

THERE IS NO DIFFICULT SURGERY, THERE ARE UNPLANNED SURGERIES IN 3D DESIGN AND PRINTING. BENEFITS IN ORTHOPEDIC SURGERY

Mauro R. Vivas

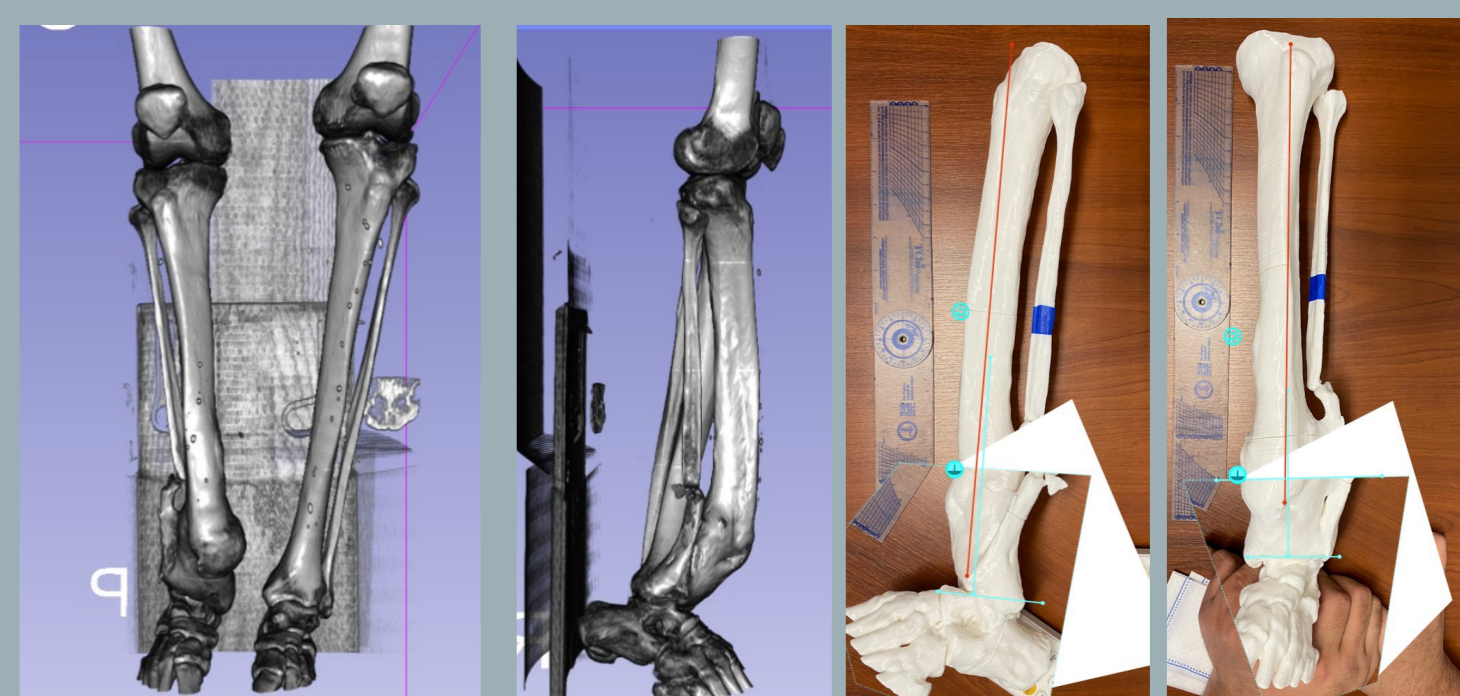
Hospital El Cruce, Buenos Aires Argentina

Introduction

Today, there are few institutions that treat highly complex pathologies without having a bioengineer on their team that allows them to generate images in all three planes and even print them for a better understanding of the pathology and its consequent greater precision of execution.

