

## Research Article

# A study on otitis media with special emphasis on acute suppurative otitis media

Surendra Singh Moupachi<sup>1</sup>, Richa Gupta<sup>1\*</sup>, Vishnu Agrawal<sup>2</sup>, Shikha Gupta<sup>3</sup>

<sup>1</sup>Department of ENT, S.S. Medical College, Rewa, M. P., India

<sup>2</sup>Department of Surgery, J.L.N. Medical College, Ajmer, Rajasthan, India

<sup>3</sup>Department of Medicine, J.L.N. Medical College, Ajmer, Rajasthan, India

**Received:** 19 April 2014

**Accepted:** 4 May 2014

### \*Correspondence:

Dr. Richa Gupta,

E-mail: dr\_richa\_tulip@yahoo.com

© 2014 Moupachi SS et al. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Otitis media is a common condition in developing countries and requires support and cooperation of both medical professionals and patients for the proper and timely management of this problem. Aim of current study was to present 148 OM (otitis media) cases observed at the S.S. medical college & G.M. hospital, Rewa.

**Methods:** The present study was done on 148 patients of OM (otitis media) who presented to the S.S. Medical College & G.M. Hospital, Rewa prospectively from December 2012 to February 2013.

**Results:** Most patients (56) belong to 11-20 year age group with age ranging from 4 years to 70 years. Male predominance (85) was observed. About 96 patients were from rural areas. Left laterality (60 cases) was commonest. Unsafe CSOM (62 cases) was the commonest type of otitis media seen. ASOM was seen in 20.27% cases.

**Conclusion:** Otitis media is present in this region of country in abundance and need of hour is to spread awareness about the disease.

**Keywords:** ASOM, Otitis media, Discharge, Unsafe, Socioeconomic status

## INTRODUCTION

Otitis media is known to be a spectrum of disease ranging from an acute non suppurative otitis media to chronic transformation of the disease which includes chronic suppurative and nonsuppurative diseases particularly when it is not treated or partially treated.<sup>1</sup>

Otitis media is a general term referring to inflammation of the middle ear cleft without reference to etiology or pathogenesis. It may be suppurative or non suppurative. Each type has different aetiopathogenesis, clinical features and management

Otitis media is the most frequent bacterial infection of childhood and the most common indication for antimicrobial therapy in this age group.<sup>2</sup> Frequent

infections could probably lead to impairment of language and speech skill. The learning skills and academic performance of children seem to be affected in sufferers. It accounts for increasing morbidity and expenses in society.

Otitis media is generally defined by the presence of effusion within the middle ear without reference to its cause or pathogenesis. Acute Suppurative Otitis Media (ASOM) is usually associated with the rapid onset of symptoms and signs of acute infection in the middle ear space, including fever, otalgia, inflammation or bulging of the tympanic membrane, and purulent middle ear effusion. However, there is no constellation of signs and symptoms that has been universally accepted in establishing this diagnosis.<sup>3</sup>

ASOM is generally a self-limiting disease with a tendency towards spontaneous healing even without therapy. Complications are however possible and in some patients the disease progresses towards chronicity.

OME is defined as fluid in the middle ear without signs or symptoms of acute ear infection.<sup>4</sup> The tympanic membrane is often cloudy with distinctly impaired mobility.<sup>5</sup> The air-fluid level or bubble may be visible in the middle ear.

CSOM (Chronic suppurative otitis media) is an infection characterized by recurrent middle ear discharge through a persistent tympanic membrane perforation, which can be managed at the primary health care level thereby preventing the development of deafness and even fatal complications.<sup>6</sup>

CSOM is most often a recurrent rather than a constant disease. Chronicity of disease is defined in time and stage rather than a uniform pathological picture. Incidence of this disease is higher in developing countries especially among lower socioeconomic society because of malnutrition, overcrowding, poor hygiene, inadequate health care, and recurrent upper respiratory tract infection.<sup>7</sup>

Otitis media poses major health concern in society and hence present study was undertaken to evaluate its prevalence. OM encompasses a wide range of disease from acute to chronic.

The high incidence of OM in Indian population prompted us to conduct this study.

## METHODS

The present study is a prospective analytical review of 148 patients of otitis media who presented to the S.S. medical college & G.M. hospital, Rewa from December 2012 to February 2013. The relevant data were collected with regard to age and sex distribution, type, laterality. Appropriate investigations like radiological, culture sensitivity test, haematological tests were carried out where indicated. All the patients with complaints such as hearing impairment, aural discharge etc. were included in study irrespective of age and sex. Any postoperative case was excluded from study. The ASOM cases observed during study were evaluated in detail further for type of discharge, predisposing factor, type of deafness, symptoms etc. The aim of study is to study incidence of various types of otitis media. Also clinical features, predisposing factors, etiopathological causes and bacteriology of ASOM were studied in detail.

