

sufficiently high to eradicate biofilms (at least not without causing systemic toxicity). Ventilation tube insertion dries the middle ear and thus could suppress biofilms, but it may not eradicate them, possibly accounting for the high rate of OME recurrence after VT extrusion. Biofilms in the middle ear could be eradicated by administering antibiotics directly to the middle ear, to reach an antibiotic level that is locally high enough to eradicate biofilms; drug delivery methods could include slow-release formulations placed surgically, or trans-tympanic delivery. Oral treatment strategies could also be useful, but rely on appropriate selection of antibiotics that work well against biofilms, perhaps potentiated by agents to disrupt biofilm matrix and middle ear mucus.

Conclusion: Better understanding of biofilms in otitis media has the potential to lead to development of better treatments in the future.

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Bacteriology and Biofilm (R663)

ID: 663.4

Biofilms in Otitis Media

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Learning Objectives: To describe: 1. the existence of biofilms in otitis 2. the role of biofilms in the pathogenesis of otitis media 3. the potential targets of treatment.

Biofilms are multicellular network of bacteria encased in a matrix and are noticeably resistant to both antibiotics and host defenses. Biofilms exist in otitis media, cholesteatoma, chronic otitis media, onto prostheses and in adenoids. Demonstration of biofilms in otitis media has shown different mechanisms of persistence of bacteria into the middle ear. Substantial effort in understanding the biologic nature of biofilms has resulted in evidence supporting their importance in otitis media and adenoids. The predominant role played by in biofilms is important, both from the perspective how pathogens develop viable communities in the middle ear as well as how this structure impedes successful antibiotic therapy. Understanding the nature of the biofilm component in the pathogenesis of chronic otitis media will likely have a meaningful influence on the development of novel strategies of treatment.

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Free Papers (F664)

ID: 664.1

A study of the otological outcomes of otitis media with effusion in children with primary ciliary dyskinesia

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Learning Objectives:

Introduction: Primary Ciliary Dyskinesia (PCD) describes a group of inherited disorders that result in abnormal ciliary motion leading to mucous stasis. Clinical features almost always include otitis media with effusion (OME). PCD patients provided us with a cohort of patients with OME that is not treated with ventilatory tube insertion as these have been shown to result in chronic otorrhoea, early extrusion and persistent perforation without significant improvement to hearing in the long term. The most popular theory of cholesteatoma formation is invagination of the tympanic membrane due to a negative middle ear pressure, as found in OME. We used this cohort to investigate whether children with PCD and OME were predisposed to Cholesteatoma formation.

Methods: We performed a retrospective observational review of all the children attending a multi-disciplinary PCD clinic at a national quaternary referral centre. With thorough review of the documentation from their clinic appointments and audiology assessments we collected data regarding the management of the OME.

Results: We found that out of 144 patients on their database, almost all of them had a diagnosis of otitis media with effusion at some point. Of these, the only children who had insertion of a ventilatory tube were those who had the procedure before the diagnosis of PCD was made. The majority of children had none or mild hearing loss and therefore did not require any intervention. Those with moderate to severe hearing loss were referred for fitting of hearing aids. None of the children with OME were diagnosed with a Cholesteatoma in the time they had been followed up in the PCD clinic.

Conclusions: Cholesteatoma has not been found to occur in children with PCD despite having OME which is conservatively managed. This contradicts the traditional invagination theory of cholesteatoma formation and in these patients, the mucosal stasis may in fact provide a protective factor against cholesteatoma formation.

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Free Papers (F664)

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Cholesteatoma: The effects of poverty and ethnicity in New Zealand's North Central Region

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Learning Objectives: Appreciation of social factors is important as delivering health care within ethnic groups is generally more effective.