3D design and printing has a low cost of materials and innumerable applications: from the simple impression of the pathology, cutting guides in various planes, to the design of personalized implants.

The objective of the work is to describe our experience in the design and 3D impressions in orthopedic surgeries.



Case 1: Malunion fracture. Impression of deformity for circular fixator construction before to surgery

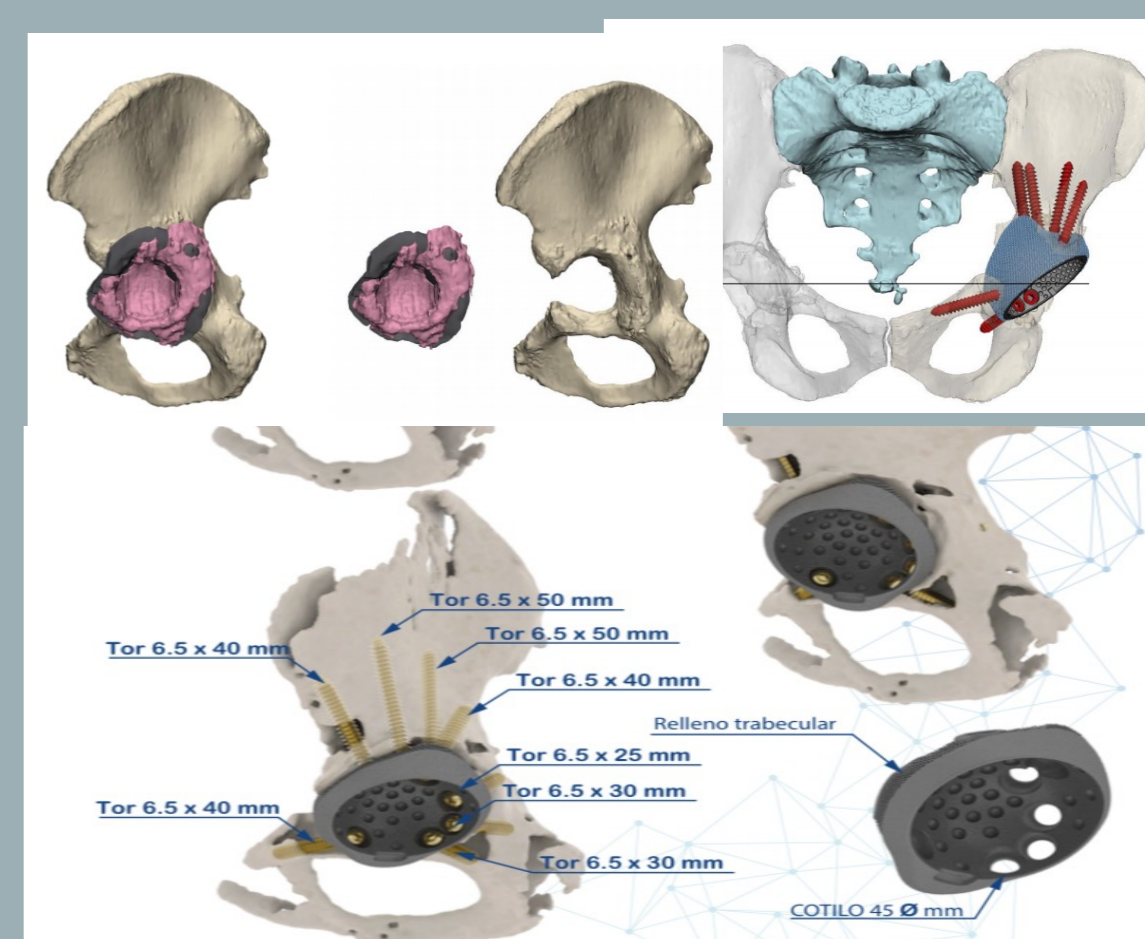
Materials and methods:

A retrospective analysis of the use of 3D design and printing advised by bioengineers for the development of planning, printing and design of cutting guides and personalized implants was carried out.

