3D Printing in Medicine

Servicio
Canario de la Salud

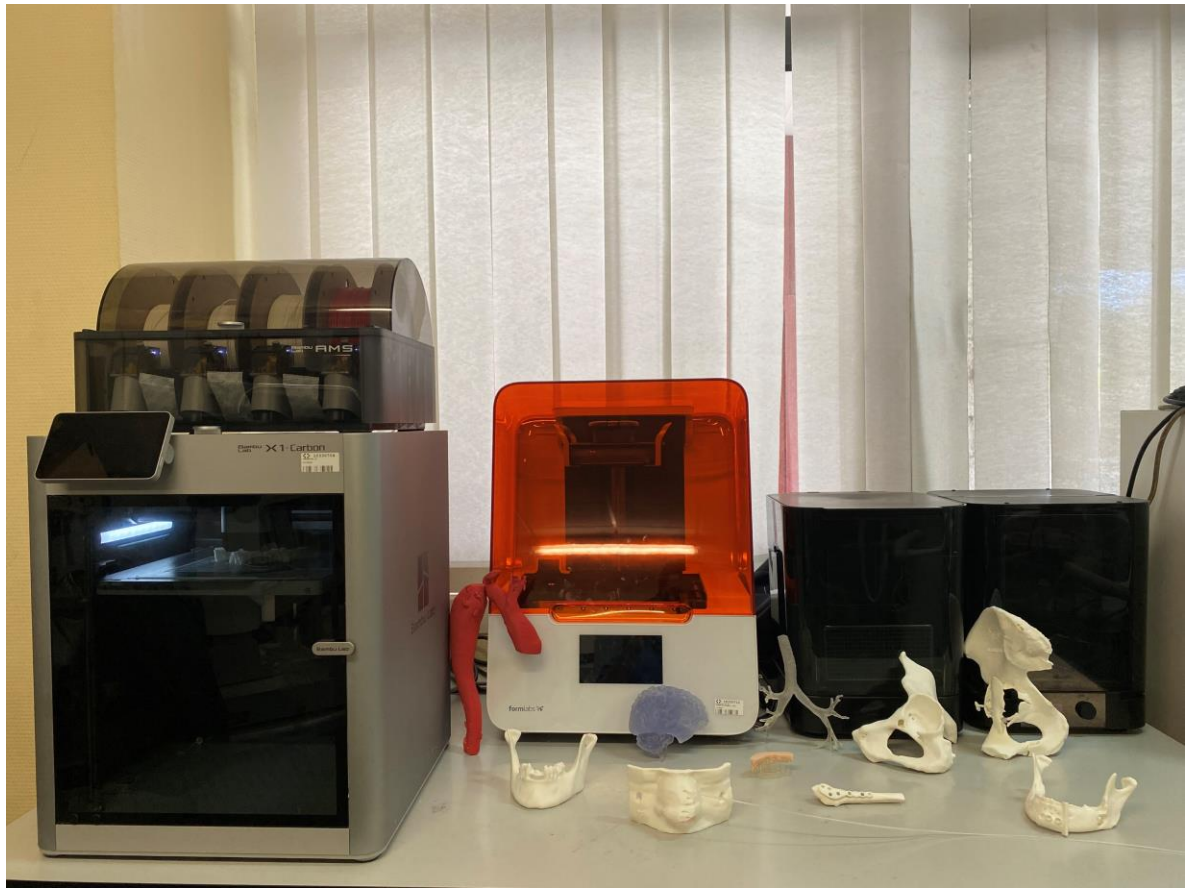
Borja Bouzón Salcines

Hospital Universitario de Gran Canaria
Dr. Negrín

Introduction

Current situation

- An engineer
- 3D Printers
  - Fused deposition modeling
  - Stereolithography
- Open source software and free trials



