

OrbitaTreat - an innovative implantation system

Orbital floor fractures typically result from a frontal impact such as a punch or an accident and can cause soft tissues to prolapse through the fractured bone into the maxillary sinus and thereby lead to a number of symptoms including eye displacement and vision disorders such as diplopia. The innovation from OTH Regensburg and Regensburg University Hospital provides an implant system for surgical simplicity and a reduced risk of secondary effects.



The transnasal implantation route into the maxillary sinus reduces potential complications

The implant can be inserted gently and safely into the site of the lesion, preferably via an endonasal prelacrima approach into the maxillary sinus of a patient, using the implant system according to the invention, even by less experienced surgeons.

- 01 Implantation system for a less invasive treatment of orbital floor fractures
- 02 Can be applied even by less experienced surgeons
- 03 Reduced risk of secondary effects



Prototype of the implantation system with crimped implant

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CHALLENGE

The standard surgery for treating orbital floor fractures involves inserting an implant through an incision formed in the eye itself (transconjunctival) or via infraorbital or lower eyelid incision (subciliary). Complications can arise when creating the access and inserting the implant, possibly damaging the mobility of the lower eyelid and tear transport, or, due to the pressure load on the orbital contents during implantation, impaired vision or blindness.

INNOVATION

The innovation provides a technology for an alternative surgical method using an access route through the nasal passage to the maxillary sinus. This prevents unnecessary stress on the orbit and means that no implant remains in the eye socket. The implantation system enables the crimped implant to be inserted into the fracture in a minimally invasive manner. Once positioned, the implant is enlarged and anchored in the maxillary sinus. Further elongation of the implant results in bridge formation and thus contact with the fracture. The implant can then be modeled to the shape of the orbital floor, thus providing permanent support for the fracture.

01 Basic principles observed · 02 Technology concept formulated · 03 Experimental proof of concept · 04 Technology validated in lab · 05 Technology validated in relevant environment · 06 Technology demonstrated in relevant environment · 07 System prototype demonstrated in operational environment · 08 System complete and qualified

TRL 08
TRL 07
TRL 06
TRL 05
TRL 04
TRL 03
TRL 02
TRL 01

Technology Readiness Level (TRL)



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