

# 3D PLANNING IN MANDIBULAR FRACTURES USING CAD/CAM SURGICAL SPLINTS – A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL

Dr. Mrunalini. R, SRM Dental college & Hospital Ramapuram, India

## INTRODUCTION

Mandibular fractures results in various cosmetic & functional problems. The incidence ranges from 15.5%-59%. Precise anatomic reduction of fractured bone and achieving ideal occlusion of teeth are the main goals in fracture management. These can be attained using various devices and techniques. Pre - operatively fabricated lab splints have been established as one of the reduction methods; but are associated with numerous limitations such as time consumption, technique sensitivity and patient intolerance due to post-traumatic trismus.

Though CAD/CAM (Computer aided designing/Computer aided manufacturing) splints have been introduced in the field of trauma to negate these drawbacks, their use is less exploited. Randomized controlled trials which compare the use of acrylic handmade splints and CAD/CAM splints have not been conducted in a comprehensive manner.

## OBJECTIVES

1. Role of CAD/CAM splints in achieving anatomic reduction of fractured fragments and ideal occlusion in patients with mandibular fractures.
2. Compare the efficacy of CAD-CAM splints with conventional handmade splints in achieving anatomic reduction and ideal occlusion.

## RESULTS

CAD/CAM splints demonstrated favorable clinical as well as statistically significant outcomes

- (1) Precise anatomical reduction of fracture while simultaneously restoring ideal occlusion
- (2) Improvement in precision of “splint fit”
- (3) Superior patient comfort
- (4) Enhanced surgeon comfort in splint fabrication and intra -operative fracture reduction
- (5) **Preserves cross-arch stability during fixation, Prevents arch micromovements in sagittal & horizontal planes** and restores lingual occlusion that can't be checked intra-operatively

## CONCLUSION

CAD/CAM splints generated by pre-operative virtual planning offer numerous clinical benefits by

- (1) Reduction in intra-op time
- (2) Being cost effective
- (3) Stability during fixation
- (4) Maintenance of occlusion in the post-operative phase

