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Abstract: Purpose: First aim of the study was to define normal shape and diameter of the internal auditory canal (IAC). In the second part the clinical relevance of IAC-enlargement was analyzed, considering also lesions of the subtle structures at the fundus of the internal auditory canal. Materials and Methods: 440 high resolution CT-scans of the temporal bone were used for retrospective analysis of the internal auditory canal and its fundus region. Results: The mean value of the IAC diameter in axial and coronal plane was determined. In 20 of 440 patients IAC enlargement was found. In the group with pronounced enlargement (3fold SD) nearly all patients suffered from hearing impairment. In some of them we found structural abnormalities near the IAC fundus in the CSF/perilymph border zone. Conclusion: A new CT-based definition of normal shape and diameter of the internal auditory canal is presented. There is some evidence that a pathologic transmission of CSF-pressure in case of IAC-enlargement and/or abnormal fistulous communications could play an important role in the pathophysiology of hearing loss. Key points: o?New CT-based definition of normal internal auditory canal.o?Nearly all patients showing pronounced IAC-enlargement suffer from hearing impairment.o?Possible pathomechanism: Transmission of CSF-pressure on the inner ear. Citation Format: o?Stimmer H,