

Multident Nano-Silver Hydrogel in Implant & Restorative Dentistry: Infection Control and Gingival Health in Complex Anterior Rehabilitation

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Profile

Dr. Rominder Chawla completed his BDS in 1993 from Bapuji Dental College, Davangere. He is the **Managing Director of Chawla Dental & Cosmetology Clinic, Jagraon** - a Complete Dental Care & Implant Centre. He has completed certified courses in **Implantology and Root Canal Therapy**. His clinical focus encompasses **general dental practice** with emphasis on **restorative care and implant procedures**. He is committed to delivering quality dental care to his patients.



Abstract

Anterior aesthetic rehabilitation involving dental implants and ceramic crowns presents significant infection-control and soft-tissue management challenges. This report presents **two clinical cases** managed at Chawla Dental & Cosmetology Clinic: **Case 1** involved immediate extraction and implant placement with gingival contouring, while **Case 2** involved anterior ceramic crown placement with diastema closure and management of gingival inflammation. **Multident Nano-Silver Hydrogel** was employed as a **perioperative antimicrobial and anti-inflammatory adjunct** in both cases. Both patients demonstrated **complete resolution of gingival inflammation, healthy peri-implant/periodontal tissue, and excellent aesthetic results**, underscoring the value of nano-silver hydrogel across complex restorative and implant workflows.



Clinical Context

Anterior aesthetic rehabilitation often requires a combined surgical and prosthetic approach for conditions like diastema, crowding, recession, and missing teeth. **Immediate implants** preserve alveolar architecture but need strict infection control, while ceramic crowns require healthy periodontal tissues for lasting aesthetics. **Nano-silver hydrogels** provide a localised adjunct with sustained **antimicrobial and anti-inflammatory effects**, supporting healing at both implant and crown margins throughout the rehabilitation^{1,2}.



Case 1

Immediate Extraction, Implant Placement & Gingival Contouring

- ✓ **Patient:** Adult / Male
- ✓ **Chief Complaint:** Missing/non-restorable anterior tooth requiring implant-supported replacement
- ✓ **Clinical Findings:** Clinical and radiographic evaluation confirmed a non-restorable anterior tooth with adequate alveolar bone volume for immediate implant placement.

Treatment Protocol

Phase 1 Immediate Extraction & Implant Placement

The anterior tooth was atraumatically extracted preserving the labial cortical plate. The socket was irrigated, debrided, and an implant placed immediately with primary stability confirmed. Bone graft was placed to fill the gap defect, a healing abutment connected, and a provisional restoration delivered to maintain aesthetics during osseointegration.



Figure 1: Sequential steps of immediate extraction and implant placement

Phase 2 Gingival Contouring (3 Months Post-Implant)

After three months, gingival contouring was performed to optimise soft-tissue architecture around the implant emergence profile, ensuring harmonious gingival levels prior to final impressions.

Multident Nano-Silver Hydrogel Application

- ✓ Applied around the peri-implant sulcus and adjacent gingiva three times daily for 14 days after each surgical stage.
- ✓ Provided sustained antimicrobial protection and anti-inflammatory support during healing.
- ✓ Patient counselling on a soft diet and gentle oral hygiene during healing periods.

Adjunctive systemic antibiotics and anti-inflammatory medication given perioperatively.

Follow-Up & Outcomes

- **Day 1–10:** Healthy early healing with reduced inflammation and no infection after regular Multident gel application.
- **3-Month Review:** Successful osseointegration with uneventful gingival contouring and optimised soft-tissue healing.
- **Final Assessment:** Implant restoration showed excellent fit with healthy peri-implant tissues and high patient satisfaction.

Case 2

Anterior Crown Rehabilitation, Diastema Closure & Gingival Inflammation Management

- ✓ **Patient:** Adult / Male
- ✓ **Chief Complaint:** Unsatisfactory appearance of front teeth — discolouration, crowding, spacing, and inflamed gums
- ✓ **Relevant History:** No significant systemic history. Long-standing gingival inflammation; multiple anterior teeth with poor aesthetics and compromised periodontal health. Diastema and crowding present in the upper anterior segment.

Examination & Diagnostic Findings

Clinical examination revealed severe crowding and diastema in the upper anterior segment, extensive tooth discolouration, and generalised gingival inflammation. Several anterior teeth were unrestorable, requiring ceramic crown rehabilitation with concurrent gingival inflammation management.



Figure 2: Pre-treatment

Treatment Protocol

Phase 1 Anterior Crown Preparation & Gingival Management

Unrestorable anterior teeth were extracted. Scaling, root planing, and gingival inflammation control were completed prior to crown fabrication, with soft-tissue health confirmed before impressions.

Phase 2 Anterior Crown Placement & Diastema Closure

Ceramic crowns were fabricated for ideal form and colour, with diastema closure achieved through crown morphology design. Crowns were cemented with resin cement and occlusion verified.

Multident Nano-Silver Hydrogel Application

- ✓ Applied around crown margins and adjacent gingiva three times daily for 14 days to support local antimicrobial protection and soft-tissue healing.
- ✓ Provided sustained antimicrobial and anti-inflammatory action at the crown–gingival interface, helping reduce bacterial load and gingival inflammation.
- ✓ Adjunctive anti-inflammatory medications and oral hygiene instructions were given to promote healing and maintain gingival health.

Follow-Up & Outcomes

Early Review (Day 10): Significant reduction in gingival erythema and oedema. Healthy granulation with no purulent discharge. Patient comfortable and Multident compliance excellent.

Final Assessment: Crowns cemented with excellent fit and aesthetics. Diastema completely closed. Gingival inflammation fully resolved with no pocketing, recession, or bleeding on probing. Patient highly satisfied with the outcome.



Figure 3: Post-treatment

Discussion & Conclusion

Both cases highlight the therapeutic value of Multident Nano-Silver Hydrogel across different anterior rehabilitation scenarios. In Case 1, the primary challenge was infection control at the peri-implant interface during osseointegration. In Case 2, the challenge was resolution of pre-existing gingival inflammation while achieving optimal crown margins. In both scenarios, systemic antibiotics provided limited and transient coverage at the critical tooth–tissue and implant–tissue interfaces. Multident addressed these limitations by delivering sustained, high-concentration antimicrobial activity directly at the critical healing zones¹. The anti-inflammatory action of silver nanoparticles helped reduce cytokine-mediated tissue damage, creating a favourable environment for both periodontal and peri-implant healing². The absence of infection, rapid tissue resolution, and excellent aesthetic outcomes in both patients underscore the clinical effectiveness and versatility of this approach, which was also simple to use and demonstrated excellent patient compliance in both cases.

Key Takeaways

- ✓ Effective infection control and faster soft-tissue healing
- ✓ Reduced gingival inflammation with strong antimicrobial support
- ✓ Excellent aesthetic results and high patient satisfaction

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References: 1) Raghav P, Khara AK, Bisht S. Comparative evaluation of antimicrobial properties of silver nanoparticles and chlorhexidine mouthwashes. *J Clin Orthod Dent.* 2023. 2) Hernández-Sierra JF et al. Bactericidal activity of silver nanoparticles on oral biofilms related to periodontal disease. *Bioengineering.* 2022;14(6):311.

Disclaimer:

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