3D- Printing customized cranial implants and fixation system for craniofacial complex defect made whit bioactive polymer: Case Report and literature review

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Abstract

In recent years, the treatment of complex craniofacial defects has been widely favored by 3D printing technology, making personalized cranial implants a reality, now the debate arises depending on which material to use and if it can be customized according to the needs of each patient. This is the first case reported in the literature in which the presented craniofacial defect is huge, > 50% of the cranial vault. To reconstruct the cranial vault we made 6 cranial implants from a biocompatible polymer made of PGLA poly (lactic-co-glycolic acid). A 40-year old male comes to admission, his current condition began 12 years ago when he noticed craniofacial asymmetry, denies neurological symptoms. His Glasgow coma scale (GCS) on admission was 15 (M6V5O4). He had no cranial nerve deficits. The brain computed tomography (CT) showed a big cranial defect comprising > 50% of the cranial vault. This is the first case reported of a cranial defect larger than 50% of the cranial vault that has been reconstructed with personalized cranial prostheses printed with 3D technology and with a biocompatible polymer PGLA poly (lactic-co-glycolic acid). In experimental and clinical studies, PGLA have the potential for osteoconductivity. This opens up the possibility of designing bioactive composites with the ability to function as molecular scaffolds for de novo in situ bone formation.

Biography:

Nieves MD. Has completed Medicine Bachelor´s degree from National Autonomous University of Mexico in 2014. Currently she is 32 years old, she is resident of Neurosurgery, she has published more than 5 papers in reputed journals.

Speaker Publications:

1. "Retroclival and spinal subdural hematoma after traumatic brain injury - A case report and literature review"

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