

## Full Rehabilitation of the Compromised Maxilla with Immediate Implant Placement and Immediate Loading, Using the M.L.M.O. Concept

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### Abstract

Restoring a severely compromised maxilla-whether partially or fully edentulous-remains one of the most complex and biologically demanding areas in implant dentistry. Such patients often present with a combination of advanced periodontal destruction, cystic or pathological alterations, and profound bone resorption. These conditions severely restrict the possibility of traditional immediate implant placement and loading. As a result, treatment frequently depends on prolonged, multi-stage procedures such as sinus membrane elevation or extensive, high-cost bone augmentation. In response to these limitations, the M.L.M.O. concept emerged: a coordinated, stepwise protocol integrating minimally invasive surgical philosophy, laser-assisted tissue management, principles of molecular biology, and the biomechanical flexibility of the OT abutment system.

Within this framework, the primary objective is immediate functional and aesthetic rehabilitation with minimal biological trauma. The gentle nature of minimally invasive strategies allows for controlled manipulation of soft and hard tissues, while laser decontamination enhances the biological readiness of extraction sites, optimizes soft tissue adaptation, and promotes rapid healing dynamics. The incorporation of molecular biology-particularly through the IPG-DET technique-paired with concentrated growth factors and umbilical cord-derived mesenchymal stem cells, strengthens cellular signaling pathways and accelerates bone regeneration in severely atrophic posterior maxillae.

The OT abutment system further reinforces the concept by ensuring passive, alignment-tolerant prosthetic engagement, reducing soft-tissue irritation, accommodating implant divergence up to 85 degrees, and providing controlled dissipation of occlusal forces.

The clinical case presented illustrates the full integration of the M.L.M.O. principles. A 56-year-old male smoker with chronic periodontitis and severe maxillary bone loss, but otherwise medically stable, underwent extraction of all teeth except the terminal molars to preserve occlusal reference points. Nd:YAG laser decontamination was performed, followed by placement of six aggressive-thread implants with OT abutments. Concentrated growth factors and umbilical cord-derived stem cells were applied to enhance regenerative potential. Impressions were taken immediately post-surgery, and a provisional OT Seeger bridge was delivered the next day, enabling immediate loading on five implants. After three months, the definitive restoration was placed. The patient has been followed for three years with complete functional stability and no complications.

**Keywords:** *Minimal Invasive; Growth Factors; Mesenchymal Cord Blood Stem Cells; Laser; OT Seeger Bridge*

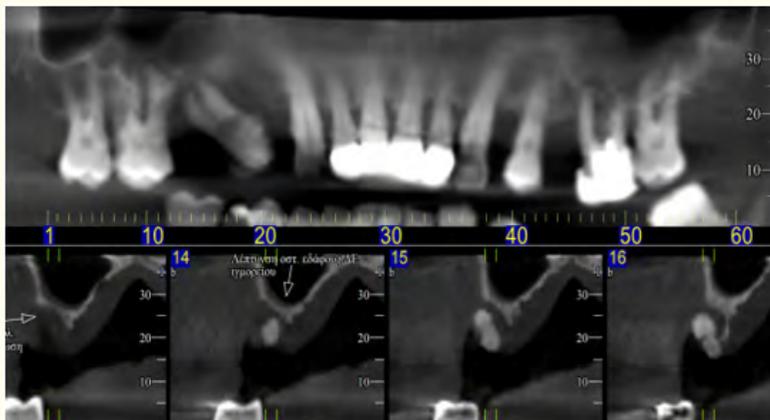


Figure 1: Pre-Op CBCT and details.

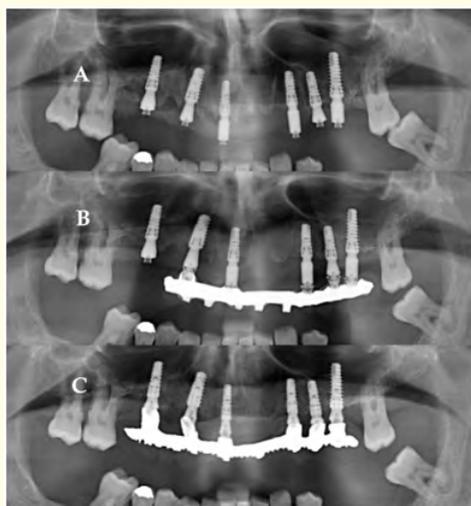


Figure 2: Post-operative panoramic X-rays showing: A: Immediate implant placement, B: Immediate loading with a temporary OT Seeger bridge, and C: Final loading with the permanent OT Seeger bridge.

## Conclusion

The coordinated and sequential application of the MLMO concept demonstrated that it can serve as an effective and predictable therapeutic strategy for the immediate rehabilitation of a severely compromised maxilla, even in situations marked by extensive bone loss and a history of chronic periodontitis. The combination of minimally invasive surgical principles, laser-assisted tissue management, molecular biology-based regenerative support, and the biomechanical advantages of the OT abutment system enabled safe immediate loading, reduced postoperative morbidity, and a significant reduction in overall treatment duration.

The clinical case presented-completed in only two sessions, with successful immediate loading and a complication-free three-year follow-up-reinforces the validity of the MLMO concept as a dependable solution in anatomically and biologically demanding situations. The ability to compensate for implant divergence, achieve passive implant-supported prosthetics, and enhance healing parameters makes this approach especially valuable in scenarios where conventional protocols would require prolonged or highly invasive bone augmentation.

These findings highlight the importance of expanding clinical research with larger patient cohorts and extended follow-up periods to fully validate the long-term stability and effectiveness of the protocol. Nevertheless, the outcomes of the present application clearly indicate that the MLMO concept represents a modern, reliable, and biologically advantageous option for full maxillary rehabilitation in patients with a high degree of clinical complexity [1-4].

### Bibliography

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