

# 삼출성 중이염의 치료

정 명 현

## Treatment of Otitis Media with Effusion

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(Otitis Media with Effusion : OME) 가 (morbid outcome) 가 , (9) , (10) 2)4) . , 20 dB 가 .<sup>1)</sup> , underlying ( , , ) 가 .  
 2) 가 .  
 1)3) 가 (Table 1) 1 . Table 2 .<sup>5)</sup>  
 (1) Otitis prone children(6 3 12 4 ) Ta- ble 3 amoxicillin sulfisoxazole, am- picillin, <sup>6)7)</sup> Trimethoprim - sulfamethoxazole(TMP - SMZ) .<sup>8)</sup> 2  
 (2) , (3) , (4) , (5) ( posterosuperior quadrant pars flaccida retraction pocket, (6) , (7) 3

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가

**Table 1.** Risk factors for Chronic Otitis Media with Effusion

Host	Environment	Disease
Male	Bottle-feeding	Bilateral middle ear effusion
Age < 2 years	Passive smoke exposure	
Anatomical defect	Group day-care	
Cleft palate		
Down syndrome		
History of acute otitis media	Season : Winter > Summer	

**Table 2.** Primary control of Otitis Media with Effusion

Contributing Factor	Intervention
Passive smoking	Reduction or elimination of exposure Better ventilation
Inhalant allergies	Environment measures Immunotherapy
Food allergies	Dietary modification Soy-based or elemental formulas
Recurrent acute otitis media	Antibiotic prophylaxis Adenoidectomy
Viral URI	Frequent hand-washing Extra layer of clothing in winter
Group daycare	Alternative care situations
Eustachian tube dysfunction	Patience ; improve with growth and development
Immature immune system	Patience ; improve with growth and development

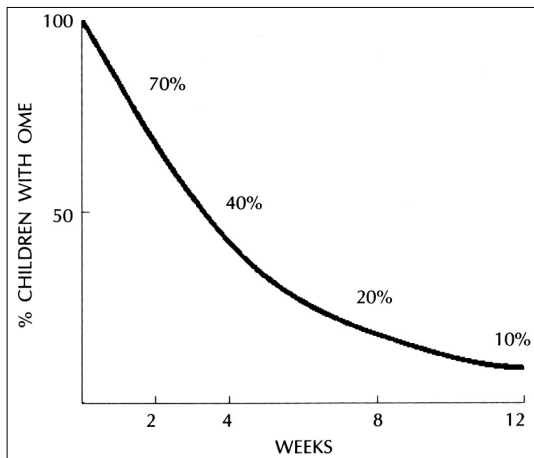
**Table 3.** Recommendation for the medical management of OME

Agent(S)	Comments	Pediatric dose	Dosage interval	-lactamase Resistance
<i>Prophylactic antibiotics</i>				
Amoxicillin (Amoxil)	Requires refrigeration,	20 mg/kg/d	Daily	None
Sulfisoxazole (Gantrisin)	every 2 weeks	50 - 75 mg/kg/d	Daily	Good
<i>1stline antibiotic therapy</i>				
Amoxicillin (Amoxil)	If penicillin tolerant	40 mg/kg/d	8 h	None
TMP-SMZ (Bactrim ; Septra)	If penicillin allergic	1 tsp each 10 lb	12 h	Good
<i>2nd-line antibiotic therapy</i>				
Amoxicillin-clavulanate (Augmentin)	15 - 20% GI upset	40 mg/kg/d based on AMX	8 h	Excellent
Cefaclor (Ceclor)	Serum sickness	40 mg/kg/d	8 - 12 h	Fair
Cefprozil (Cefzil)		15 mg/kg/d	12 h	Good
Cefixime (Suprax)	20 - 30% GI upset	8 mg/kg/d	Daily	Excellent
Cefpodoxime (Vantin)	Well tolerated	10 mg/kg/d	12 h	Excellent
	Broad spectrum			
EM-sulfisoxazole (Pediazole)	Inconvenient dosage schedule	50 mg/kg/d based on EM	6 h	Good
Loracarbef (Lorabid)	Give 1 hour before or 2 hours after meals	30 mg/kg/d	12 h	Good
<i>Oral steroids</i>				
Prednisolone (Pediapred, Prelone)	Together with antibiotic	1 mg/kg/d x 5 d ; 1/2 mg/kg/d x 5	Daily	-
Prednisone (Luquid Pred)	Together with antibiotic	Same as Prednisolone	Daily	-

TMP - SMZ = Trimethoprim-sulfamethoxazole

AMX = Amoxicillin

EM = Erythromycin



**Fig. 1.** Duration of effusion after first episode of AOM (Adapted from Teele DW, Klein JO, Rosner BA. Epidemiology of otitis media in children. Ann Otol Rhinol Laryngol 1980 ; 89 Suppl 68 ; 5).

