Immediate Extraction Implantology

"Nano-Silver Hydrogel as an Adjunct in Immediate Implant Placement: Enhancing Soft-Tissue Healing and Contour"

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Profile

Dr. Amit Gupta brings extensive clinical experience in advanced implantology, including **immediate extraction implant placement, socket preservation, and esthetic soft-tissue management.** His practice emphasizes biologically guided healing and minimally invasive protocols that blend precision surgery with evidence-based regenerative materials. As an early adopter of **nano-silver hydrogel technology** in peri-implant management, Dr. Gupta has documented several successful cases demonstrating faster epithelial closure and superior soft-tissue contouring. He actively shares his insights through lectures and workshops for young clinicians, advocating a science-driven, patient-centric approach to implant dentistry.

Abstract

Immediate extraction implant placement demands precise infection control and rapid mucosal adaptation around healing abutments. Even with atraumatic extraction and ideal torque, the peri-implant mucosa often remains inflamed or irregular. In this case series, *Multident Nano-Silver Hydrogel* was used as an adjunct following immediate implant placement in two patients. The hydrogel was applied around healing abutments to contour the mucosa and promote epithelial closure. Across a **2.5-month follow-up**, both cases demonstrated excellent soft-tissue adaptation, minimal inflammation, and stable gingival collar development. These outcomes reaffirm nano-silver's dual antimicrobial and regenerative effects, translating into enhanced soft-tissue integration and improved patient comfort.

Clinical Context

Immediate implant sites carry high bacterial and inflammatory challenges. Nano-silver hydrogels provide sustained ionic release that disrupts biofilms, reduces inflammatory cytokines, and accelerates fibroblast activity. [1,2,3,4,5] By applying *Multident Hydrogel* directly around healing abutments, Dr. Amit Gupta achieved smoother gingival contouring and faster epithelial seal, crucial for long-term peri-implant stability.

Additionally, standard supportive therapy included painkiller tablets administered along with Multident to ensure optimal comfort and infection control.

Case 1

Immediate Extraction + Implant Placement (Maxillary Premolar & molar)

Patient Details

Age: 63y/F

Chief complaint: Cariously Fractured second molar.

Procedure

Atraumatic extraction 24 & 26

Immediate implant placement
24 (3.5 × 11 mm)
25 (3.5 x 11.5mm)
26 (5 x 10mm)

Healing abutment

Multident Hydrogel **applied circumferentially**

The patient was advised to use Multident daily for a duration of **08 weeks**

Follow-up & Outcome (2.5 months)

Week 1–2

- Minimal edema
- Uneventful healing

Week 4

- Healthy attached mucosa
- Stable epithelial maturation
- Light-pink tone

Week 8–10 (2.5 months)

- Fully mature gingival collar with ideal emergence profile
- No mucosal tenderness or inflammation
- Provisionalization feasible with highly stable peri-implant tissues

Clinical Insight

Nano-silver reduced microbial irritation at the mucosal margin and supported soft-tissue sculpting.

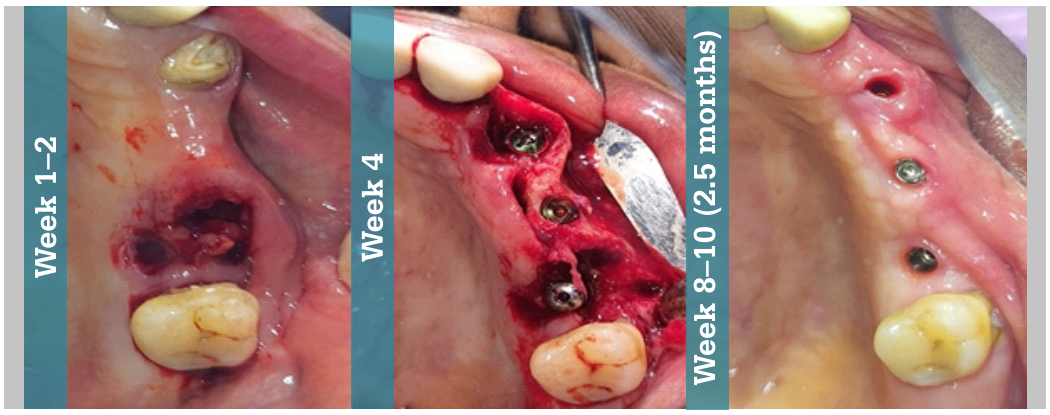

Figure 1: Immediate extraction and implant placement in the maxillary premolar region.

