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Upper Respiratory Infections I: Otitis Media, Acute Bronchitis, Sinusitis

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INTRODUCTION

This article is the first installment of a two-part series on upper respiratory infections. The second installment, which will be published in Volume 4 Part 4 of the *Family Practice Board Review Manual*, will address the evaluation and management of pharyngitis.

OTITIS MEDIA

INTRODUCTION

Otitis media is the single most common diagnosis reported from pediatric office practices and is the leading indication for outpatient antimicrobial use in the United States. Although an estimated 24.5 million physician visits for this diagnosis were made in 1990 by children younger than 15 years,¹ there is much controversy in the literature regarding optimal methods of diagnosis, prevention, treatment, and follow-up. Overdiagnosis of and unnecessary prescribing of antibiotics for this condition have contributed to the spread of antimicrobial resistance.²

In order to appropriately manage otitis media, it is important to distinguish between acute otitis media (AOM) and otitis media with effusion (OME). AOM is an often self-limited infection of the middle ear cavity involving the deep surface of the tympanic membrane and the mucosa that lines the middle ear cavity. The infection usually extends into the mastoid cavity and down the eustachian tube but rarely involves the cochlea or the external ear canal. Clinical signs and symptoms of acute infection include pain, fever, decreased hearing, redness of the tympanic membrane, and an altered anatomic appearance on otoscopic examination.³

OME, formerly termed *serous otitis media*, is a clinical condition best defined as the presence of fluid in the middle ear without clinical signs and symptoms of active infection.

CASE 1 PRESENTATION

Patient 1 is a 2-year-old Hispanic boy who is brought to your office because of a 1-day history of fever, irritability, pulling his left ear, rhinorrhea, and dry cough.

His mother states that she is concerned about a recurrent episode of otitis media, which was treated with adequate resolution 1 month ago with amoxicillin for 10 days. This is the third time in the past 6 months that this patient has been brought to your office with the same symptoms. There is no history of smoking in the nuclear family.

Physical examination reveals a toxic-appearing child with a temperature of 101°F. The pharynx is mildly erythematous with no exudates or tonsillar enlargement. Examination of the ears discloses bulging, erythematous tympanic membranes. Pneumatic otoscopy reveals decreased mobility of the tympanic membrane.

- What is the appropriate treatment for patient 1?
- Is tympanocentesis indicated in the evaluation of patient 1?
- Should a course of prophylactic antibiotics after the treatment of patient 1's acute episode be considered?
- If this child later presents with acute onset of ear pain and double vision, what condition should be suspected?

ACUTE OTITIS MEDIA

Epidemiology and Etiology

AOM is more commonly noted in the winter months. It has a definite seasonal pattern in all age groups except children younger than 1 year. Infants between 6 and 18 months of age are most prone to develop AOM. Risk factors that contribute to AOM in the presence of initial infection include immunodeficiency, male gender, short duration or absence of breast-feeding, and cigarette smoking in the household.

The single most common etiology for AOM is viral upper respiratory tract infection. Some viral infections predispose to subsequent bacterial superinfection, especially adenovirus, influenza virus, and respiratory syncytial virus.⁴ By the age of 7 years, nearly 94% of children will have experienced at least 1 episode of AOM.³ However, only approximately 1 in 6 children will have had the 4 to 6 attacks that lead to the label of "otitis prone."³

Diagnosis

It is important to differentiate AOM from OME. The diagnosis of AOM is made clinically and requires