CLINICAL CASE REPORT • IMMEDIATE IMPLANT LOADING

Full-Arch Immediate Maxillary Rehabilitation Using Intraoral Welding and Immediate Loading ("Teeth in a Day")

A monolithic rigid-splinting approach to predictable osseointegration and same-day functional aesthetics in terminal dentition

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Clinical Protocol: Intraoral Welding ("Teeth in a Day")
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PATIENT PROFILE & DIAGNOSTIC ASSESSMENT

PATIENT DEMOGRAPHICS	**58-year-old female** | Systemically healthy, non-smoker
CHIEF COMPLAINT	Progressive tooth mobility, multiple missing maxillary teeth, chronic masticatory inefficiency, and poor smile aesthetics.
CLINICAL DIAGNOSIS	**Generalized Stage IV, Grade C Periodontitis** with secondary occlusal breakdown, pathological tooth migration, and localized severe alveolar ridge resorption.
MANDIBULAR ARCH	Stable, maintainable natural dentition following non-surgical periodontal therapy and occlusal plane equilibration.

Clinical & Radiographic Findings: Comprehensive examination revealed terminal dentition in the maxillary arch characterized by extensive bone loss, clinical attachment loss, generalized Grade II–III mobility, pathologically migrated anterior teeth, and edentulous spans. The lower arch presented stable, maintainable natural dentition following non-surgical periodontal debridement.

Figure 1: Preoperative Frontal View
Exhibiting severe anterior spacing, loss of occlusal plane, labial flaring, and advanced periodontal attachment loss.

Figure 3: Left Lateral Occlusion
Showing severe localized bone loss, missing bicuspid segments, and supra-erupted premolars with occlusal disharmony.

Figure 2: Right Lateral Occlusion
Demonstrating pathologically drifted teeth, clinical attachment loss, gingival recession, and compromised vertical dimension.

Figure 4: Preoperative Mandibular Occlusal View
Displaying irregular arch contour, incisal attrition, and periodontal stabilization achieved prior to surgical intervention.

SURGICAL PROTOCOL: EXTRACTION & 6-IMPLANT PLACEMENT

1. **Surgical Debridement & Platform Preparation:** Under local infiltration anesthesia, atraumatic total maxillary clearance was performed using periotomes to preserve residual buccal bone plates. Sockets were degranulated meticulously, followed by minor alveoloplasty to eliminate sharp bony irregularities and create a flat, uniform prosthetic resting platform across the arch.
2. **Strategic Multi-Implant Installation:** Six endosseous implants were strategically distributed across the maxilla (bilateral anterior, premolar, and molar regions) engaging residual dense basal bone to establish wide anterior-posterior spread.
3. **Primary Stability Verification:** High primary stability (> 35 N·cm insertion torque) was achieved across all fixtures, satisfying the fundamental prerequisite criteria for immediate functional loading.
4. **Multi-Unit Abutment Connection:** Multi-unit intermediate abutments of appropriate angulation and cuff height were torqued onto the fixtures to reconcile divergent implant insertion paths into a single common path of insertion.