Goals

Better quality of healthcare

Safety of the patient

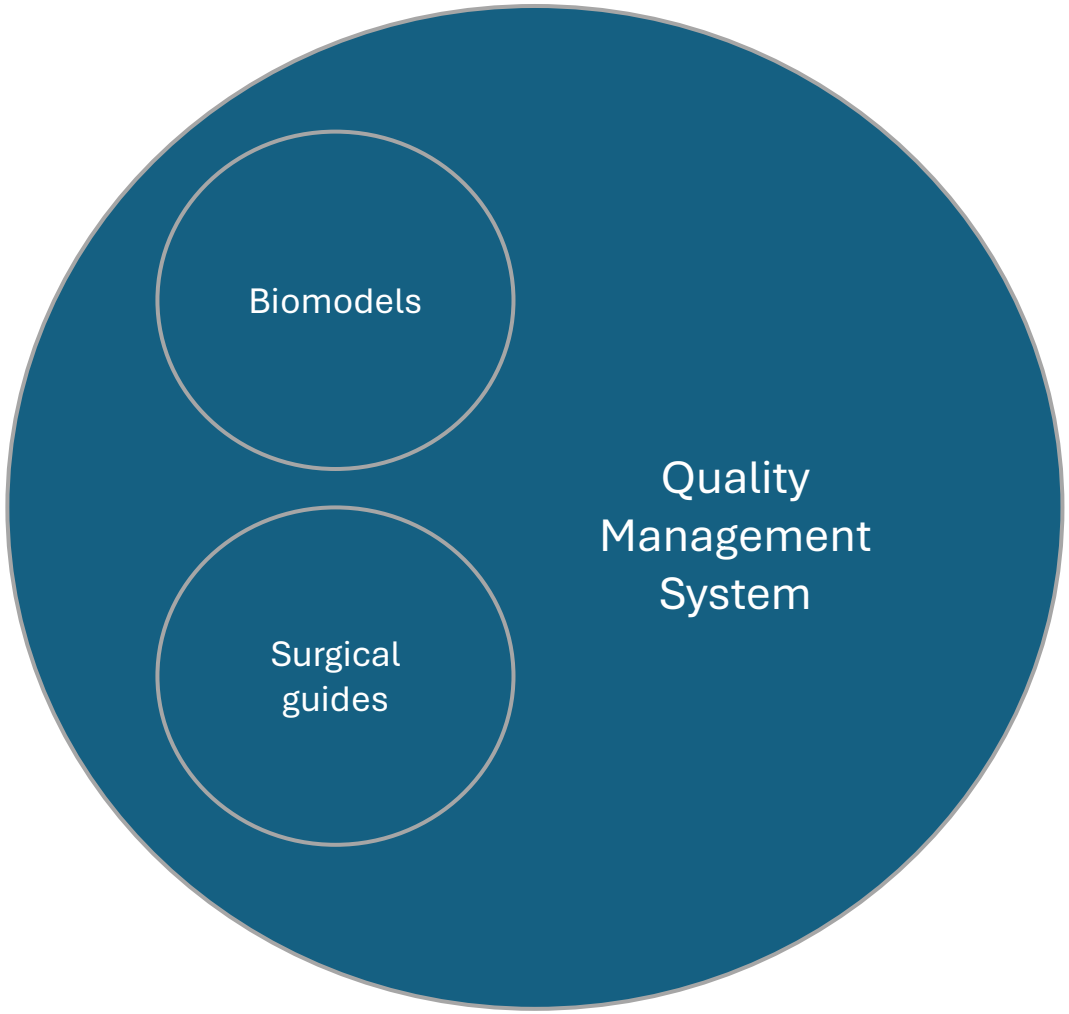
Reducing surgery time

Reducing deadlines

More tools for the physicians

Saving costs

Methodology



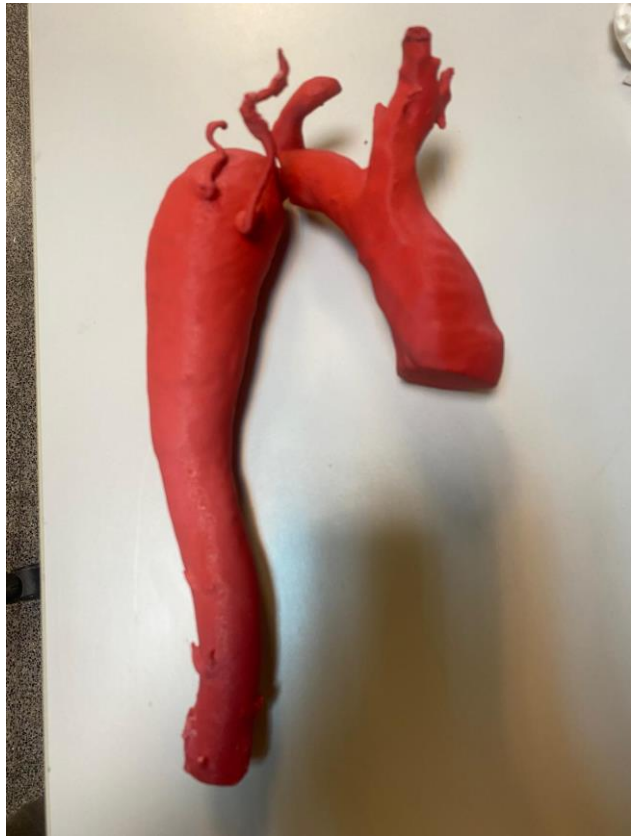
Manufacturer of Custom Medical Devices
Class I y Class IIa

