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Citation	The 2004 Joint Rehabilitation Scientific Conference of the Hong Kong East and Hong Kong West Clusters, Hong Kong, 30 October 2004.
Issued Date	2004
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Implantable Bone-Anchored Hearing Aids to Solve Hearing Problems

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Introduction:

Most patients with conductive hearing loss cannot benefit from convention hearing aids because of congenital malformations of the external and middle ear or chronically suppurative discharging ear. Patients with unilateral sensorineural hearing loss also cannot benefit from conventional hearing aids because the deaf ear is dead. An implantable bone-anchored hearing aid (BAHA) provides an alternative. Sound vibration is transferred from the BAHA to the skull base and stimulated the intact cochlea directly. The application of BAHA as a clinical prosthesis is new in Hong Kong and it is worth to evaluate its effectiveness as a rehabilitation device.

Purposes of the Project:

The purpose of this study was to evaluate the effectiveness of BAHA as a hearing rehabilitation device in patients in Hong Kong

Material & Methods:

Five patients (1 male and 4 female) were recruited in this project. Among them, 2 had aural atresia, 2 had single-sided deafness and 1 had chronic ear infection. Pre-operative evaluations included medical, audiological, speech perception and hearing aid assessments. A two-stage operation was performed. The first stage was implanting a titanium screw in the temporal bone to allow time for osseointegration. The second stage took place after 3 months with the connection of a percutaneous abutment to the titanium fixture. The BAHA was then fitted after three weeks. The post-operative assessments and evaluations were done again after the subjects had at least three-month experience using the BAHA.

Results:

The BAHA aided functional hearing thresholds fell within the speech spectrum. Almost full scores were obtained from speech perception tests. They also reported better sound quality from BAHA than with conventional hearing aids. Equipped with better hearing, they gained more confidence in work and social interactions with others.

Conclusion:

The use of BAHA has significantly improved hearing handicap in patients who have conductive hearing loss or unilateral hearing loss. BAHA has both cosmetic and acoustic advantages over convention hearing aids in hearing rehabilitation.