Case 2 — Immediate Extraction + Implant Placement (Mandibular Molar)

Patient Details

Age: 54y/F

Chief complaint: Fractured first premolar and grade 1 mobility with first molar.

Procedure

- **Atraumatic extraction 36**
- **Immediate implant placement 36 (5 x 11.5mm)**
- **Socket preservation with graft**
- **Implant**
- **Healing abutment**
- ***Multident Hydrogel* coating**

The patient was advised to use Multident daily for a duration of **08 weeks**

Follow-up & Outcome (2.5 months)

Week 1–2

- Minimal discomfort
- Early fibrin integrity intact

Week 4

- Near-complete epithelial coverage
- No peri-implant erythema

Week 8–10 (2.5 months)

- Fully keratinized mucosal seal
- No bleeding on probing
- **Radiograph:** clear crestal bone line and no soft-tissue gap

Clinical Insight

In grafted sites, nano-silver promoted faster mucosal sealing and easier prosthetic impression timing.

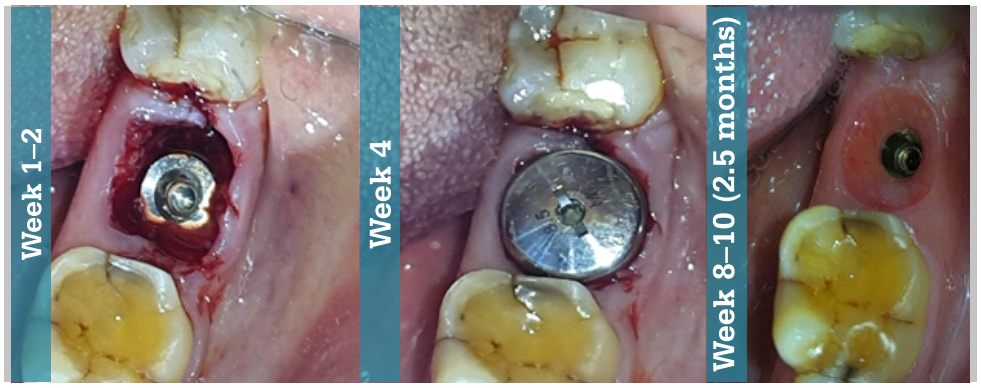

Figure 2: Immediate extraction with socket grafting and implant placement in the mandibular molar region.

Discussion & Expert Commentary

Silver nanoparticles have documented antibacterial activity against *S. mutans, P. gingivalis,* and *F. nucleatum,* [1,2,3] they also modulate inflammatory mediators (IL-1β, TNF-α). [4, 5] Their collagen-stimulatory effect aids epithelial re-attachment and contour formation around abutments. In both cases, Dr. Gupta noted faster healing, reduced bleeding, and more predictable esthetics-outcomes consistent with published nano-silver evidence.

Mechanism Summary

Mechanism	Molecular Effect	Clinical Outcomes
Antimicrobial	Destroys peri-implant biofilm [1,2,3]	Reduces infection risk
Anti-inflammatory	Suppresses IL-1β, TNF-α [4,5]	Minimizes edema & soreness
Regenerative	Stimulates fibroblast & collagen synthesis [5]	Faster epithelial seal

Key Takeaways

1. *Multident Nano-Silver Hydrogel* enhances soft-tissue healing after immediate implant placement.
2. Offers antimicrobial protection without tissue irritation.
3. Improves gingival collar formation and peri-implant esthetics within a clinically relevant prosthetic phase (8–10 weeks).

References: **1)** *Raghav P, Khera A K, Bisht S. Comparative evaluation of antimicrobial properties of silver nanoparticles and chlorhexidine mouthwashes. J Clin Orthod Dent. 2023.* **2)** *Nguyen T et al. Comparing the effectiveness of 0.12 % chlorhexidine and silver nanoparticle mouthwashes. Vietnam J Dent Sci. 2024.* **3)** *Rusu A et al. Nanoparticles in periodontitis therapy: A review of current trends. Int J Mol Sci. 2023.* **4)** *Hernández-Sierra JF et al. Bactericidal activity of silver nanoparticles on oral biofilms related to periodontal disease. Bioengineering. 2022; 14(6):311.* **5)** *Chen S et al. Comparison of antimicrobial and wound-healing effects of silver nanoparticle and chlorhexidine mouthwashes. Clin Oral Invest. 2022.*