# Diagnostic Difficulties and Treatment Options for Secretory Otitis Media in Children

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#### Abstract

As a common ear disease in childhood, the diagnosis of secretory otitis media is often challenged by insidious symptoms, atypical signs and poor cooperation of children. In this paper, the difficulties in the diagnosis of otitis media in children are discussed in depth, and a treatment plan is proposed to address these difficulties. By comprehensively evaluating the children's clinical manifestations, hearing status and relevant examination results, and combining with individualized treatment strategies, we aim to improve the diagnostic accuracy and therapeutic efficacy of this disease, so as to safeguard the children's hearing health and speech development.

#### Keywords

Children; secretory otitis media; diagnostic difficulties; therapeutic options.

### 1. Introduction

Otitis Media with Effusion (OME) is a specific middle ear disease, which is characterized by the accumulation of non suppurative fluid in the middle ear cavity without obvious manifestations of acute inflammation. Among children, the incidence of this disease is relatively high, which is mainly due to the unique anatomical structure and physiological characteristics of children. The eustachian tube of children is relatively short and wide, and its position is relatively horizontal, which makes it easier for bacteria and other pathogens to enter the middle ear cavity, and at the same time, it is more difficult for the liquid to discharge itself. In addition, children's immune system is not fully developed, and their resistance to pathogens is relatively weak, which also increases their risk of secretory otitis media.

However, the diagnosis of otitis media in children is challenging. On the one hand, early symptoms of the disease are often not obvious, and may only manifest as mild hearing loss or ear discomfort, making it difficult for parents and doctors to detect it in time. On the other hand, children are often unable to accurately describe their symptoms or fully cooperate with their doctors, making diagnosis even more difficult.

If left undiagnosed and untreated, otitis media can have a profound effect on a child's hearing development and speech learning. Long-term hearing loss may lead to impaired development of language comprehension, expression, and social skills, and may even lead to emotional and behavioral problems. Therefore, an in-depth study of the diagnostic difficulties and therapeutic options of otitis media in children is of great clinical significance for improving the diagnosis and treatment of this disease, protecting children's hearing health and promoting their overall development.

The purpose of this paper is to analyze the diagnostic difficulties of children's secretory otitis media and to propose a targeted treatment plan, in order to provide useful references for clinicians, and to work together to improve the diagnostic and therapeutic effects of children's secretory otitis media, and to safeguard children's hearing health and overall development.

# 2. Diagnostic difficulties

There are several difficulties in the diagnosis of otitis media in children, which are mainly due to the insidious nature of the disease itself, the special physiological characteristics of children and the limitations of diagnostic methods. These difficulties will be analyzed in detail below.

### 2.1. Symptoms insidious.

Secretory otitis media often lacks clear and specific symptoms in children. In contrast to acute otitis media, it does not cause severe ear pain or significant drainage. Instead, the child may show only mild hearing loss, sometimes accompanied by a feeling of tightness or discomfort in the ear. It is easy for parents to mistake these symptoms for temporary fluctuations in hearing or other causes of mild discomfort and fail to seek medical attention for their children. In addition, children may not be able to accurately describe the discomfort in their ears due to their limited ability to describe their own symptoms, further complicating the diagnosis.

### 2.2. Atypical signs/symptoms

The tympanic membrane of children is thicker and more elastic than that of adults. When liquid accumulates in the middle ear cavity, the tympanic membrane may not swell as obviously as in adults. In addition, the color change of children's tympanic membrane may not be as significant as that of adults. In adults, the color change of the tympanic membrane (such as redness, yellowness or blueness) is one of the common signs of middle ear effusion. However, in children, these color changes may be very slight or even missing, making it difficult for doctors to make an accurate diagnosis only by naked eye observation.

### 2.3. Poor fit.

Diagnosis of otitis media usually requires a detailed ear examination, including otoscopy and hearing tests. However, children often show a low level of cooperation when it comes to these tests. They may be unable to remain still, follow the doctor's instructions, or become fearful and resistant to the procedure. These factors make it more difficult to obtain accurate diagnostic information.

#### 2.4. Co-existing disease interference.

Childhood is a time of high incidence of upper respiratory tract infections and adenoid hypertrophy. Signs and symptoms of these diseases may be similar to or co-exist with otitis media, which may interfere with the diagnosis. For example, nasal congestion and runny nose caused by upper respiratory tract infections may mask the hearing loss caused by otitis media, while enlarged adenoids may lead to obstruction of the Eustachian tube, further increasing the risk of middle ear effusion. In these cases, doctors need to carefully identify the various disease possibilities to avoid misdiagnosis or missed diagnosis.