The series has 12 cases of different pathologies in which all were 3D impressions for planning, 3 were also cut guides and in 3 cases a personalized implant was made.



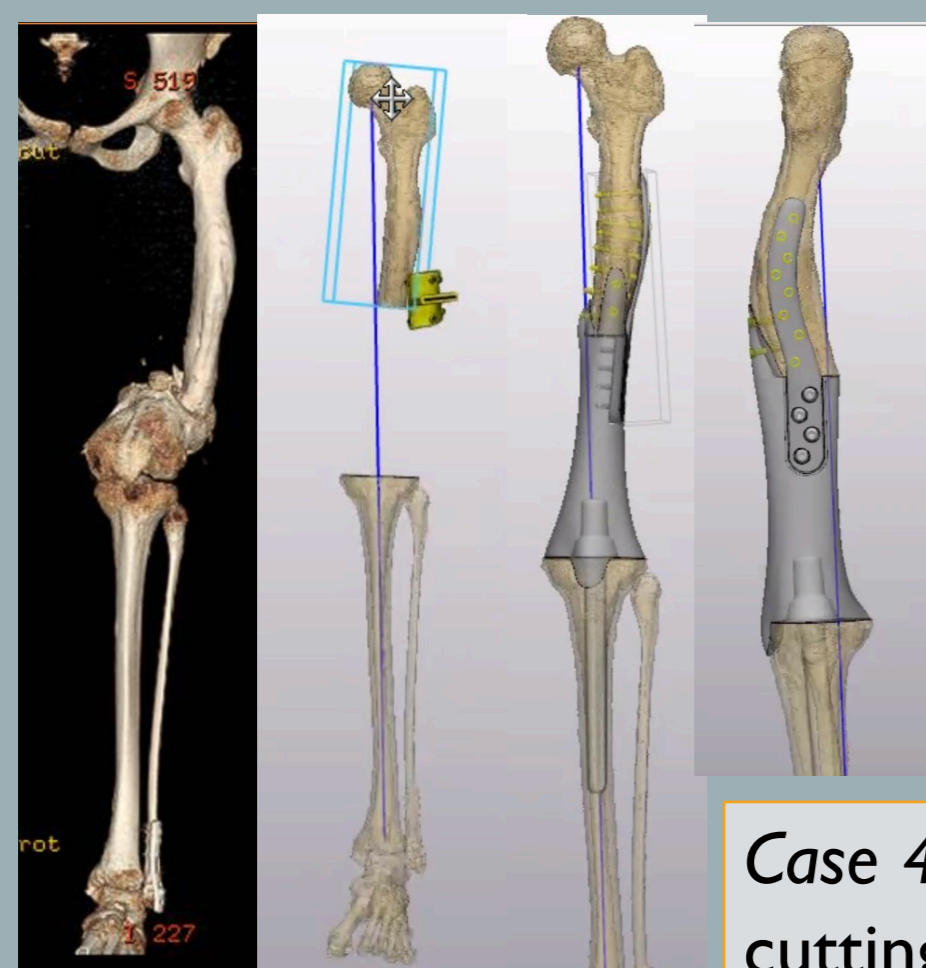
case 2: Pseudarthrosis with deformity in three planes. Impression and design of cutting guides for deformity correction.



Case 3: severe acetabular defect. custom implant design and impression and screw guide

Results

Although the series is short and has infrequent pathology, it was not possible to carry out a comparative study, the surgery times were similar to less complex surgeries, there were no unexpected complications during the planning and the result was similar to the planning with the impressions 3D before surgery.



Case 4: Pseudoarthrosis of the femur with severe joint injury and deformity. design of cutting guides and customized implant for arthrodesis with correction of deformity

conclusion

The design and 3D printing of the pathology together with cutting guides and customized implants has achieved greater precision in the final result than without the use of this technology, which even today is more than adequate in cost for the complexity to be treated.

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