

## **Abstract EFAS/DGA 2007**

### **Audiological results with implantable hearing device vibrant soundbridge in moderate to severe mixed hearing loss**

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**Introduction:** Hearing rehabilitation of moderate-to-severe mixed hearing loss with conventional hearing aids often presents insufficient improvement of hearing and speech discrimination. Application of implantable hearing devices to bypass the disordered middle ear may be a good possibility for such patients. An important advantage of these methods is preservation of residual cochlear hearing.

**Methods and patients:** In a new application of the implantable hearing device Vibrant Soundbridge (VSB) for treatment of mixed hearing loss, the stimulating transducer is implanted in the round window niche, on the round window membrane. In a clinical study, 5 patients with mixed hearing loss were implanted with this approach. Audiological tests consisting of pure tone audiometry (air and bone conduction), free-field audiometry, speech audiometry (SRT and SDS) and speech-in-noise test were performed with conventional hearing aids and VSB pre- and post-operatively.

**Results:** Post-operative results of the first 4 patients showed an average functional gain of 45 dB by VSB and 33 dB by conventional hearing aids. Particularly, there was a considerably higher functional gain for the frequencies above 1.5 kHz by VSB. In speech discrimination tests presented at 65 dB SPL, an average discrimination score of about 57 % was measured when using VSB whereas with conventional hearing aids a score of 23 % was achieved.

**Conclusion:** Implantation of a Vibrant Soundbridge middle ear implant on the round window membrane provides more effective amplification and better speech discrimination for patients with moderate-to-severe mixed hearing loss as compared to conventional hearing aids.

