Introduction:
Gross malformations and aplasia of the outer ear occur in approximately 1:17 500 newborns. In addition to the esthetic impairment, the missing external auditory canal (EAC) results in a severe conductive hearing loss. Surgical reconstruction approaches of the EAC could not be implemented successfully. The focus of functional reconstruction has been set on active middle ear implants and bone conduction implants. This case series combines a two stage pinna reconstruction procedure and the implantation of a bone conduction hearing implant (BoneBridge – MEDEL Innsbruck).

Surgical approach:

First Step: In this procedure rip cartilage is taken to build the matrix of the pinna. The matrix is implanted at the correct side. The healing period should take at least 6 month.

Second Step: The second step combines the lift if the pinna with a cartilage interposition and the simultaneous implantation of the bone conduction implant (BoneBridge – MEDEL Innsbruck). The pinna-lift is further supported by the BC-FMT of the BoneBridge.

Case Series:
Five adolescents in the age from 9 to 14 years have been treated in the past 3 years with the above described algorithm. Prior to the surgical intervention an external bone conduction hearing aid was used. All 5 suffered from microtia grade III after Weerda. The hearing of all showed a severe conductive impairment but no sensorineural impairment. After consideration of the audiologic and anatomical situation a BoneBridge implant has been indicated.

Audiologic Results:

The results of the pure tone audiograms are presented as Pure Tone Average for each individual. Two patients did not use a bone conduction hearing aid.

Esthetic Results:

Conclusion:
- A coordination of functional and esthetic rehabilitation is necessary to achieve optimal results.
- Candidates should be at least 9 years old for adequate esthetic reconstruction.
- With the ability to support the pinna lift the BoneBridge (MEDEL- Innsbruck) is the favorable implant in this situation.