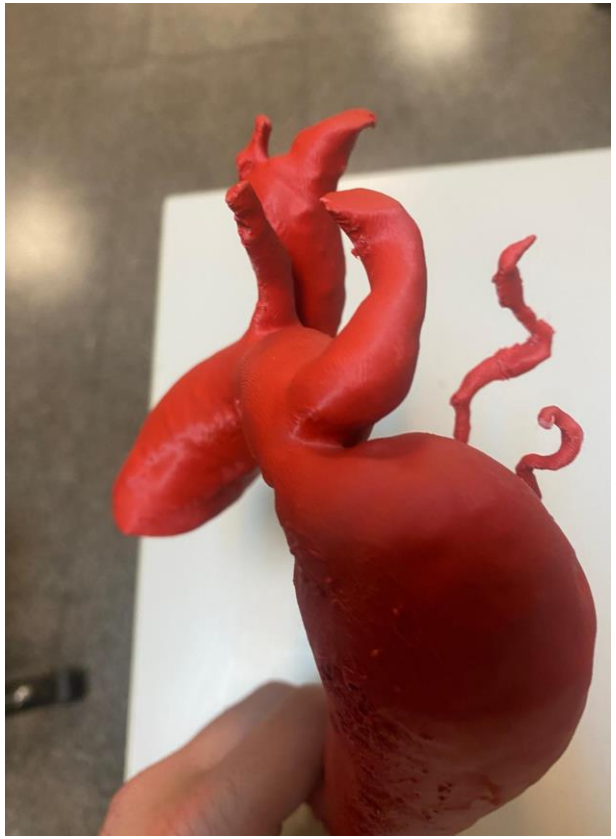
Beginnings

- Broken fibula and custom plate

Cardiology

- Aortic estenosis





Maxillofacial Surgery

- Tumor in the jaw. Case I

Part of the tumor

Fibulas, jaw and tumor

Maxillofacial Surgery

- Tumor in the jaw. Case II

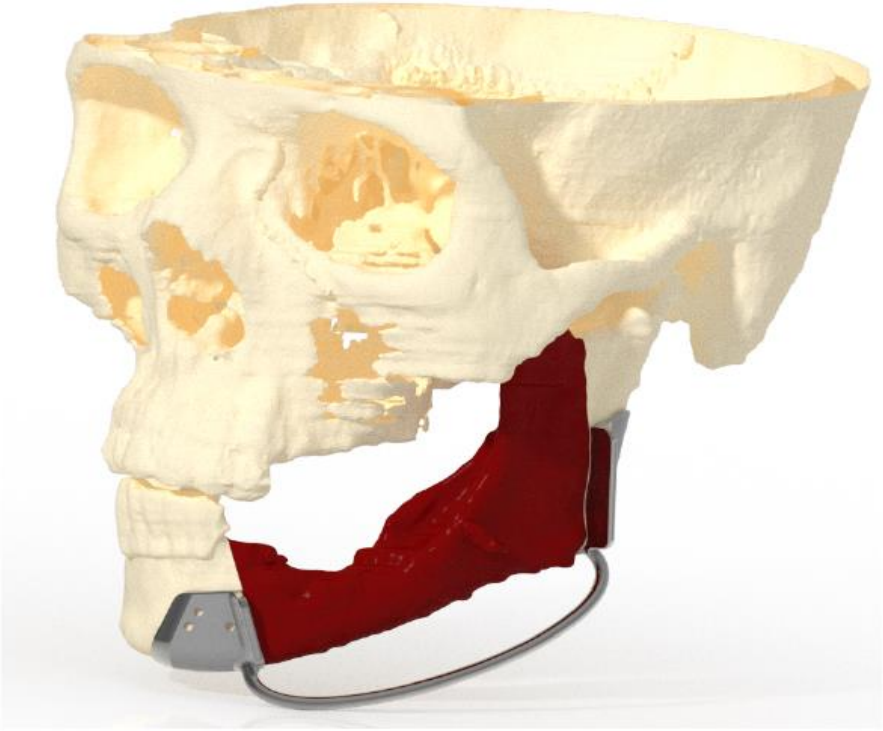
Surgical guide for the jaw

