Malunion of Distal End Radius and Ulna, Role of 3D printing

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INTRODUCTION:

Distal end radius fractures is one of the common orthopedics injuries[1]. Early reduction and stabilization are important to avoid malunion that affects the function.

REPORT:

A case of 16 years old boy involved in trauma in February 2023. Post trauma, sustained closed comminuted fracture distal end left radius and ulna. Initially plan for open reduction and plating however not consented.

Patient came back 2 months later with deformity and limited wrist range of movement. Clinically there is significant deformity of left wrist with prominent distal radius and ulna over dorsal aspect. No neurological deficit detected.

CT wrist showed malunited fracture distal end left radius and ulna with volar displacement. 3D printing was done to help with the fracture configuration and operation planning due to the severe deformity.

Intraoperatively, there are some difficulties in reducing the fractures due to malunion with displacement of fragments. Fractures were fix with locking plate distal end radius and ulna.

Figure 1: Clinical picture of left wrist

Figure 2: 3 printed of CT wrist

CONCLUSION:

3D object printing technology is increasingly used in orthopedics in recent years. The models made by 3D printing helps to provide surgeons with an accurate analysis of complex anatomical structures, allowing the planning, training, and surgery simulation[2.]

Distal radius fractures are usually more complex because they are often accompanied by comminuted fractures and intra-articular fractures.

A meta-analysis by Dongming Zhu et al indicated that 3D printing-assisted surgery had shorter operation time, and less blood loss.[1]

REFERENCES:

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