

# Status Of Contralateral Ear In Patients With Chronic Otitis Media

P Adhikari, S Khanal, R Bhatta, S Sigdel, D Baral

## Citation

P Adhikari, S Khanal, R Bhatta, S Sigdel, D Baral. *Status Of Contralateral Ear In Patients With Chronic Otitis Media*. The Internet Journal of Health. 2009 Volume 10 Number 2.

## Abstract

**Objective:** To study the status of contralateral ear in patients with chronic otitis media. **Materials and Methods:** This is a prospective study in patients attending GMS Memorial Academy of ENT and Head and Neck Studies, Kathmandu between July 2008 and December 2008. There were 750 patients diagnosed as having chronic otitis media (COM) squamous and mucosal type. Otoscopy was performed in all patients in such ears and the status of contralateral ear was noted. Statistical analysis was performed by simple manual analysis using frequency and percentage.

**Results:** Out of 750 patients, 64.4% were male and 35.6% were female. Regarding types of COM, 36.0% were squamous type. In 68.4% of the patient, the contralateral ear was found to have some form of abnormalities. In mucosal type of COM, 62.9% patients had abnormal contralateral ear while in squamous type, 71.4% patients had abnormal contralateral ear. The most common findings on contralateral ear in both group of patients was retraction of the tympanic membrane. **Conclusion:** Patients with COM in one ear are more likely to develop some degree of disease in the contralateral ear. The squamous type of chronic otitis media had a greater chance of contralateral ear involvement.

## INTRODUCTION

Chronic otitis media is divided into mucosal type of chronic otitis media and squamous type of chronic otitis media.<sup>1</sup>

There are various theories on pathogenesis of chronic otitis media. We have followed the pathogenesis model suggested by the Minneapolis group<sup>2,3</sup> - the so called continuum theory. According to the continuum theory, otitis media with effusion is recognized as the initial condition that, when resolved, may progress to chronic transformation. Otitis media seems to exist through a continuous series of epithelial and subepithelial events, and, after the initial triggering episode, a serous or purulent otitis becomes serous-mucoid, then mucoid, and, in the absence of therapeutic resolution, chronicity may ensue.<sup>3,4</sup>

Limited data available in the literature on status of contralateral ear in chronic otitis media.<sup>5,6</sup> Few of them have been published describing the details of the otoscopic findings of the contralateral ear in patients with chronic otitis media.

## MATERIAL AND METHODS

This is a prospective study in patients attending GMS Memorial Academy of ENT and Head and Neck Studies,

Kathmandu between July 2008 and December 2008. There were 750 patients diagnosed as having chronic otitis media (COM) with or without cholesteatoma.

Chronic otitis media was defined as chronic inflammation of the middle ear and or mastoid associated with permanent perforation or retraction of the tympanic membrane with or without otorrhea. There are two types of chronic otitis media. Chronic otitis media squamous type and chronic otitis media mucosal type.

Contralateral ear was defined as the asymptomatic ear or in cases with bilateral symptoms, the ear with clearly less symptoms based on hearing loss, otorrhea and overall discomfort. Contralateral ear was evaluated as normal or abnormal. Abnormal ear was again classified according to their findings. If one or more findings were present, it was classified by their dominant pathologic findings and it includes- retraction, perforation, effusion and tympanosclerosis.

All age groups were included. Previous history of surgery cases was also included except ventilation tube insertion.

Otoscopy was performed in all patients in such ears and the

status of contralateral ear was noted. Statistical analysis was performed by simple manual analysis using frequency and percentage.

## RESULTS

Out of 750 patients, 64.4% were male and 35.6% were female. Regarding types of COM, 36.0% were squamous type. In 68.4% of the patient, the contralateral ear was found to have some form of abnormalities. In mucosal type of COM, 62.9% patients had abnormal contralateral ear while in squamous type, 71.4% patients had abnormal contralateral ear. The most common findings on contralateral ear in both group of patients was retraction of the tympanic membrane. (Table-1).

### Figure 1

Table: 1. Showing contralateral involvement in chronic otitis media

Determinants	COM- Squamous	COM- Mucosal
Total	269	481
Disease	192 (71.4%)	302 (62.8%)
Normal	77 (28.6%)	179 (37.2%)
Retraction/ OM & sequale	91 (33.8%)	141 (29.3%)
Tympanosclerosis	27 (10.1%)	43 (8.9%)
COM Mucosal	28(10.4%)	49 (10.2%)
COM Squamous	46 (17.1%)	69 (14.4%)
Surgery	39 (14.5%)	58 (12.0%)

## DISCUSSION

Chronic otitis media is a major health problem throughout the world in developing countries. It is also one of the common problem health problems of Nepal.<sup>7</sup> The prevalence of chronic otitis media varies throughout the world, ranging from 30% among the Alaskan Inuit to 4% and 6% in African countries and to less than 1% in England, the United States and Brazil.<sup>8</sup> In Nepal, the prevalence of COM as quoted by Little et al study is 7.2%.<sup>9</sup>

The value of contralateral ear findings in patients with chronic otitis media in two fundamental aspects: a) the contribution to understanding the pathogenesis in otitis media and b) the implications for treatment, follow up and counselling for chronic otitis media patients. Several studies have been conducted to elucidate the pathogenesis of chronic otitis media. One of the proposed hypothesis is the continuum theory, in which Paparella et al postulate that otitis media exists throughout a continuous series of events.<sup>10</sup>

