# Bacteriological profile in CSOM (TT) - HIV positive versus HIV negative patients

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## **Abstract**

A one year prospective study was done to compare the bacteriological profile of ear discharge in 40 HIV positive patients versus 40 HIV negative patients attending the out patient department of ENT at Belagavi Institute of Medical sciences hospital, Belagavi, Karnataka. Commonly the organisms responsible for infection of the middle ear cleft are commensals of the upper respiratory tract. The culture of pus from middle ear of cases with CSOM (TT) with HIV infection has shown to be in variation with that of patients with no HIV infection. Pseudomonas, E.coli were found to be more in HIV positive patients. Staphylococcus, Proteus mirabilis, Pneumococcus and Citrobacter were found to be more frequently associated with HIV negative patients.

Key Word: HIV, CSOM (TT), Bacteriology

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# **INTRODUCTION**

Chronic Suppurative otitis media (CSOM) is a persistent disease of middle ear cleft capable of causing severe destruction and irreversible sequelae with manifestation of deafness and discharge. Bacteriology of CSOM has been widely studied. Human immuno deficiency virus (AIDS virus) was first discovered in the USA in 1983 and was called the Human T –cell Lymphotrophic virus type III or Lymphadenopathy associated virus (HTLV III/LAV). Later its name was changed to Human immunodeficiency virus (HIV). HIV was first reported in India in 1986 in sex workers in Chennai. ART centre at Belgaum Institute of Medical Sciences (BIMS), Belagavi had 5629 cases of HIV positive registered from 01 Jan 2010 to 31 Dec 2011. This study was envisaged to understand the bacteriological profile of CSOM (TT) in HIV positive patients as compared with HIV negative patients.

# MATERIALS AND METHODS

This study was done in the department of ENT at BIMS hospital, Belagavi, Karnataka. The bacteriological profile of 40 HIV positive patients and 40 HIV negative patients was studied.

#### Inclusion criteria

- Patients of all age groups and sex were included
- patients who were not on any other immunosuppressant treatment
- patients who were not on antituberculosis treatment

#### Exclusion criteria

- patients with complications of CSOM or Attico antral disease
- patients with otitis externa
- patients with congenital malformation of ears and head and neck region
- patients having any other immune-compromised status other than being HIV positive.

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#### METHODOLOGY

Thorough clinical examination of ears, nose and throat was done to rule out complications of CSOM or any other systemic disease. All systemic and topical antibiotics were stopped for one week. Collection of sample: ear discharge was collected aseptically in a sterilized test tube using long needle and disposable syringe after creating a negative pressure, and sample was sent immediately to the microbiology department. Identification of organism: samples were streaked onto chocolate agar and MacConkey agar. Plates were incubated at 37°C for 48 hours. A gram stain was prepared from the colony and the organisms were identified using standard procedures. Testing for sensitivity: Antimicrobial susceptibility of the isolated organisms to Ampicillin, cefuroxime, erythromycin, co-trimoxazole, gentamicin, ofloxacin, vancomycin, ceftazimidime, imipenem, clindamycin, amikacin, tetracycline, cefazolin was done.

### **OBSERVATIONS**

Figure	<b>1:</b> Age wise c	listributi	on	
	Age in years			
	0-10 y	36		
	10-20	20		
	20-30	8		
	30-40	6		
	40-50	10		
Figure 2: Bacteriology				
Species	HIV p	ositive	HIV nega	tive
Pseudomonas		20	14	
Staphylococcus au	reus	8	10	
E.coli		4	2	
Klebsiella		6	6	
Proteus mirabili	S	2	4	
Pneucococcus		-	2	
Citrobacter		-	2	
Figure 3: Gender				
Gender	HIV Positive	e HIV Negative		
Male	26		20	
Female	14		20	

## DISCUSSION

Chronic Suppurative otitis media (CSOM - TT) is a persistent disease of the muco-periosteal layer of middle ear cleft capable of causing severe destruction and irreversible sequelae with manifestation of deafness and discharge. The bacterial flora found in CSOM (TT) patients with HIV infection have not been studied extensively. Our hospital being a referral centre for HIV patients in the district, has a large number of cases with HIV infection registered and under follow up. Aim of this study was to know if there is a variation in the bacteriology

of cases of CSOM (TT) in HIV positive versus HIV negative patients. A total of 40 patients with HIV infection (HIV positive) were compared with 40 patients without HIV infection (HIV negative). HIV (Human Immunedeficiency virus) infection and AIDS (Acquired Immune Deficiency Syndrome) have had a profound effect on the practice of medicine in the last 20 years. It is disease which can affect any age, sex, or socioeconomic group and has become a worldwide epidemic. Women form an increasing subset of patients and with this comes the vertical transmission of the virus from mother to child. A large number of HIV positive patients will have some or the other head and neck presentation of disease during the course of their illness. HIV is a retro virus which binds to the CD4 receptor on the host cell membrane. CD4 receptor is found in the highest concentration in the T helper lymphocytes and it is through these cells the HIV virus primarily proliferates. Upon initial infection with HIV infected patients are asymptomatic. About 50% -70% people will have acute illness within 2-6 weeks of infection. This syndrome lasts for about 2 weeks. At this stage patients may be sero-negative but will have high titres of virus in the body. The blood stream is highly infectious at this stage. The viral load decreases as serum antibody to HIV increases and by six months most patients are seropositive. At this stage patients are generally asymptomatic and circulating CD4 counts are high. This phase may last for many years. Once the CD4 counts start decreasing the patients start getting symptomatic and are susceptible to opportunistic infections and neoplasms, which is diagnostic of AIDS. HIV positive patients have a higher rate of reactivation of latent disease than their immunecompetent counterparts. CSOM (TT) is the infection of mucoperiosteal lining of the middle ear cleft is characterized by ear discharge and permanent perforation of tympanic membrane. CSOM (TT) is the major cause of deafness in India. About 40 % of the patients attending ENT OPD consist of CSOM (TT). It could be a likely result of acute otitis media in childhood. Commonly the organisms responsible for infection of the middle ear cleft are commensals of the upper respiratory tract. But due to repeated infections and inappropriate antibiotic usage the microbiological flora may be altered. The culture of pus from middle ear of cases with CSOM (TT) with HIV infection has shown to be in variation with that of patients with no HIV infection except Klebsiella. Pseudomonas, E.coli were found to be more in HIV positive patients. Staphylococcus, Proteus mirabilis, Pneumococcus and Citrobacter were found to be more frequently associated with HIV negative patients.

#### **CONCLUSION**

There is a change in the bacteriological flora in HIV positive patients versus HIV negative patients in CSOM (TT). A study with larger number of cases is required for understanding the bacteriological profile in HIV positive patients.

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