Surgical guide for the fibula

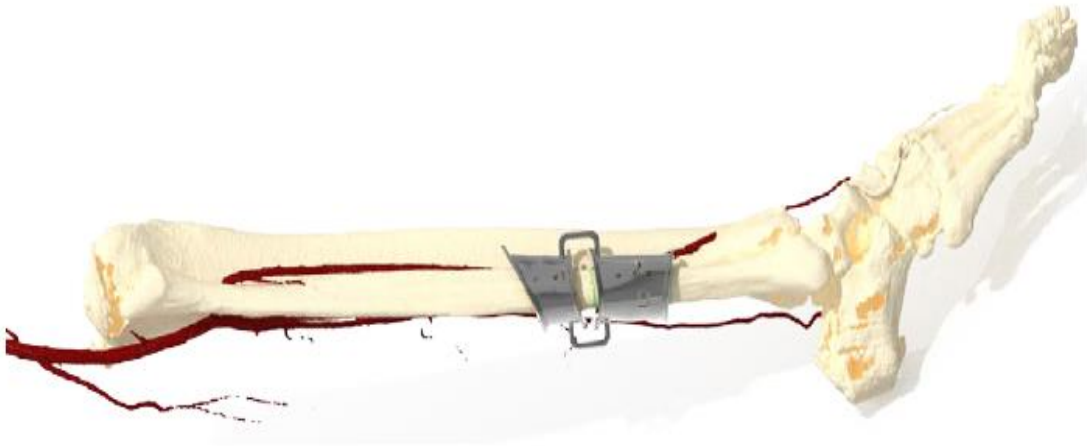
Custom made implant
for the jaw

Maxillofacial Surgery

- Tumor in the jaw. Case II



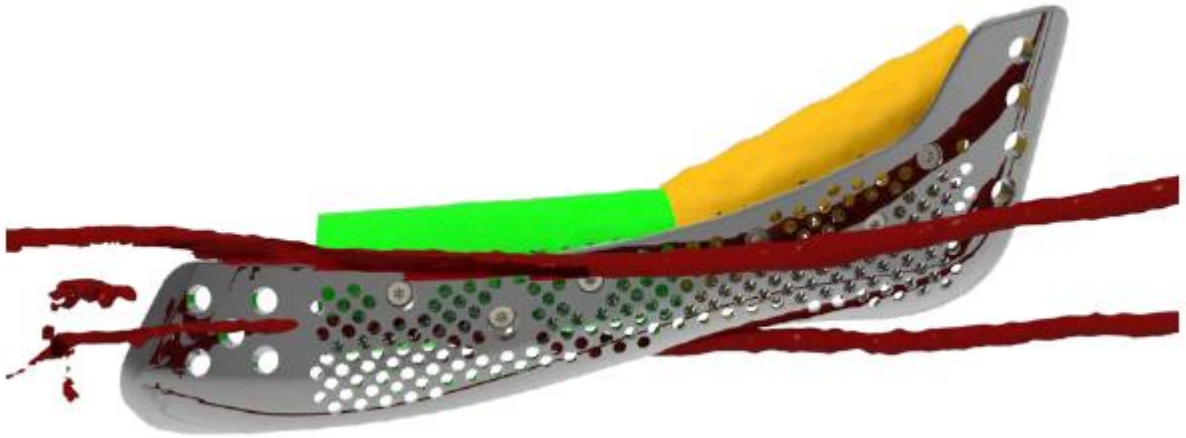
Surgical guide for the jaw

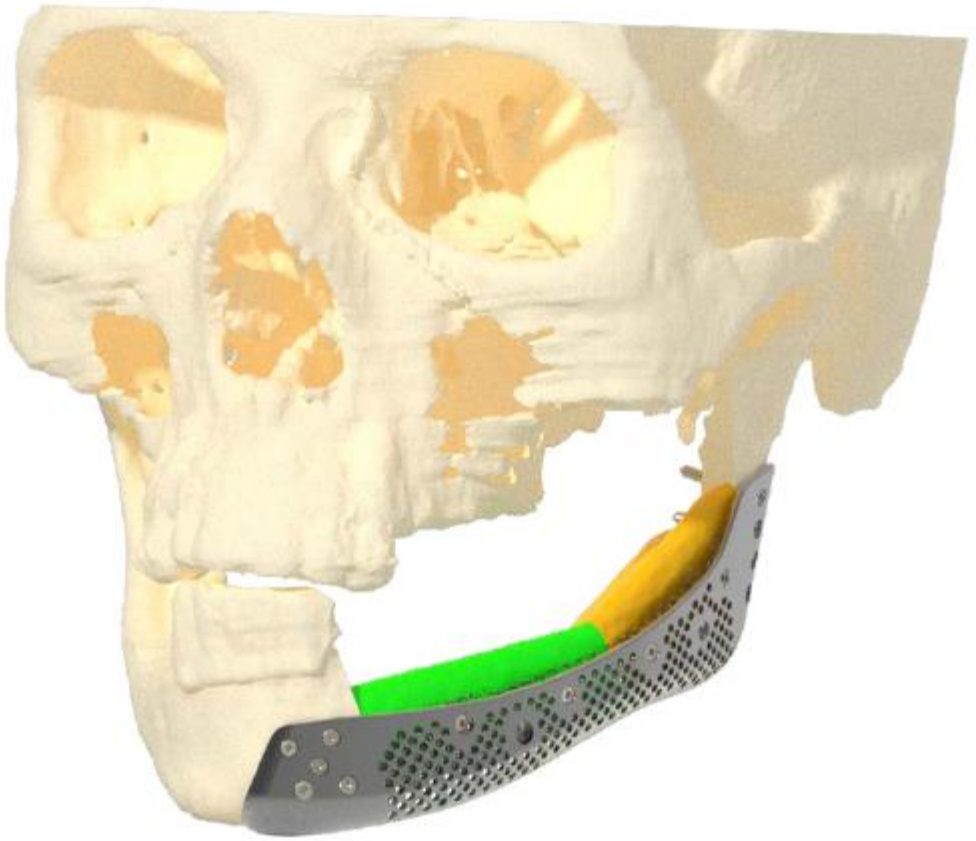


Surgical guide for the fibula

Maxillofacial Surgery

- Tumor in the jaw. Case II