## RESULTS

The predominance of males 57.43% was observed in present study (Table 1).

Most patients 39.19 % belong to 11-20 year age group with age ranging from 4 years to 70 years followed by 22.3% in 21-30 age groups (Table 1).

**Table 1: Age-wise sex distribution of case study.**

Age	Female	Male	Total	Percentage
0-10	14	17	31	20.95
11-20	24	34	58	39.19
21-30	13	20	33	22.3
31-40	7	8	15	10.13
41-50	2	4	6	4.05
51-60	2	1	3	2.03
61-70	1	1	2	1.35
<b>Total</b>	63	85	148	100

As per socioeconomic status maximum patients of OM patients belong to poor class 58.78% followed by middle class 30.41% and rich class 10.81% (Table 2).

**Table 2: Socioeconomic distribution of CSOM.**

Socioeconomic status	No.	Percentage
Rich	16	10.81
Middle	45	30.41
Poor	87	58.78
<b>Total</b>	148	100

Most patients belong to rural area (64.86%) with 35.14% belonging to urban areas (Table 3).

**Table 3: Inhabitation distribution of otitis media.**

Inhabitation	No.	Percentage
Rural	96	64.86
Urban	52	35.14
<b>Total</b>	148	100

In our study highest number of cases were found in CSOM (unsafe) type in 41.89 % cases followed by 31.75% safe type of CSOM. ASOM was found in 20.27% cases out of 148 cases of otitis media (Table 4).

**Table 4: Incidence of various types of otitis media.**

Site	No.	Percentage
ASOM	30	20.27
CSOM (Safe)	47	31.75
CSOM (Unsafe)	62	41.89
ANSOM with effusion	5	3.38
CNSOM with effusion	4	2.71
<b>Total</b>	148	100

The predisposing factor among 30 ASOM was found to be tonsillitis in 63.34% followed by rhinitis (40%), Upper Respiratory Tract Infection (URTI) (36.67%). Also adenoids (33.34%) and common cold (20%) was reported as predisposing factor.

In ASOM cases most common presenting symptom was discharge (86.67%) cases followed by deafness in 80% cases. Other symptoms were otalgia (60%), tinnitus (20%), fever (20%), restlessness (16.67%) & sense of fullness (10%) (Table 5).

**Table 5: Symptom-wise distribution in 30 ASOM cases.**

Symptoms	No.	Percentage
Discharge	26	86.67
Deafness	24	80
Otalgia	18	60
Tinnitus	6	20
Fever	6	20
Restlessness	5	16.67
Sense of fullness	3	10

Serosanguineous discharge was seen in 76.93% ASOM cases followed by mucopurulent discharge (23.07%) cases (Table 6). This finding is suggestive that cases were in early stage of suppuration and cases were at late stage or progressing to stage of complication or resolution.

**Table 6: Type of discharge in 26 ASOM Cases with discharge.**

Type of discharge	No.	Percentage
Serosanguineous	20	76.93
Mucopurulent	6	23.07
<b>Total</b>	<b>26</b>	<b>100</b>

Mild conductive hearing impairment was observed in 83.34% cases of ASOM. Pure tone audiometry was not performed in rest of the cases.

Streptococcus pneumonia was the most common bacteria observed in 60% cases followed by other organisms like Haemophilus influenzae, Staphylococcus aureus etc. in ASOM patients.

In present study radiographic finding on performing X-ray mastoid bilateral Schuller's view in ASOM cases suggested 33.34% ears to be sclerotic, 30% partially sclerotic, 16.67% undeveloped, 6.67% sclerotic.

## DISCUSSION

Otitis media is one of the most common ear diseases of India. It presents in all age groups and both sexes. The male predominance was clearly observed among the 148 OM cases studied. The age group of 11-20 was the most susceptible age group among all.

The disease was more prevalent in patients from rural areas rather than urban areas possibly because of surroundings and negligence of this disease by them for a longer period before seeking medical advice.

The risk factors for otitis media include exposure to smoke, crowded living conditions and low socio-economic class.<sup>8,9</sup> In present study maximum patients belong to poor socioeconomic class followed by middle and rich class. The pattern might be due to limited access of this class to medical facilities and improper and inadequate treatment of disease.

The CSOM was the commonest type of OM with unsafe being commoner compared to safe. This pattern might be due to carelessness towards discharging ear during first episode of otitis media which leads to further complication.

