Role of hexosaminidase in the pathogenesis of cholesteatoma

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Introductory statement
Cholesteatoma is a destructive lesion that leads to the destruction of adjacent structures. The aim of our study was to demonstrate the activity of N-acetyl-D-hexosaminidase (HEX) in cholesteatoma and normal retroauricular skin and the possible correlation between HEX activity and bone resorption in cholesteatoma.

Material and methods:
After removal, cholesteatoma and normal adult retroauricular skin, served as controls, were immediately frozen in -80°C. To assess the enzymes activities Chatterjee et al. Method in the modification of Zwierz was used.

Results
In 20 of 21 specimens we observed significantly higher activity of investigated enzyme in cholesteatoma tissue compared with that in normal skin. Release of HEX from the activated cells ranged from 1.08 to 5.57 fold as compared to controls. In one cholesteatoma specimens, the activity of HEX was 5.57 and in four cholesteatoma specimens, was 3.02 to 3.34 fold higher than in the skin. Mean release of HEX from the deactivated cells was 68.55 +/- 30.77 in cholesteatoma and 31.79 +/- 10.02 in skin specimens. The descriptive statistics of cholesteatoma is shown on figure 1. In these five cases the history of chronic otitis media ranged from 4 to 6 years, the granulation tissue and purulent otorrhea were present and more intense than in the other cases. The destruction of malleus and long process of incus were observed.

Conclusions
HEX may play an important role in bone resorption in the area adjacent to cholesteatoma. It may be considered as a new pathogenetic factor in that destructive lesion. This study allows to search for the usefulness of drug inhibiting of HEX activity such as iminocyclitols. Further studies will be conducted on the correlation between the HEX activities and the local inflammatory infiltration.