COMMON PROBLEMS IN PEDIATRIC GASTROENTEROLOGY AND NUTRITION

John D. Snyder/W. Allan Walker

Common Problems in

Pediatric Gastroenterology and Nutrition

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FOREWORD

It is hard to believe that it is only 18 years since the first textbook in pediatric gastroenterology was published. Since that time there has been a steady expansion in the literature in this field, which reflects the remarkable growth of knowledge concerning diseases of the gastrointestinal tract and the liver that affect children. This expansion in knowledge can almost be regarded as an explosion, and it relates to the safe application of new diagnostic techniques and technology to these disorders. This volume aims to provide a practical approach to pediatric gastroenterology, by guiding students, residents, pediatricians, and other care providers, as well as the subspecialist clinician in a case-oriented fashion. The clinical material has been taken from recent cases seen in the Combined Program in Gastroenterology and Nutrition at Children's and Massachusetts General Hospitals in Boston. These cases provide accounts of specific disease states such as cystic fibrosis and celiac disease; they also address symptom complexes such as acute and chronic diarrhea, emphasizing pathophysiological mechanisms. The book also provides an account of gastroenterological manifestations of systemic disease, including the latest scourge, AIDS. The nutritional implications of gastrointestinal disease are also covered, accompanied by a practical guide to the nutritional management of affected children.

The authors have included more than 50 tables, which summarize data on the evaluation, differential diagnoses, treatment recommendations, and recent literature related to the cases presented. In addition, many chapters contain photographs of radiographic and histologic findings or figures of surgical interventions or schemas for evaluation and diagnosis.

It is, therefore, a pleasure for me to introduce this important addition to the literature of pediatric gastroenterology.

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PREFACE

This book was written to provide a case-oriented practical guide for clinicians, house officers, students, gastroenterologists, and nutritionists to pediatric patients with disorders of the gastrointestinal (GI) tract. The case-oriented approach—a departure from the standard textbook format—was chosen to involve the reader in the thought processes used in evaluating and treating children and adolescents with GI disease. Colleagues from surgery, gastroenterology, and nutrition have added their perspectives.

Each chapter includes an actual case seen in the Combined Program in Gastroenterology and Nutrition at Children's and Massachusetts General Hospitals. These cases represent typical, and at times atypical, presentations of the disorders discussed.

In addition to the case presentations, almost all chapters are structured to provide general background information, including epidemiologic features, pathophysiology, clinical features, diagnosis, and treatment. Many chapters contain tables that summarize important clinical findings and approaches to management or treatment. Photographs of radiographic, surgical, and histologic features have also been included. The references have been chosen to provide a concise listing that emphasizes the most recent relevant literature as well as classic descriptions and definitive reviews.

We hope that our readers will find this to be a helpful and instructive resource in their assessment and management of children with gastroenterologic and nutritional disorders. If so, we will feel that the book has been a success.

Many people beyond the authors listed contributed to this effort. We gratefully acknowledge the contributions of all of our colleagues—students, residents, fellows, nursing staff, and physicians—who helped us care for and learn from the patients whose cases are presented here. We also wish to extend special thanks to Joy Rocke and Stacia Langenbahn for their expert technical assistance.

John D. Snyder, M.D.
W. Allan Walker, M.D.

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PART ONE

The Esophagus

1 Esophageal Atresia and Tracheoesophageal Fistula

George Christopolous, M.D.

This 16-year-old boy had been the full-term product of an uncomplicated pregnancy. Shortly after birth he was noted to have increased salivation, and when he was offered a bottle feeding, he developed coughing and cyanosis. An attempt to pass a feeding tube to the stomach was unsuccessful, and a chest x-ray film with the tube in place showed the tip to be arrested at the thoracic inlet (Fig 1–1), and air was present within the intestinal loops. These findings confirmed the diagnosis of esophageal atresia with distal tracheoesophageal fistula, and these defects were repaired on the second day of life. The fistula was divided and a primary end-to-end esophageoesophageal anastomosis was performed. The postoperative course was uneventful.

At 4 years of age the child presented with dysphagia and failure to thrive and was found to have a stenosis at the level of the esophageal anastomosis that required repeated bougienage or pneumatic dilatations. Despite this therapy, a barium swallow examination showed moderate dilatation of the proximal esophagus and a tight stricture extending from the level of the carina to 8 cm distally. Long-term intensive medical therapy with antacids and cimetidine did not result in improvement of the stricture. He continued to complain of dysphagia and poor weight gain and eventually developed a complete stricture of his esophagus in spite of intermittent dilatations. Therefore, a Nissen fundoplication was performed at age 12 years. Subsequently he was admitted on several occasions for incomplete intestinal obstruction, which was treated conservatively.

His overall course following the fundoplication was improved, and he was able to eat a regular diet and gain some weight, although he remained very thin. He denied dysphagia, nausea, or vomiting but radiologic and endoscopic evidence of his stricture persisted, necessitating repeated pneumatic balloon dilatations. An esophageal biopsy performed during endoscopy 2.5 years after his fundoplication showed mild esophagitis, and he was maintained on cimetidine and antacids. He also underwent a series of pneumatic dilatations as well as a home dilatation program. During this period he continued to deny any symptoms attributable to the stricture. Despite his home dilation program he was found on follow-up examination 4 years after his surgery to have a 5-cm long stricture of the midesophagus that could not be negotiated by the endoscope. He is currently on a program of repeated pneumatic dilatations, antacids, and ranitidine.

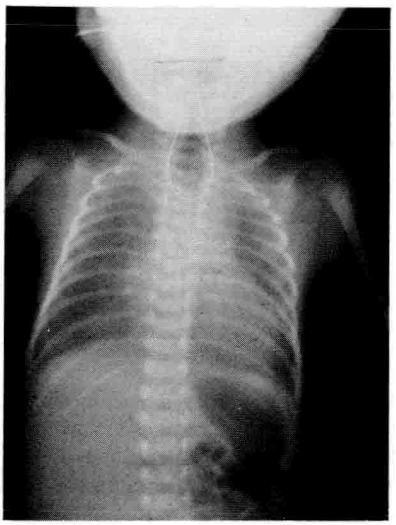

FIG 1–1.
Plain radiograph demonstrating curling of the nasogastric tube at the level of the fourth thoracic vertebra corresponding to the bottom of the proximal pouch. The air in the stomach and small bowel loops is evidence for a distal tracheoesophageal fistula.

DISCUSSION

Esophageal atresia with or without tracheoesophageal fistula is a congenital anomaly that occurs with a frequency of about 1:3,000 to 1:4,500 live births.[1] The most common type, termed C in Gross's classification,[2] is a blind proximal pouch with a distal tracheoesophageal fistula (Fig 1–2), accounting for about 85% of the cases.[3–5] Tracheoesophageal fistula is frequently associated with other congenital anomalies, including cardiac defects (37%), imperforate anus (13%), and other gastrointestinal (GI) anomalies (8.5%).[6] A particular group of anomalies has been given the eponym VATER and includes vascular or vertebral, anal, tracheoesophageal, and radial or renal malformations.[4]

Waterston, in 1962, correlated operative survival in children with tracheoesophageal fistula with birth weight, prematurity, and associated anomalies.[3] He distinguished three different prognostic categories (Table 1–1) associated with increasing