Acute Suppurative Otitis Media (ASOM) is more common in infants and children especially of lower socioeconomic group. It is a pyogenic bacterial infection of middle ear cleft. Some predisposing factors like recurrent attack of common cold, upper respiratory tract infection, exanthemous fever, tonsillitis, adenoiditis, rhinitis etc. contribute to ASOM.

The strong correlation between AOM and viral respiratory infections was reported in various studies.<sup>10</sup> As in present study tonsillitis was the commonest predisposing factor followed by rhinitis and URTI.

Most common organisms in infant and young children are Streptococcus pneumonia, Haemophilus influenza, Staphylococcus aureus, and Moraxella catarrhalis. The organism involved in AOM have remained significantly unchanged over the last 2 decades.<sup>11,12</sup> This observation is in accordance with our study.

The inadequate, delayed and inappropriate treatment of ASOM with the inadequate use of antibiotics or surgical management is supposed to be responsible for the development of CSOM.

ASOM is essentially a self-limiting disease with a tendency towards spontaneous healing even without therapy. Complications are however possible and in some patients the disease progresses towards chronicity.

## CONCLUSION

This study gives an insight into prevalence of otitis media in this region of north India. OM is one of the main causes of preventable and treatable diseases. The incidence of death due to intracranial complication is high. Management of this disease is challenging. Awareness should be spread among patients to consult otolaryngologist at the earliest to avoid future complication and proper management of the disease. ASOM is essentially a self-limiting disease with a tendency towards spontaneous healing even without therapy. Complications are however possible and in some patients the disease progresses towards chronicity.

Early detection by meticulous history, imaging modality & prompt management remains basis for favourable outcome. Therefore, educational strategies regarding safe behaviours have a key role in managing otitis media.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the institutional ethics committee*

## REFERENCES

1. Berman S. Otitis media in developing countries. *Paediatr*. 1995;96(1):126-31.
2. Nash DR, Harman J, Wald ER et al. Antibiotic prescribing by primary care physicians for children with upper respiratory tract infections. *Arch Paediatr Adolesc Med*. 2002;156:1114-9.
3. Chan LS, Takata GS, Shekelle P et al. Evidence assessment of management of acute otitis media. II: research gaps and priorities for future research. *Paediatr*. 2001;108:248-54.
4. Shekelle P, Takata G, Chan LS et al. Diagnosis, natural history, and late effects of otitis media with effusion. In: Shekelle P, Takata G, Chan LS, eds. *Evidence Report/Technology Assessment No. 55. AHRQ Publication No. 03-E023*. Rockville, MD: Agency for Healthcare Research and Quality; 2003: 1-324.
5. Karma PH, Penttila MA, Sipila MM, Kataja MJ. Otoloscopic diagnosis of middle ear effusion in acute and non-acute otitis media. I. The value of different otoscopic findings. *Int J Paediatr Otorhinolaryngol*. 1989;17:37-49.
6. Van Hasset P. Chronic suppurative otitis media. *Comm Ear Hearing H*. 2007;4(6):19-21.
7. Kumar H, Seth S. Bacterial and fungal study of 100 cases of chronic suppurative otitis media. *J Clin Diag Res*. 2011;5:1224-7.
8. Li WC, Chiu NC, Hsu CH, Lee KS, Hwang HK, Huang FY. Pathogens in the middle ear effusion of children with persistent otitis media: implications of drug resistance and complication. *J Microbiol Immunol Infect*. 2001;34(3):190-4.
9. Aich ML, Biswas AC, Ahmed M, Joarder MAH, Datto PG, Alauddein M. Prevalence of otitis media with effusion among school going children in Bangladesh. *J Otorhinolaryngol*. 2009;15(1):31-4.
10. Ruuskanen O, Arola M, Mertsola J et al. Acute otitis media and respiratory virus infection. *Paediatr Infect Dis J*. 1989;8(2):94-9.
11. Bluestone CD, Stephenson JS, Martin LM. Ten-year review of otitis media pathogens. *Paediatr Infect Dis J*. 1992;11:S7-11.
12. Eskola J, Kilpi T, Palmu A, et al. Efficacy of a pneumococcal conjugate vaccine against acute otitis media. *N Engl J Med*. 2001;344:403-9.

DOI: 10.5455/2320-6012.ijrms20140815

**Cite this article as:** Moupachi SS, Gupta R, Agrawal V, Gupta S. A study on otitis media with special emphasis on acute suppurative otitis media. *Int J Res Med Sci* 2014;2:872-5.