Abstract
The Bonebridge implant (BBI) is a bone-conduction hearing implant has a floating mass transducer (FMT), which is seated within a bony well. This well is drilled in the mastoid process. The FMT is anchored onto the bony cortex with screws on the side of the well.

The location of the well has to avoid vital structures in the mastoid. The size of the well must be sufficient to accommodate the size of the FMT. This becomes more important in patients with contracted mastoids. This case series aims to review the use of image guidance localization (IGL) in planning the site of the well.

Under general anesthesia, the patient was positioned supine, with the head turned away from the site of the BBI. Local anesthetic was administered and a post-auricular incision is made and deepened down to bone. The sub-periosteal flap is elevated. The surgeon determines the location of the FMT, with the help of the IGL. A conservative cortical mastoidectomy is performed to create a well for the FMT to sit in. A sub-periosteal pocket for the receiver coil is created posterior-superior to the well.

In this case series, rapid and accurate localization of the site of the well for the FMT was possible in each case. The authors recommend IGL as a safe, rapid and reproducible technique in localization of the site for the well of the BBI.

Introduction
• The BBI is a bone-conduction hearing implant with a relatively large FMT, which is seated within a bony well.
• The location of the well has to avoid vital structures such as: the posterior canal wall, the dura mater of the middle cranial fossa, and the sigmoid sinus.
• IGL of the exact site of the well is useful in surgical planning. IGL of the site of the well for the Bonebridge FMT has been utilized in Changi General Hospital.
• Using IGL, rapid and accurate localization of the ideal site of the well for the FMT was possible in four cases that underwent BBI surgery.

The Bonebridge Implant

Case Series

Case #1:
• 21 year old Chinese male
• Left profound hearing loss since childhood, with right normal hearing
• Pre-operative CT temporal bone revealed a well-pneumatized left temporal bone
• Normal anatomy was encountered with the help of the IGL
• The implant was activated at 4 weeks post-operatively
• Had good speech discrimination scores post-operatively in quiet conditions and with the presence of noise

Case #2:
• 22 year old Chinese male
• Right profound hearing loss since childhood, with left normal hearing
• Pre-operative CT temporal bone showed bilateral well-pneumatized temporal bones
• Normal anatomy was encountered with the help of the IGL
• The implant was activated at 12 weeks post-operatively
• Had good speech discrimination scores post-operatively in quiet conditions and with the presence of noise

Case #3:
• 42 year old Burmese lady
• Left moderate conductive hearing loss, with right normal hearing
• Previously underwent a left myringoplasty
• The CT temporal bone showed a sclerotic left mastoid
• The well for the siting of the FMT was localized with the help of the IGL
• Intra-operatively, the left mastoid was found to be contracted
• The implant was activated at 4 weeks post-operatively
• Had good speech discrimination scores post-operatively in quiet conditions and with the presence of noise

Case #4:
• 23 year old Chinese male
• Right-sided profound hearing loss since childhood, with left normal hearing
• Pre-operative CT temporal bone revealed well-pneumatized temporal bones
• Normal anatomy was encountered with the help of the IGL
• The implant was activated at 3 weeks post-operatively
• Had good speech discrimination scores post-operatively in quiet conditions and with the presence of noise

Conclusions
We report the first case series of BBI with IGL in Singapore. We would like to recommend IGL as a safe, rapid and reproducible technique in localization of the site for the well for the BBI FMT.

Contact
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References