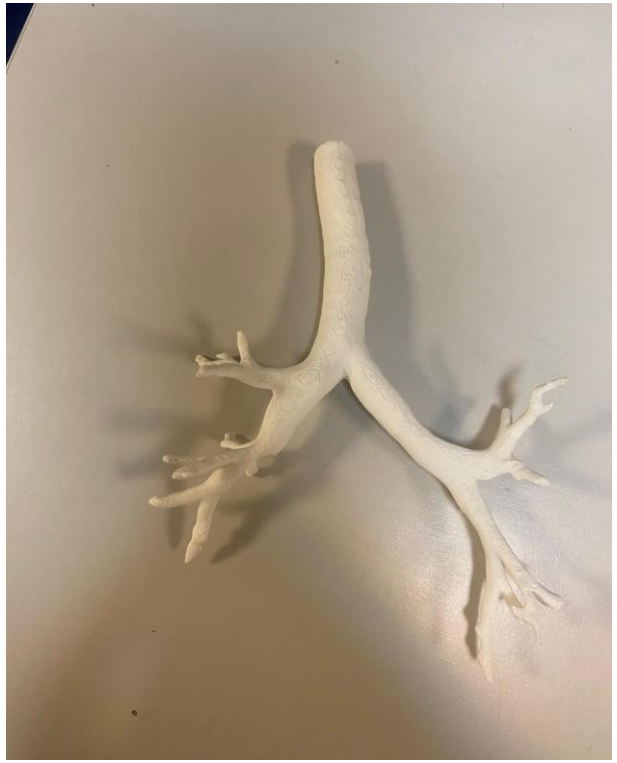




Custom made implant for the jaw

Thoracic Surgery

- Airway

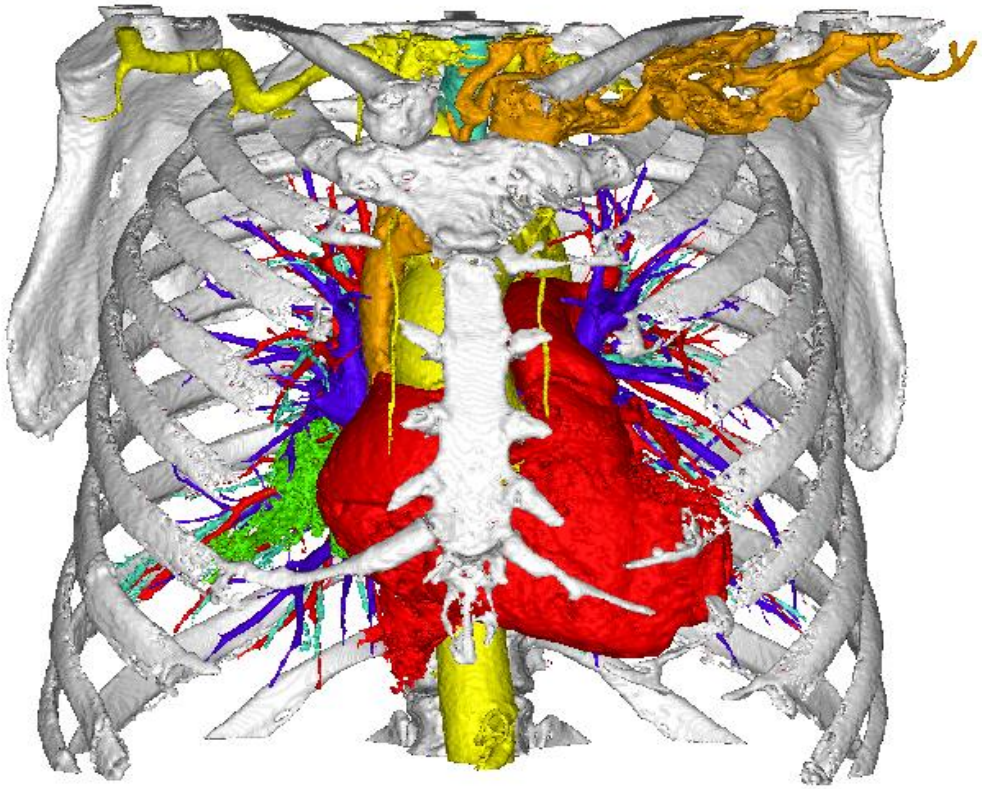


PLA

Flexible 80A Resin

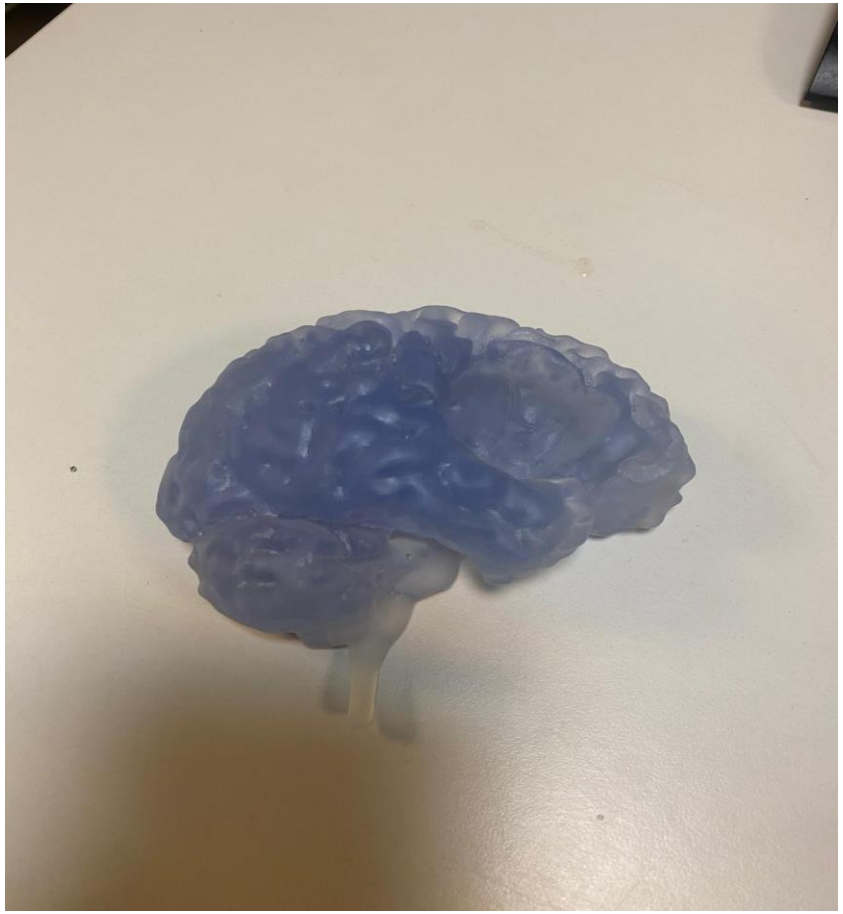
Thoracic Surgery

- Tumor near the heart



Neurosurgery

- Meningioma



Neurosurgery

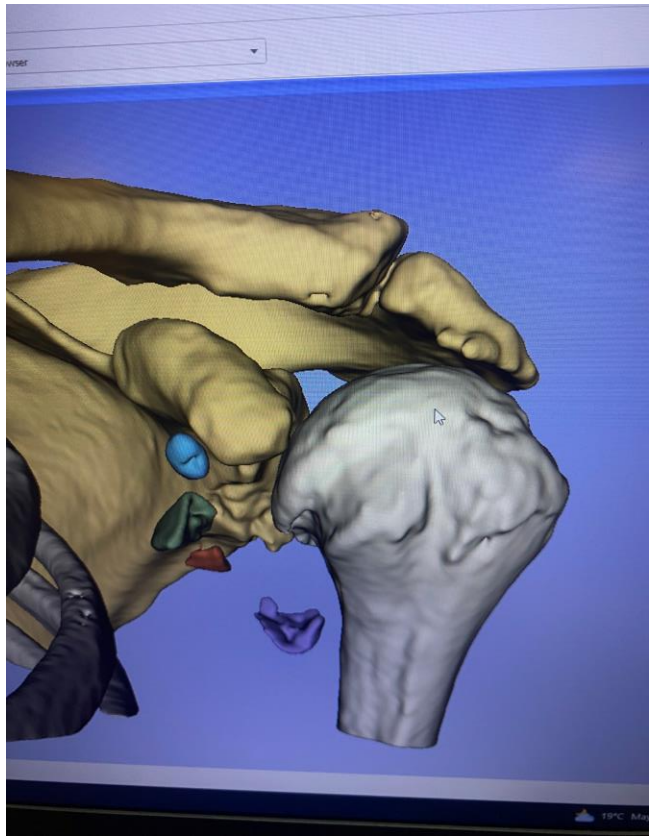
- Aneurysm

