Measles virus (MeV) might play an important role as an environmental stimulus in the etiopathogenesis of otosclerosis. Chronic inflammation was shown in morphologic investigations of otosclerotic foci and MeV N, P, and F proteins were detected within cells of the otosclerotic focus by immunohistochemical investigations. MeV RNA was extracted from fresh-frozen otosclerotic tissue by the use of in vitro RT-PCR. This result was validated through amplification of MeV genome sequences by RT-PCR from celloidin-embedded sections with morphologically ascertained otosclerotic foci. In searching for an immune response of the inner ear immune system against MeV proteins, elevated anti-MeV IgG levels were detected in the perilymph of patients with otosclerosis in comparison with the serum levels. In situ RT-PCR allowed the localization of MeV sequences in osteoclasts, osteoblasts, chondrocytes, macrophages, and epithelial cells in middle ear mucosa of otosclerotic tissue. Further evidence for MeV persistence has recently been given. Genotyping of MeV in otosclerotic foci demonstrated the presence of MeV genotype A, which circulated in Europe around 1960. All the above results confirm a strong association between MeV and otosclerosis.