**Table 4.** Factors favoring surgical treatment of OME

- Bilateral disease
- Bilateral hearing loss
- Speech delay
- Behavior problems
- Structural changes in the tympanic membrane
- Antibiotic allergy
- High-risk for recurrent acute otitis media

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 1994 Agency for Health Care Policy and Research(AHCPR) 1 3  
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 , 3 90%  
 (Fig. 1).<sup>11)</sup>  
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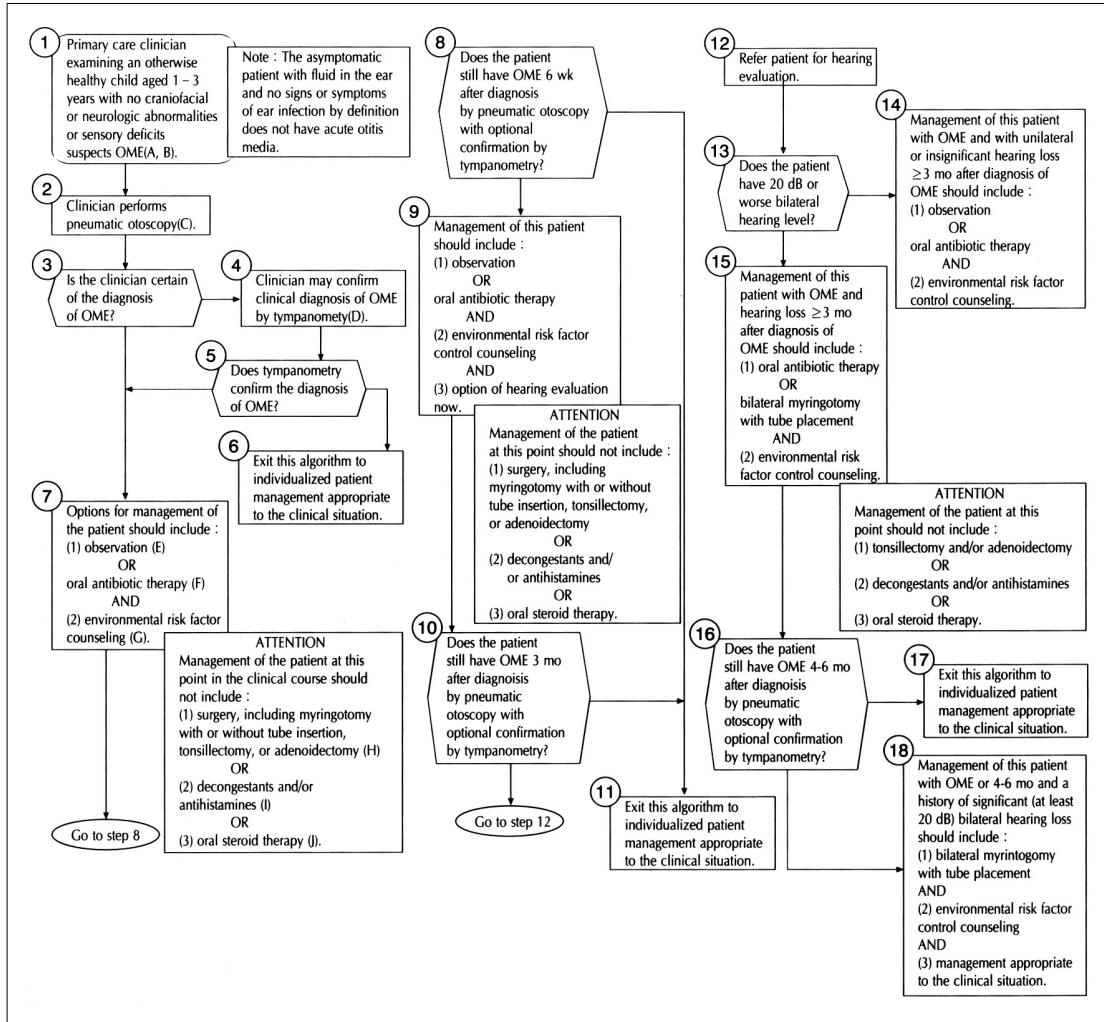


Fig. 2. Algorithm for managing otitis media with effusion in an otherwise healthy child aged 1 - 3 years old.

