
References .....	11

Cover Illustration by Christine Armstrong

Copyright 2007, Turner White Communications, Inc., Strafford Avenue, Suite 220, Wayne, PA 19087-3391, www.turner-white.com. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of Turner White Communications. The preparation and distribution of this publication are supported by sponsorship subject to written agreements that stipulate and ensure the editorial independence of Turner White Communications. Turner White Communications retains full control over the design and production of all published materials, including selection of appropriate topics and preparation of editorial content. The authors are solely responsible for substantive content. Statements expressed reflect the views of the authors and not necessarily the opinions or policies of Turner White Communications. Turner White Communications accepts no responsibility for statements made by authors and will not be liable for any errors of omission or inaccuracies. Information contained within this publication should not be used as a substitute for clinical judgment.

# Eosinophilic Esophagitis

Chris A. Liacouras, MD

## INTRODUCTION

Over the past 10 years, eosinophilic esophagitis (EoE) has become one of the most discussed diseases among pediatric gastroenterologists and allergists in the United States. EoE is a disease found in children and adults characterized by a severe, isolated eosinophilic infiltration of the esophagus that is unresponsive to acid blockade but instead responds to the removal of dietary allergens. There is historical evidence that EoE has existed for more than 25 years.<sup>1</sup>

Prior to 1995, patients with symptoms of gastroesophageal reflux (GER) or dysphagia who had histologic evidence of esophageal eosinophils were usually diagnosed with gastroesophageal reflux disease (GERD). This approach was supported by Winter et al,<sup>2</sup> who showed a correlation between the presence of esophageal eosinophils and reflux esophagitis.<sup>3</sup> In 1995, pediatric gastroenterologists recognized that patients presenting with symptoms of GER and a large number of esophageal eosinophils instead had an alternate disorder, EoE.<sup>4</sup> The majority of these patients were being misdiagnosed with and improperly treated for severe GERD.

EoE is an emerging worldwide disease. It has recently been documented in many European countries as well as in Australia, Brazil, and Japan.<sup>5-8</sup> Recent epidemiologic studies suggest a rising incidence in the United States in both children and adults, with at least 1 case occurring in every 10,000 children each year.<sup>9</sup> While pediatric gastroenterologists have been interested in EoE for more than 10 years, awareness among adult gastroenterologists has increased only over the past 3 years.<sup>10</sup> Since EoE was first recognized as a separate entity over 10 years ago, there has been an increasing number of articles in the medical literature relating to the etiology, clinical presentation, and treatment of EoE in both children and adults. This manual reviews the literature on EoE in pediatric patients, with a focus on diagnosis and management.

## ETIOLOGY

The cause of EoE remains controversial. Proposed

causes include food allergy, environmental allergy, aeroallergens, primary autoimmune disease (ie, a subset of eosinophilic gastroenteritis [EG]), and severe, uncontrolled acid reflux disease. However, it is important to differentiate between the pathologic description of esophageal eosinophilia and the disease process of EoE. Esophageal eosinophilia can occur as a response to any gastrointestinal inflammatory condition, including parasitic disease, GER, autoimmune disease, and inflammatory bowel disease. In contrast, EoE is a unique entity and should be considered whenever a severe, esophageal eosinophilia exists despite the use of acid blockade with proton pump inhibitors (PPIs).<sup>11,12</sup>

Since 1982, esophageal acid exposure has been linked to the presence of esophageal eosinophils (usually < 5 eosinophils per high-power field [HPF] [400×]).<sup>2,3</sup> Rarely, large numbers of esophageal eosinophils have been associated with prolonged acid exposure.<sup>13</sup> In general, however, esophageal eosinophilia caused by GER resolves with the use of PPIs. Several studies over the past 10 years have revealed a persistent esophageal eosinophilia despite aggressive acid blockade or the performance of a Nissen fundoplication.<sup>14</sup> These reports suggest that acid exposure is not the only cause of esophageal eosinophilia.

Although aeroallergens have been implicated as a cause of EoE in mouse models and anecdotally in some case reports, there are no clinical studies to show that they play a role in EoE in humans.<sup>15</sup> Some investigators have proposed a nonallergic cause for EoE,<sup>16</sup> suggesting that an underlying autoimmune abnormality may be the basis for the disease. However, no studies or clinical evidence suggests that EoE is a primary autoimmune disorder. In addition, most investigators consider EoE a separate entity from EG,<sup>17</sup> given the lack of consistent resolution of EG with an elimination or elemental diet compared to the excellent response of dietary treatment in patients with EoE.

Most cases of EoE appear to be caused by food allergy. Two types of EoE have been proposed: an immediate IgE-mediated and a cell-mediated delayed food allergy. Although a few patients have been shown to have an immediate IgE-mediated food allergy, the preponderance of patients have a cell-mediated, delayed food allergy in