Neurosurgery

- Quadruple aneurysm

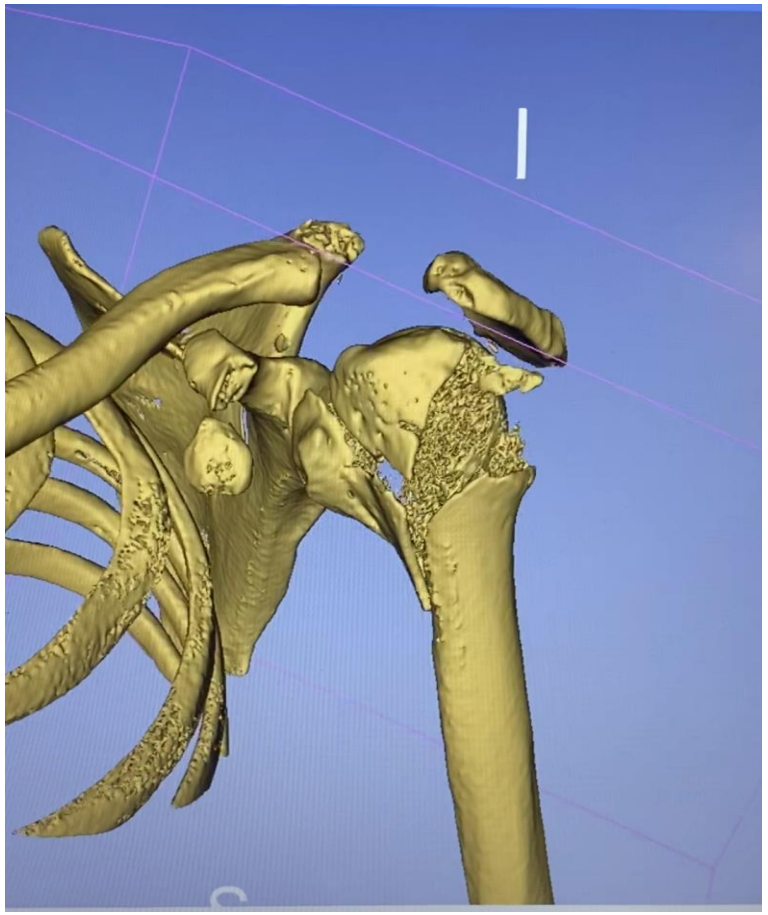
Orthopedic and Trauma Surgery

- Glenoid fracture



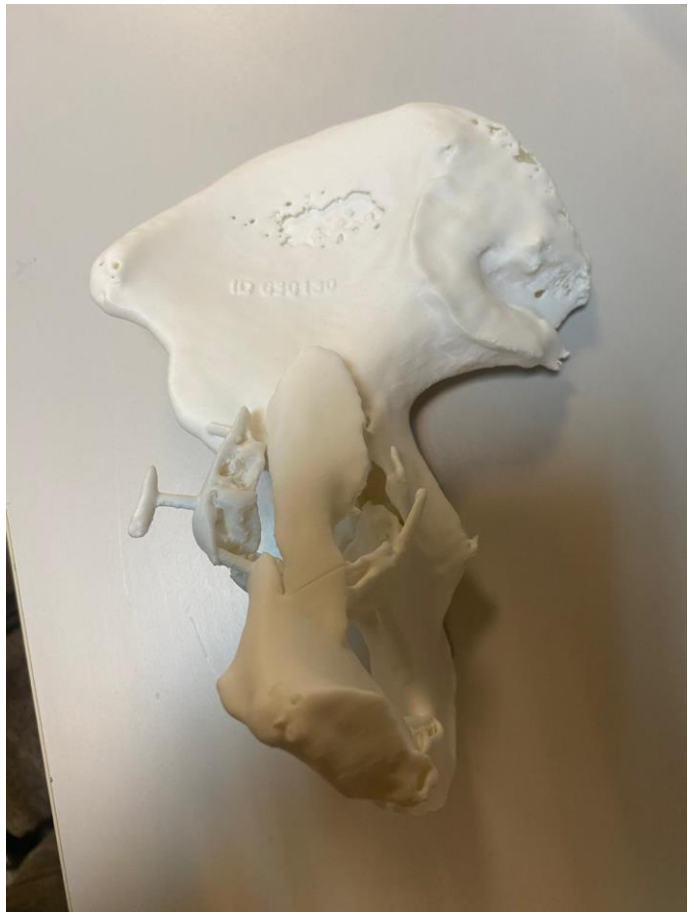
Orthopedic and Trauma Surgery

- Multiple shoulder fractures



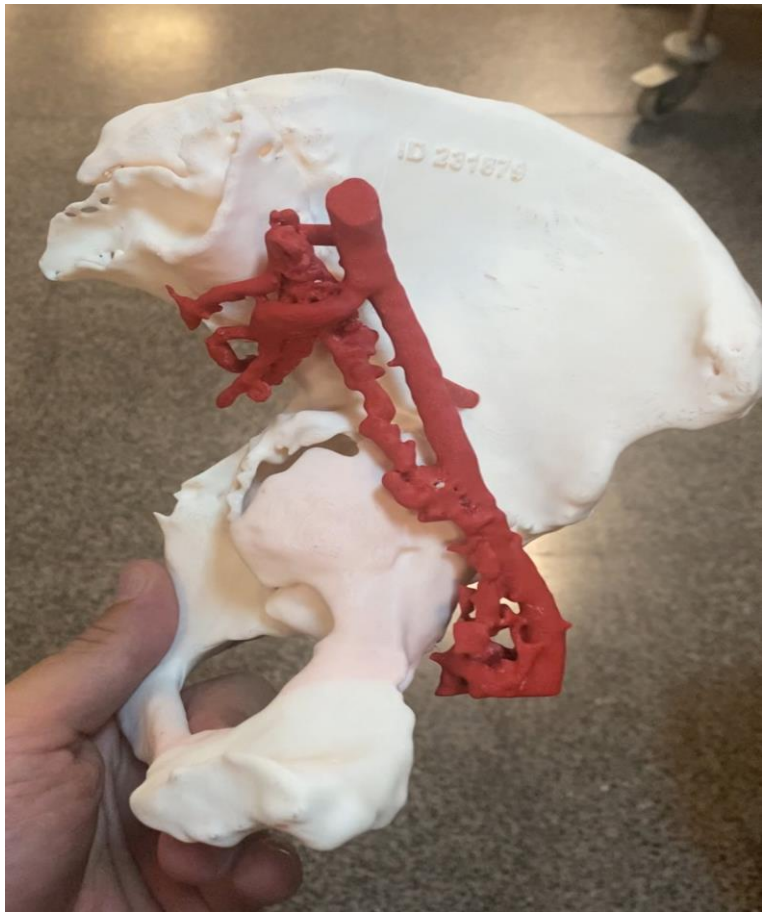
Orthopedic and Trauma Surgery

- Broken acetabulum



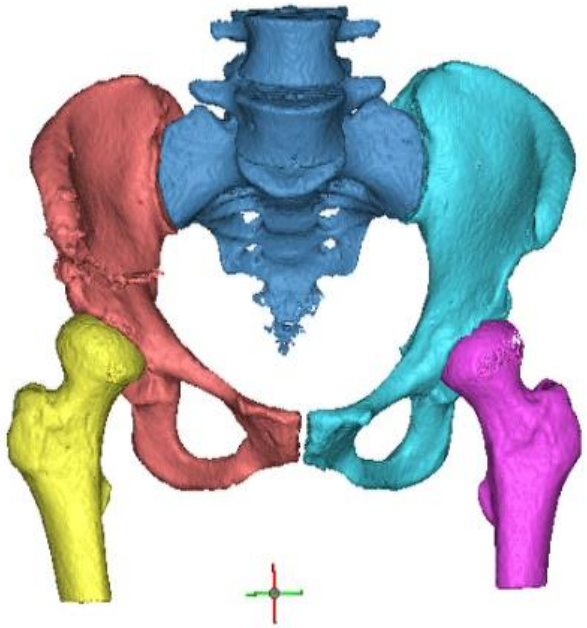