가 . (de - congestant) 1% ephedrine 0.25% neosyne - phrine pseudo ephedrine

약물요법

가 . 가 (1) 가 , (2)

(3), (4), (5), (6), (7)  
 (compliance issues), (6)  
 4)12)  
 lactamase H. influenza M. catarrhalis,  
 (penicillin - resistant  
 S. pneumonia ; PRSP)  
 가  
 amoxicillin, erythromycin(EM), EM -  
 sulfisoxazole, sulfisoxazole, TMP - SMZ, cefaclor,  
 amoxicillin - clavulanate  
 FDA  
 14가 Table 5  
 amoxicillin  
 (40 50 mg/kg/day t.i.d, 10 ) (dr -  
 ug of choice) 가  
 (younger children)

가 , amoxicillin  
 amoxicillin 1  
 . Amoxicillin  
 60 80 mg/kg/day  
 ( amoxicillin) 가 Strep.  
 pneumoniae가 가  
 16 41%  
 가  
 ( 가 Strep. pneumoniae  
 TMP - SMZ, erythromycin, ceph -  
 alosporin ciprofloxacin ).  
 가 Strep. pneumoniae  
 (younger children) .<sup>13)</sup>

**Table 5.** Antibiotics for treatment of AOM (FDA)

Generic name(Trade name)	Dose(mg/kg/day)	Frequency
Amoxicillin(Amoxil)	40	tid
TMP-SMZ(Bactrim ; Septra)	8/ 40	bid
EM-sulfisoxazole(Pediazole)	50/150	qid
Amoxicillin-clavulanate (Augmentin)	45	bid
Second-generation cephalosporins		
Cefaclor(Ceclor)	40	bid or tid
Cefuroxime axetil(Ceftin)	30	bid
Cefprozil(Cefzil)	30	bid
Third-generation cephalosporins		
Cefixime(Suprax)	8	qd or bid
Ceftibuten(Cedax)	9	qd
Cefpodoxime(Vantin)	10	qd
Loracarbef(Lorabid)	30	bid
Macrolides		
Azithromycin(Zithromax)	5, but 10 on day 1, for a total 5	qd
Clarithromycin(Biaxin)	15	bid
Ceftriaxone, intramuscular (Rocephin)	50	One dose

\*All for 10 days, except as noted  
 TMP-SMZ = Trimethoprim-sulfamethoxazole  
 EM = Erythromycin

1) 2 cephalosporin Strep.  
 pneumoniae group A streptococcus  
 가 .<sup>13)</sup>  
 2) Cefprozil, cefpodoxime cefuroxime axetil  
 Strep. pneumoniae  
 가  
 가 가 .<sup>13)</sup>  
 3) In vitro azithromycin clarithromycin  
 가 strep. pneumoniae가  
 ,  
 가 minimum inhibitory concentration(MIC)  
 .<sup>13)</sup>  
 4) Strep. pneumoniae  
 3 ceftriaxone  
 가 .<sup>14)</sup>  
 Strep. pneumoniae  
 amoxicillin  
 (40 mg/kg/day)  
 (80 90 mg/kg/day) ( ,

