Introduction

Otitis media with effusion (OME) is defined as middle ear effusion without signs or symptoms of an acute infection ***(Rovers et al., 2004)***. This form of inflammatory middle ear disease is the most common reason for young children to visit their family doctor and to have surgery ***(Hogan and Moore, 2003)***.

Tympanostomy tube insertion is one of the most common surgical procedures in children, with more than 10,000 cases performed weekly in the United States ***(Hall and Lawrence, 1998)***.

The most common postoperative complication associated with myringotomy and grommet insertion is otorrhea, which reportedly occurs in 6-40% of cases ***(Slack et al., 1987)***.

A few bacteriological studies support the hypothesis of tube otorrhea in younger children being a manifestation of acute otitis media (with airway-derived bacteria such as Streptococcus pneumoniae and Haemophilus influenzae in the discharge) that would require systemic antibiotics. In children older than 3 years of age, the main reason for the insertion of tubes is hearing impairment due to otitis media with effusion. When otorrhea occurs in this group cultures mainly present bacteria from the skin (Staphylococcus aureus, Pseudomonas aeruginosa) ***(Ronald, 2005)***.

Bacterial biofilm is a polysaccharide formation believed to be an important mediator of infection at the site of implanted materials ***(Dohar et al., 1996)***. The organisms within this polysaccharide matrix, or

glycocalyx slime layer, are relatively resistant to antibiotics and can become a source of persistent and relapsing infection, often necessitating the removal of the implanted material ***(Dougherty, 1988)***. Bacterial biofilm formation has been implicated in the high rate of persistent otorrhea after tympanostomy tube insertion ***(Gander, 1996)***.

The behavior of bacteria in the biofilm is more complex than that of suspended cells. Once established, the biofilm may be considered a fortress from which bacteria exhibit spectacular defense mechanisms against the immune system of their host and antimicrobial agents. Colonies show altered, organized growth characteristics involving complicated intercellular communication systems, enabling them to exploit their environment and evade attack ***(Costerton and Stewart , 2001)***.

In human medicine it has been estimated that 65% of nosocomial infections are biofilm associated, costing the health care system billions of dollars. These biofilm infections are 10 to 1000 times more resistant to the effects of antimicrobial agents ***(Costerton et al., 1999)***.

Staphylococcus biofilms have been extensively studied in human medicine and this pathogen is considered significant in both device associated infections and tissue infections such as pneumonia and osteomyelitis ***(Bezek, 1998)***. Pseudomonas aeruginosa has been recognized in human medicine to form antibiotic resistant biofilms on implanted devices and within tissues ***(Mah and O'Toole, 2001)***.

Aim of the work

The aim of the work is to:

Determine the types of bacteria that can grow on the surface of the tympanostomy tube and causes the post tympanostomy tube otorrhea and makes it resistant for treatment.