Orthopedic and Trauma Surgery

- Broken acetabulum and blood vessels



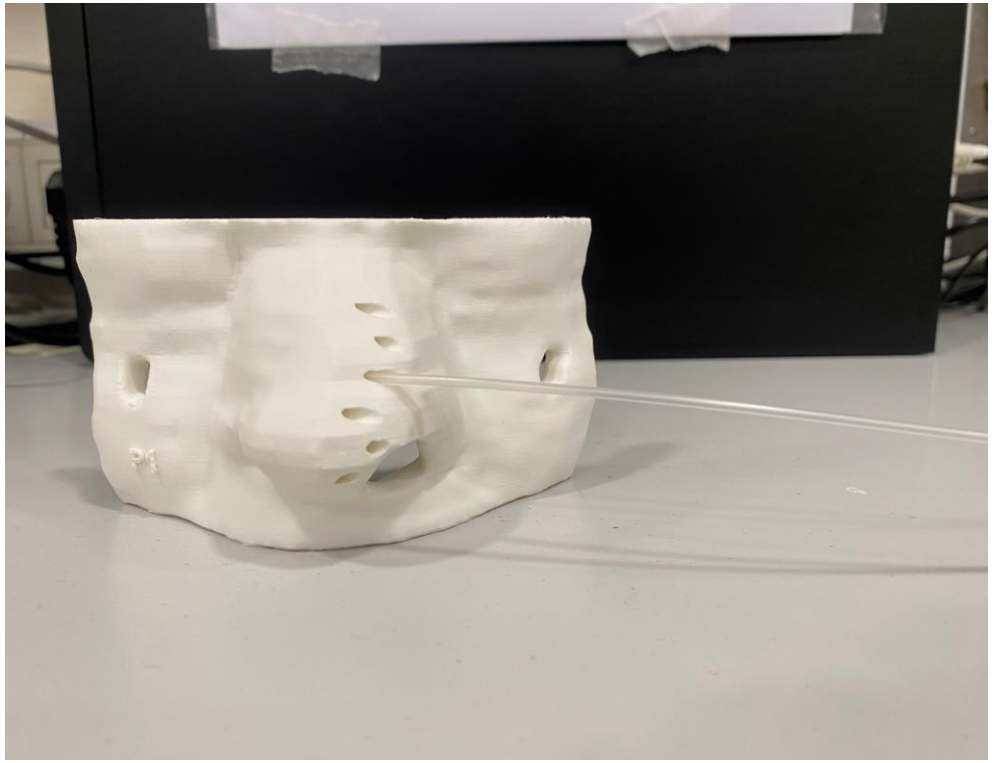
Orthopedic and Trauma Surgery

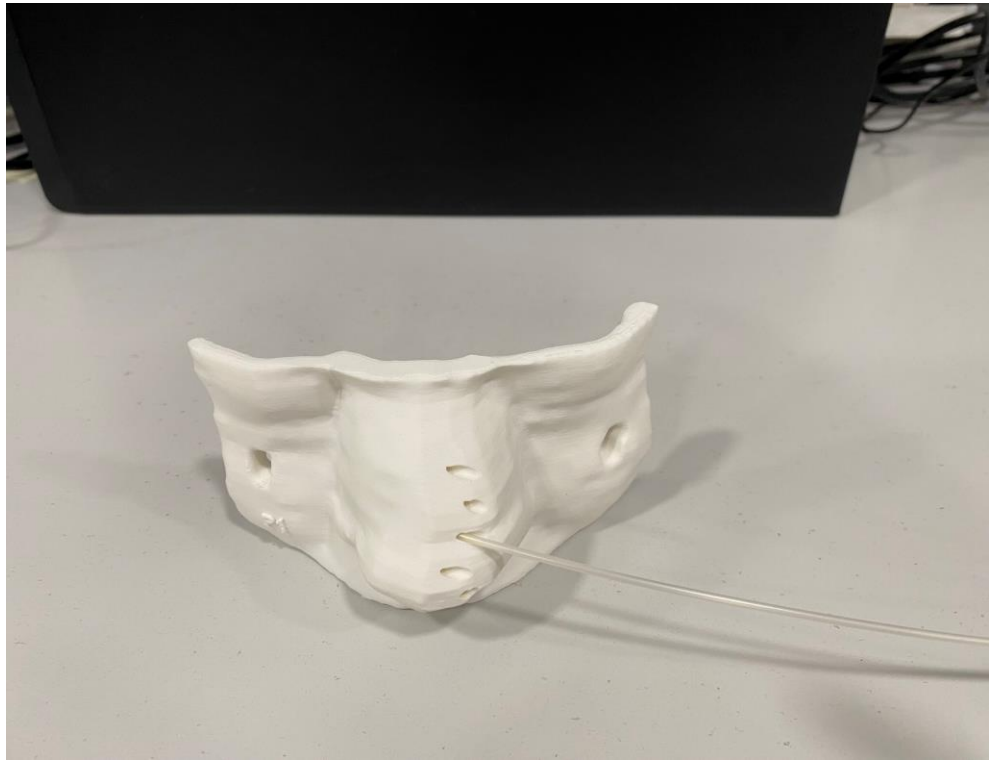
- Hiip dysplasia and coxa valga



Medical Physics

- Brachytheraphy. Case I





Medical Physics

- Brachytheraphy. Case II

Medical Physics in Lanzarote

Other non medical uses

Evaluation of results

Technical reports

Economic reports

Feedback from the physicians

Summary

Stablish and consolidate a 3D Lab using:

- Multidisciplinary communication
- Continuous improvement cycle
- Economic balance

Evaluation of the results after one year

Future lines: phantoms and custom made implants

Thank you