FDA amoxicillin 가 가 .  
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 (prior month) , 5% . Ampicillin, amoxicillin, amoxicillin -  
<sup>16)</sup> eryt - clavulanate 가 ,  
 hromycin sulfoxazole , TMP - SMZ, cla - hnsion )  
 rithromycin azithromycin . neutropenia thrombocytopenia가  
 1) cefaclor amoxicillin - clavulanate, ce - nase deficiency sulfonamide  
 furoxime axetil, cefixime <sup>17)</sup> .  
 2) Strep. pneumoniae cefixime ceftib - Erythromycin , , ,  
 uten cefalosporin . ,  
 - lactamase 가 가 cefaclor , ,  
<sup>17)</sup> , serum sicknesslike rea -  
 3) Strep. pneumoniae가 cefti - ction <sup>4)</sup>  
 rozil, erythromycin, clarithromycin azithromycin  
 4) ceftriaxone 가  
 가 ( , , ,  
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<sup>18 - 20)</sup> ,  
 - lactamase H. influenzae M. ca -  
 tarrhalis가 TMP - SMZ(Bactrim  
 Sepra), erythromycin - sulfasoxazole(Pedia - 이관통기법  
 zole), cefaclor(Ceclor), amoxicillin - clavulanate(Au -  
 gmentin), cefuroxime axetil(Ceftin), cefixime(Su - catheterization , Politzer (inflation with  
 prax) . nasal balloon) , Politzer  
 - lactamase 가 가 Valsalva 가  
 ceftibuten(Cedax), cefprozil(Cefzil), cefpodoxime . Catheterization  
 (Vantin), loracarbef(Lorabid), azithromycin(Zith -  
 romax) clarithromycin(Biaxin) cannulation  
<sup>4)12)17)</sup> 4 amoxicillin .  
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 ( , azithromycin : 5 )<sup>16)21)</sup> 10 가  
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 Ampicillin, amoxicillin, amoxicillin -  
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 TMP - SMZ (Steven - Jo -  
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 원인질환의 제거  
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 catheterization , Politzer (inflation with  
 nasal balloon) , Politzer  
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 (disruption) H. influenza, S. pneumoniae, M. catar-  
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 Amoxicillin TMP - SMX  
 TMP - SMX tonsillar crypt  
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 가 . tococcal pharyngotonsillitis  
 Eryt -  
 hromycin H. influenza  
 . 1990 Paradise sulfonamide  
 10 가 , otitis  
 prone children  
 2  
 35% .<sup>22)</sup>  
 가 , (NSAID) (pl -  
 acebo) 가 가  
<sup>23)24)</sup> ,  
 가

급성과 아급성 삼출성중이염의 치료

가  
 (routine) .<sup>25)</sup>  
 (3 )  
 (3 )  
 , 2 60%가 . Table 6 ,  
 , Table 7  
 80% 가 , 80% , Table 7  
 (atrophy), (atel -  
 60% 1 , 80% ectasis), retraction pocket  
 2 , 3 90%가 ,

:

**Table 6.** Management options for Acute and Subacute OME

Intervention	Comment
Watchful waiting	Higher than 80% rate of spontaneous resolution
Therapeutic antibiotic	If none in past 4 weeks
Prophylactic antibiotic	Use amoxicillin or trimethoprim-sulfamethoxazole If 3 or more AOM episodes in 6 months, or 4 or more in 12 months
Nonsteroidal anti-inflammatory agents	Ineffective
Antihistamines, decongestants	Ineffective
Oral steroids	Not recommended
Surgery	Not recommended

**Table 7.** Considerations in management in OME

Factor	Favors surgery	Favors alternatives to surgery
Epidemiology		
Laterality of OME	Bilateral	Unilateral
Age of child	2 years or younger	Older than 2 years
History of AOM	"Otitis prone"	Infrequent episodes
Daytime environment	Group daycare	Home care
Passive smoke	Frequent smoke exposure	No smoke exposure
Current season	Fall or early winter	Spring or early summer
Impact on child		
Hearing	Bilateral hearing loss	Normal hearing
Speech and language	Speech delay or misarticulation	No speech impairment
Behavioral	Abnormal behavior	Normal behavior
Miscellaneous		
Otoscopic appearance	Structural changes of tympanic membrane	Air bubbles or air-fluid level
Antibiotic tolerance	Multiple drug allergies	Antibiotics well tolerated
Baseline risk for otitis media	High-risk population*	Normal risk
Other indication for surgery on pharynx or ears	Present	Absent

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 가  
 만성 삼출성중이염의 치료 - lactamase stable antibiotics  
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 , 10% 3  
 (3 12 ) antibiotics prednisone prednis-  
 가 가 , olone 1 mg/kg/day 5 ,  
 5 3



**Table 8.** Management options for Chronic Otitis Media with Effusion

Intervention	Comment
Watchful waiting	Rate of spontaneous resolution is 20%
Therapeutic antibiotic	If none in past 4 weeks ; use $\beta$ -lactamase stable drug
Prophylactic antibiotic	Limited data on chronic OME ; may be effective
Autoinflation	Inconsistent results; may be effective
Oral steroids	Consider prior to surgical intervention Possible exacerbation of varicella
Myringotomy	Ineffective alone May be combined with adenoidectomy
Tympanostomy tubes	Short-acting tubes are preferred No carry-over effect
Adenoidectomy	Significant carry-over effect
Tonsillectomy	See text for patient selection guidelines Ineffective

varicella exposure가 , 50%

가가 4

otitis prone, 2 ,

2

가

가

가

6 18 가가 가

(short - acting tube) , 1988 Gates

air cell system

가 29%,

가 38%,

가 47%

26)

6 ,

1 . T ,

(long - acting tube) , 가

가 가  
Table 8

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