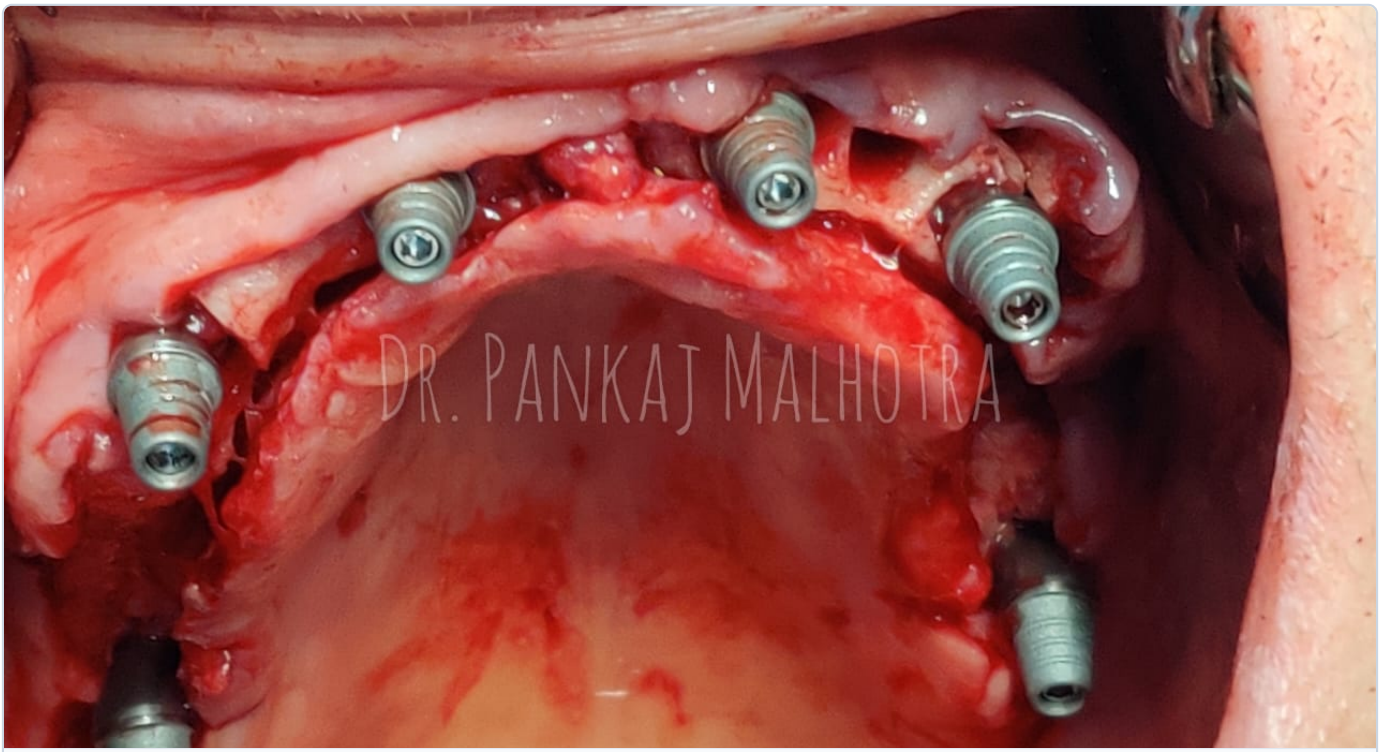

Figure 5: Implant Placement & Intermediate Abutment Connection
Six endosseous implants strategically installed in the edentulated maxilla with multi-unit abutments torqued in place. Note the flat crestal bone platform and optimized multi-vector distribution engaging dense cortical bone anteriorly and posteriorly.

Biomechanic Rationale: The strategic polygonal distribution of 6 implants maximizes the anteroposterior (A-P) spread, significantly diminishing cantilever stresses and establishing a rigid arch perimeter suitable for immediate same-day cross-arch splinting.

INTRAORAL WELDING & FRAMEWORK SPLINTING PROTOCOL

To eliminate harmful micro-movements (> 100 µm) during the early bone-healing phase, the intraoral electric resistance welding (Syncrystallization) protocol was executed chairside directly in the oral cavity:

1. **Titanium Bar Adaptation:** Dedicated titanium welding copings were secured onto the multi-unit abutments. A Grade 2 commercially pure titanium bar was passively contoured along the lingual/palatal arch curvature in intimate contact with the abutment sleeves.
2. **Electrical Syncrystallization Welding:** Electrical resistance welding pulses were discharged through copper electrodes under continuous mechanical compression. The pulses fused the titanium bar directly to the abutment sleeves in milliseconds without collateral thermal transfer to adjacent vital periodontal or osseous tissues.
3. **Bench Inspection & Passivity Confirmation:** The rigidly welded monolithic framework was unscrewed and evaluated on the bench, verifying perfect 100% passive fit without internal tensile or rotational stress.
4. **Framework Reinforcement & Opaquing:** Additional retentive retention spurs were spot-welded to provide mechanical retention for the acrylic teeth. The framework was sandblasted, treated with metal primer, and coated with an opaque pink masking resin to eliminate gray shadow beneath the provisional denture.

Figure 6: Welded Titanium Framework
Rigidly welded titanium framework demonstrating distortion-free, passive splinting across all 6 implant sleeves with retentive welding struts.

Figure 7: Resilient Pink Opaque Masking
Monolithic welded framework treated with pink opaque resin masking to ensure seamless natural gingival aesthetics without metallic dark margins.

PROSTHETIC CONVERSION & IMMEDIATE DELIVERY ("TEETH IN A DAY")

1. **Prosthetic Hollowing:** The pre-fabricated immediate acrylic denture was hollowed lingually and palatally to seat passively over the splinted framework without soft tissue interference.
2. **Chairside Intraoral Pick-Up:** Intraoral pick-up was performed using auto-polymerizing resin in verified centric relation at the correct vertical dimension of occlusion.
3. **Prosthetic Finishing & Hygiene Contouring:** The prosthesis was unscrewed, the palatal coverage eliminated into an open palate design, and excess acrylic trimmed to establish smooth, convex cleansable intaglio contours.
4. **Prosthetic Delivery & Occlusal Equilibration:** The screw-retained provisional prosthesis was torqued into position, screw access channels sealed with PTFE and composite, and balanced group-function occlusion verified.

Figure 8: Lateral Restoration View
Screw-retained immediate prosthesis demonstrating restored gingival architecture, lip support, and harmonious lateral occlusion.

Figure 9: Immediate Full-Arch Delivery
Same-day "Teeth in a Day" aesthetic delivery showing open-palate comfort, arch harmony, and sealed screw access holes.

CLINICAL SIGNIFICANCE & BIOMECHANICAL CONCLUSIONS

The intraoral welding technique enables immediate rigid cross-arch splinting chairside, completely bypassing impression inaccuracies, multi-week laboratory turnaround times, and removable temporary prostheses. By securing interfacial micromovements below 30 µm, it creates optimal biomechanical conditions for undisturbed osseointegration while delivering instantaneous functional chewing and aesthetic restoration in a single clinical appointment.

LEAD SURGEON & PROSTHETIC REHABILITATION

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Immediate Loading • Full-Arch Intraoral Welding • Advanced Implant Therapy

APPOINTMENTS & REFERRALS

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