

Implantatbohrungen mit bilddatengestützter chirurgischer Navigation im mastoidalen und retroaurikulären Knochen

Endosseus implants with image-guided surgical navigation in the craniofacial region

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Purpose

Craniofacial implants have been shown to provide excellent stability and retention for auricular prosthetic rehabilitation. Particular locations of implant placement are critical to achieve optimal prosthetic results. We used image-guided navigation for implant positioning to test feasibility and practical impact.

Material and Methods

All patients undergoing navigation-assisted craniofacial implant treatment were included. Image-guided surgery was performed by use of a passive infrared surgical navigation system (VectorVisionTM, BrainLAB). The preoperative computed tomography (CT) data was obtained using a Somatom Sensation 16 multislice-scanner (Siemens). After skull reference attachment, the patient-to-image registration was performed using surface laser scanning technique.

Results

A total of 8 implants were placed in the mastoid area and various other craniofacial locations. The implant positions were conventionally planned and updated after image-guided measurements in conjunction with the bone thickness. After registration axial, coronal and sagittal reconstructions of the pointer tip position in the regions of interest were displayed in real time. The proper location and positioning of implants in the craniofacial area could strongly be improved and controlled.

Conclusion

Navigation-assisted surgical techniques can assist in a proper positioning of craniofacial implants, which in turn can complement the prosthetic result.