In summary, the difficulties in the diagnosis of otitis media in children are mainly due to insidious symptoms, atypical signs, poor cooperation and interference from coexisting diseases. In order to overcome these difficulties, doctors need to have rich clinical experience and meticulous observation ability, and utilize a variety of diagnostic tools for comprehensive evaluation. In addition, parents need to raise their awareness and pay more attention to secretory otitis media in children, bring their children to the doctor in a timely manner, and closely cooperate with the doctor in diagnosis and treatment.

### 3. Treatment programs

The treatment of otitis media in children is individualized according to the child's condition. The following is a detailed description of the various treatment methods and their applications.

### 3.1. Watching and waiting.

For children who are asymptomatic and do not have significant hearing loss, physicians may choose to adopt a watchful waiting strategy. The main purpose of this strategy is to monitor hearing changes and disease progression through regular follow-up visits. During this process, the doctor will explain to the parents the natural course of otitis media and possible complications, and emphasize the importance of timely follow-up. At the same time, the doctor will monitor the child's hearing changes and other related symptoms so that the treatment plan can be adjusted as necessary.

#### 3.2. Drug treatment.

When a child's symptoms become more pronounced, or when the hearing loss reaches a certain level, the doctor will consider treating the child with medication. Medications are given for possible causes, such as upper respiratory tract infections and allergic rhinitis. For upper respiratory tract infections caused by bacterial infections, antibiotics are usually prescribed, while for allergic rhinitis, anti-allergy medications are given. However, it is important to note that long-term use of antibiotics may lead to the development of drug resistance, so the use of antibiotics should be strictly adhered to the doctor's instructions.

In addition to treating the cause of the disease, topical nasal decongestants can be used to improve nasal ventilation, which in turn promotes recovery of Eustachian tube function. Mucolytics can also be used to facilitate the drainage of fluid from the middle ear cavity.

#### 3.3. Surgical treatment.

Surgery may be considered for children who do not respond to medication, who have severe hearing loss, or who have had fluid for a long period of time. Common surgical procedures include tympanocentesis and tympanotomy. A tympanocentesis can quickly remove fluid from the middle ear cavity and improve hearing, while a tympanotomy is a small incision in the eardrum and a ventilator tube is placed to keep the middle ear cavity well ventilated and to facilitate drainage of the fluid. Both procedures are effective in improving hearing, but it is important to note that complications such as infection and perforation of the tympanic membrane may occur after the procedure, so it is important to monitor the recovery closely and deal with any abnormalities in a timely manner.

#### **3.4.** Complementary therapies.

In addition to medication and surgery, some adjunctive therapies can be used to help children restore Eustachian tube function and promote drainage of fluid. For example, Eustachian tube blowing and tympanic membrane massage can effectively improve the ventilation of the Eustachian tube, thus facilitating the ventilation of the middle ear cavity and the drainage of fluid. These treatments are usually performed under the supervision of a physician and require close cooperation between the parents and the child.

#### 3.5. Hearing rehabilitation.

For children with hearing loss, timely hearing evaluation and rehabilitation are essential. Audiologic evaluation can help to understand the degree and type of hearing loss of the child and provide guidance for subsequent rehabilitation training. Rehabilitation training aims to reduce the impact of hearing loss on children by improving their auditory sensitivity and speech through various methods (e.g. auditory training, speech training, etc.). This process requires the participation and guidance of professional audiologists and speech therapists.

In summary, the treatment options for children with otitis media include observation, medication, surgery, adjuvant therapy and hearing rehabilitation. Doctors will choose the appropriate treatment method or a combination of methods according to the specific

conditions of the child. In the course of treatment, close cooperation between the parents and the child and regular follow-up visits are crucial to ensure the effectiveness of the treatment.

### 4. Examples of treatment programs

The following are three cases of diagnostic difficulties and treatment options for secretory otitis media in children:.

Case 1: Xiaoming, male, 5 years old

**Diagnostic Difficulties** 

Ming's secretory otitis media manifested itself as a mild hearing loss, a common symptom of the disease but one that may not be easily recognized in children. Since Ming has no obvious ear pain or pus, this makes it difficult for parents and doctors to recognize the problem in the early stages. Children's limited ability to express themselves may prevent them from accurately describing their symptoms, which is also an important reason for delayed diagnosis.

