Otosclerosis and Measles Virus -- Association or Causation?

Abstract:

Otosclerosis is a frequent condition which occurs exclusively in the human temporal bone. This peculiar disease affects mainly Caucasians and Indians and may cause conductive, mixed conductive-sensorineural or occasionally merely sensorineural hearing loss. Morphological investigations of the otosclerotic focus show all three phases of a chronic inflammation with bone resorption, formation of new bone and finally eburnation. Various hypotheses about the cause of inflammation were proposed in the past. Immunological reactivity to collagen, the existence of otosclerosis genes (OTSC 1–5) including mutations of the collagen gene 1A1 and 1A2 or a measles virus (MV) infection were suggested. The existence of the MV proteins and RNA within the otosclerotic tissue has been shown by several authors. However, due to mainly technical problems, no further progress to elucidate the role of the virus could be made. Epidemiological studies revealed a dramatic decrease of measles and related diseases such as the subacute sclerosing panencephalitis since the introduction of MV vaccination programs in USA and Europe. Indeed, some surgeons reported decreasing numbers of stapes surgery and a shift towards elder patients. Our epidemiological survey of all patients hospitalized with otosclerosis in Germany between 1993 and 2004 demonstrates a highly significant decrease in otosclerosis among the population vaccinated against the MV. The strong correlation makes it most plausible that the MV is at least one triggering
factor for the development of otosclerosis.

Stichworte: Otosclerosis; Measles virus; Vaccination; Etiopathogenesis; Epidemiology

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