According to continuum theory, in the absence of arresting mechanisms, the pathology may progress bilaterally in a considerable proportion of cases, although with differing degrees of severity. Although clinical studies published by Scheibe et al as well as those of other researchers, have demonstrated a high prevalence of alterations in contralateral ears.<sup>11</sup>

Chalton and Stearns in 1984 assessed the contralateral ears of 73 patients who had undergone canal wall down tympanomastoidectomy for acquired cholesteatoma and found abnormalities in 53.4% of them (pars tensa retraction being the most prevalent).<sup>5</sup> In 1996, Vartiainen et al described a series of 493 contralateral ears in patients undergoing otological surgery for chronic otitis media.<sup>6</sup> They found 63% of the contralateral ears having some degree of abnormality and again retraction was the most frequent finding. On excluding retraction, they found 46.3% contralateral ear to be abnormal.<sup>6</sup> These findings therefore support the idea of the trend of bilateral chronic disease of middle ear.

The importance of contralateral is for the better understanding of the pathogenesis of chronic otitis media and treatment and counselling of such patients. Patients with chronic otitis media diagnosed in one ear are very likely to present with associated disease in the contralateral ear. Our study showed that 64.8% of the patient had some form of abnormality in the contralateral ear.

The cholesteatoma chronic otitis media group had a greater prevalence of contralateral ear alterations than those in the noncholesteatoma chronic otitis media group. Our study revealed that squamous type of chronic otitis media had a higher prevalence (71.4%) of contralateral ear involvement than those in mucosal type of chronic otitis media. Retraction of tympanic membrane and tympanosclerosis were the most often encountered eardrum changes in this series, both of them considered consequences of recurrent acute otitis media or suppurative otitis media or their treatment. Fortunately, these changes seldom have a significant effect on hearing function.

Chronic otitis media does not seem an isolated event that occurs in a particular patient ear. It seems rather, be the product of a series of events "constitutional" of the individual. The precise and critical evaluation of both ears plays a fundamental role in the prognostic evaluation of the patient because the ear with established chronic otitis media can serve as a guide for the probable evolution in the

contralateral ear. Our findings clearly suggest that the tendency of chronic otitis media to present itself as a bilateral disease.

### CONCLUSION

Patients with chronic otitis media in one ear are more likely to develop some degree of disease in the contralateral ear. The squamous type of chronic otitis media had a greater chance of contralateral ear involvement.

### References

1. Browning GG. Aetiopathology of inflammatory conditions of the external and middle ear. In: Kerr AG (ed.). Scott- Brown's Otolaryngology, 6th edn. Vol 3. London: Arnold, 1997: 3/3/15-3/3/16.
2. Sady Selaimen da Costa, Leticia Peterson Schmidt Rosito, Cristina Dornelles. The contralateral ear in chronic otitis media. A series of 500 patients. Arch Otolaryngol Head Neck Surg 2008; 134: 290-293.
3. Da Costa SS, Souza LCA, Piza MRT. The flexible tympanoplasty: pathology guided pathogenesis- oriented surgery for the middle ear. Otolaryngol Clin North Am 1999; 32: 413-441.
4. Giebink GS, Ripley ML, Shea DA, Wright PF, Paparella MM. Clinical histopathological correlations in experimental otitis media: implications for silent otitis media in humans. Pediatr Res 1985; 19: 389-397.
5. Chalton RA, Stearns M. The incidence of bilateral chronic otitis media. J Laryngol Otol 1984; 98: 337-339.
6. Vartiainen E, Kansanen M, Vartiainen J. The contralateral ear in patients with chronic otitis media. Am J Otol 1996; 17: 190-192.
7. Adhikari P, Sinha BK, Pokharel NR, Kharel B, Aryal R, Ma J. Prevalence of chronic suppurative otitis media in school children of Kathmandu district. J Inst Med 2007; 29: 10-12.
8. Little P, Bridges A, Guragain R, Friedman D, Prasad R, Weir N. Hearing impairment and ear pathologies in Nepal. J Laryngol Otol 1993; 107: 395-400.
9. Bluestone CD. Epidemiology and pathogenesis of chronic suppurative otitis media: implications for prevention and treatment. Int J Pediatr Otorhinolaryngol 1998; 420: 207-223.
10. Paparella MM, Schachern PA, Yoon TH et al. Otopathologic correlates of the continuum of otitis media. Ann Otol Rhinol Laryngol 1990; 99: 17-22.
11. Scheibe B, Smith M, Schimdt L et al. Contralateral ear in chronic otitis media: Efeito Orloff. Rev Bras Otorhinolaryngol 2002; 68: 245-259.

**Author Information**

**Prakash Adhikari, MBBS, MS (ENT)**

Resident, Ganesh Man Singh Memorial Academy of ENT and Head and Neck Studies

**Surendra Khanal, MBBS**

House Officer, TU Teaching Hospital

**Rishi Bhatta, MBBS, MS (ENT)**

Resident, Ganesh Man Singh Memorial Academy of ENT and Head and Neck Studies

**Sashi Sigdel, MBBS**

House Officer, TU Teaching Hospital

**Dipak R. Baral, MBBS**

House Officer, Alka Hospital