#### Treatment programs

The doctor conducted a detailed medical history and ear examination, including otoscopy and hearing test. Through these examinations, the doctor confirmed that Ming was suffering from secretory otitis media. Since Ming's symptoms were mild and there was no obvious fluid in the middle ear, the doctor decided to adopt a conservative treatment strategy.

Watchful waiting: Watchful waiting is a common treatment option for mild secretory otitis media, especially if there is no significant fluid buildup. Your doctor will monitor Ming's hearing regularly to make sure the condition is not worsening.

Parent education: The doctor explained in detail to Xiaoming's parents the natural course of otitis media, including possible complications and symptoms to watch out for. Parents were asked to monitor Ming's hearing closely and to follow up as necessary.

Follow-up: To ensure that Ming's condition is managed properly, the doctor has arranged a regular follow-up program. This will include regular hearing tests and ear examinations.

Case 2: Xiaohong, female, 7 years old

Diagnostic Difficulties

In Xiaohong's case, the difficulty in diagnosis was that she also suffered from allergic rhinitis, which can lead to non-specific manifestations of ear symptoms. Allergic rhinitis can cause symptoms such as nasal congestion and runny nose, which overlap with the ear stuffiness and hearing loss of otitis media. Therefore, doctors need to carefully differentiate between the two conditions during the initial consultation.

#### treatment programs

After a detailed ear examination and hearing test, the doctor found that Xiaohong had fluid in the middle ear cavity, which is a typical manifestation of secretory otitis media. Combined with Xiao Hong's history of allergic rhinitis, the doctor formulated the following treatment plan.

Anti-allergy medication: In order to control Red's allergic rhinitis symptoms, the doctor gave anti-allergy medication. This helps to reduce nasal congestion and runny nose, thus improving the ventilation of the Eustachian tube.

Tympanocentesis: In order to quickly remove the fluid from the middle ear cavity, the doctor performed a tympanocentesis to remove the fluid. This is a simple but effective procedure that can quickly improve hearing.

Follow-up and hearing monitoring: After the surgery, the doctor closely monitored the changes in Red's hearing and arranged a regular follow-up program. This helps to detect any possible complications or recurrences in a timely manner.

Case 3: Xiaohua, male, 9 years old

#### **Diagnostic Difficulties**

In Xiaohua's case, the diagnostic challenge was that he also had adenoid hypertrophy. Adenoid hypertrophy is a common childhood condition that can lead to blockage of the Eustachian tube, which increases the risk of developing secretory otitis media. Because Xiaohua had both hearing loss and tinnitus, doctors needed to carefully differentiate between the effects of the two disorders when making a diagnosis.

#### treatment programs

The doctor conducted a comprehensive evaluation and examination of Xiaohua, including a detailed ear examination, hearing test and adenoid examination. Based on these findings, the doctor formulated the following treatment plan.

Adenoidectomy: In order to relieve the blockage of the Eustachian tube, the doctor decided to perform an adenoidectomy on Xiaohua. This is a common surgery that can effectively improve the ventilation of the Eustachian tube.

Antibiotics and Mucolytics: After the surgery, antibiotics were given to prevent infection and mucolytics were used to help clear the fluid from the middle ear cavity. The use of these medications helped speed up Xiaohua's recovery process.

Rehabilitation and hearing monitoring: During the treatment and rehabilitation phase, the doctors closely monitored the changes in Xiaohua's hearing. As the treatment progressed, Xiaohua's hearing gradually returned to normal. Regular follow-up visits were arranged to ensure that Xiao Hua's disease was properly managed and to prevent recurrence.

### 5. Conclusion

After an in-depth discussion of secretory otitis media in children, it is not difficult to realize that this disease faces many difficulties in diagnosis. Hidden symptoms and atypical signs make it difficult for doctors to make an initial judgment; poor cooperation of children increases the uncertainty in the diagnosis process; and the interference of coexisting diseases makes the diagnosis more complicated. These difficulties are intertwined, and together they constitute a challenge in the diagnosis of secretory otitis media in children.

In terms of treatment, we emphasize the importance of individualized treatment. Each child is unique, and the treatment program must be tailored to his or her specific condition and physical state. A combination of medication, surgery and adjuvant therapy is a powerful weapon in the fight against this disease. By choosing and utilizing these methods in a scientific and rational manner, we hope to improve the accuracy of diagnosis, the effectiveness of treatment, and ultimately, the rehabilitation of the child's hearing.

In general, the diagnosis and treatment of secretory otitis media in children is a complex and delicate task. We need to face this challenge with high sense of responsibility and professional knowledge and skills. Through continuous learning and practice, we hope to make more progress in this field and contribute to the healthy growth of children.

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