Conclusions: The Keyhole implant method is optimal for all three devices, with particular advantages for bilateral simultaneous CI in the small infant.

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Surgical outcomes in BAHA Surgery as a function of incision / soft tissue / implant type

Presenting Author: **Ahmed Allam**

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Learning Objectives:

Objectives: To determine the relationship between surgical outcomes and incision, soft tissue technique and implant types.

Method: A retrospective study of paediatric / adult patients receiving Cochlear® BAHA (April 2010 -March 2013). Age 6–89 years. The outcome compared for a single surgeon. Patients were divided into 3 groups according to technique:

Group 1: Inferiorly based scalp flap raised by dermatome for Cochlear® BI300 abutments (n = 20). **Group 2**: Sheffield incision (short 'lazy S' within hairline, soft tissue reduction) for Cochlear® BI300 abutments (n = 35). **Group 3**: Short linear incision, non-soft tissue reduction technique for the Cochlear® BI400 hydroxyapatite coated abutments (n = 35) **Group 4**: BAHA Attract (inferiorly based "C" shaped flap). (n = 20).

Results: **Group 1:** Bald patch with wide numbness in all. Soft tissue complications: overall 14%, flap related problem (14% flap breakdown, 13% granulations) and 8% fixture los. Surgical time 1.5 hours. **Group 2:** Aesthetically pleasing. No bald patch. Divot formation. Significant numbness. No major complications like flap necrosis or fixture loss. One patient had a wound haematoma and dehiscence which needed closure. Minor granulations (13%), skin redness (9%) (Holgers 2), small wound dehiscence (3%). All settled conservatively. Surgical time 45 min. **Group 3:** Aesthetically pleasing. No bald patch. No divot. No granulations. Smaller area of numbness. Wound breakdown in one (abutment placed in incision line) needing secondary suture. Surgical time 25 min. **Group 4:** Aesthetically pleasing. No bald patch. No divot. No granulations. Larger area of numbness. No wound breakdown. Maintenance free. Surgical time 40 min.

Conclusions: The introduction of newer abutments as well as transcutaneous techniques with minimal soft tissue mobilisation / handling has reduced surgical time, post operative care, complications and patient morbidity and has increased throughput and patient satisfaction with percutaneous hearing implants.

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Congenital Inner Ear Malformations as a Cause of Single Sided Deafness

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Learning Objectives: To understand the relationship with concurrent clinically significant inner ear abnormalities (IEMs) and single sided deafness (SSD). To increase awareness of the functional impact of SSD and its radiological findings which may influence the treatment of this condition. To interpret the treatment modalities of SSD by the help of radiological data and find out which IEMs constitute a contraindication to cochlear implantation.

Introduction: Single sided deafness (SSD) was a negligible entity until recently because of normal language development by the help of contralateral normal hearing. A Number of studies revealed that many SSD cases had concurrent inner ear malformations (IEM) which may influence the treatment plan of SSD. The aim of this study was to elucidate the prevalence and distribution of IEMs in congenital SSD which is crutial for the treatment.

Methods: This is a retrospective study of temporal bone CT and MRI findings of 77 consecutive patients 0–18 years old with congenital SSD. Cases with acquired etiology were excluded.

On MRI; the diameter, and signal intensity of the cochlear nerve (CN) were compared to the ipsilateral facial nerve. Also the width of the BCNC was measured on axial CT and it was defined as "stenotic"if the width was less than 1.5 mm.

The diagnosis of pediatric SSD is initially verified by pure-tone audiometry or ABR.

Results: 40 cases had normal CT&MRI findings whereas the remaining 37 had various IEMs. The most common pathology was BCNC stenosis/atresia together with CN deficieny(CND) seen in 27(72%) of the subjects. Interestingly this stenotic/atretic BCNC is seen in otherwise normal cochlear morphology which can be termed as ''isolated aperture atresia/stenosis''. Next in frequency were cochlear hypoplasias followed by incomplete partition I with 6 and 2 patients respectively. The most unexpected finding of the present study was the exceptionally high prevalence of CND accompanied by isolated BCNC stenosis/atresia as a cause of SSD rather than other IEMs.

Conclusions: All cases with SSD should have a CT in addition to MRI scan, because the prevalanceof BCNC anomalies with CND is very high in SSD.Since the non-functioning hypoplastic or aplastic CN together with BCNC atresia is a contraindication for CI, management of these patients is complex and BAHA could be an option.Cases with SSD should not be implanted before detailed evaluation of BCNC and CN.