

Multident Nano-Silver Hydrogel in Periodontal Therapy:

Resolution of Chronic Gingivitis and Vertical Bone Regeneration in a Diabetic Patient

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Profile

Dr. Nilesh Patil completed his BDS in 2005 and brings over 20 years of experience as a General Dental Practitioner at Shree Dental Clinic & Implant Centre, Khanda Colony. He completed a certified course in Dental Implantology from Scident Institute, Mumbai, in 2016. His clinical practice encompasses general dentistry with a strong focus on non-surgical periodontal therapy, conservative restorative care, and implant-related procedures, with a particular interest in managing periodontally compromised patients with systemic risk factors such as diabetes mellitus.

Clinical Interests: General Dentistry, Non-Surgical Periodontal Therapy, Implant Dentistry, Conservative & Restorative Care



Abstract

Chronic gingivitis with associated tooth mobility and vertical bone loss poses a significant challenge in periodontal management, particularly in patients with systemic risk factors such as diabetes mellitus, which is well recognised to impair wound healing and amplify the host inflammatory response to plaque biofilm. This report presents a case managed at Shree Dental Clinic & Implant Centre with non-surgical periodontal therapy subgingival scaling and gingival curettage, without bone grafting supported perioperatively by **Multident Nano-Silver Hydrogel** as an antimicrobial and anti-inflammatory adjunct. At four-month follow-up, the patient demonstrated healthy gingiva with no bleeding on probing, markedly reduced tooth mobility, and radiographic evidence of vertical bone regeneration at both treated sites, highlighting the potential of nano-silver hydrogel to support periodontal healing and regeneration even in a compromised, diabetic host, without recourse to surgical grafting.





Clinical Context

Chronic gingivitis left untreated can progress to periodontitis with vertical bone loss and progressively increasing tooth mobility, a risk significantly compounded in patients with diabetes mellitus, where impaired healing and a heightened inflammatory response make periodontal tissues slower to recover after instrumentation. Non-surgical periodontal therapy subgingival scaling and gingival curettage remains the first line of management, but predictable healing in a diabetic patient requires reliable adjunctive infection control sustained over the whole healing window, not just at the chairside visit. **Nano-silver hydrogels** meet this need: unlike a single course of systemic antibiotics, a topical gel can be reapplied by the patient over weeks, maintaining a favourable microenvironment for healing an approach particularly relevant when bone grafting is not planned and natural bone-fill is the goal.

Case

Non-Surgical Periodontal Therapy for Chronic Gingivitis with Vertical Bone Loss (11, 35)

Patient: Adult, 54 years, with diabetes mellitus



Relevant History: Type 2 diabetes mellitus - a systemic factor affecting periodontal healing and increasing infection risk



Radiographic Findings: IOPA radiographs showed vertical bone loss at 11 and 35, consistent with localised periodontal breakdown



Chief Complaint: Mobile teeth with bleeding and swollen gums



Clinical Findings: Chronic gingivitis with Grade 2 mobility at 11 and 35, with generalised plaque and calculus



Diagnosis: Chronic generalised gingivitis with localised vertical bony defects at 11 and 35 in a diabetic patient



Examination & Diagnostic Findings

The patient presented in March 2026 with a chief complaint of mobile teeth and bleeding, swollen gums of gradual onset. Intraoral examination revealed generalised gingival erythema and oedema, with bleeding on probing and plaque/calculus accumulation along the gingival margin. Grade 2 mobility was recorded at the upper right central incisor (11) and lower left second premolar (35) - both teeth exhibiting mobility beyond the physiological range but not yet depressible in their sockets.

IOPA radiographic evaluation of both sites confirmed vertical (angular) bone loss, correlating with the clinical mobility findings and indicating an active, localised periodontal defect rather than purely gingival involvement. Given the patient's diabetic status, the case was assessed as carrying an elevated risk of delayed healing and secondary infection following instrumentation, and treatment was planned accordingly with pharmacological and topical support built in from the outset rather than added reactively.

Treatment Protocol

Phase 1 Pre-Procedural Preparation

Owing to the patient's diabetic status, Multident Nano-Silver Hydrogel was advised prior to the periodontal procedure, along with a short course of antibiotics to reduce infective and inflammatory risk ahead of instrumentation.

Phase 2 Subgingival Scaling & Gingival Curettage

Under local anaesthesia, thorough subgingival scaling was carried out at 11 and 35 to remove plaque and calculus deposits, followed by gingival curettage to debride the inflamed pocket epithelium and granulation tissue. The area was irrigated, and no bone graft material was placed - the treatment plan relied on debridement and adjunctive antimicrobial support alone to permit natural bone-fill.

Phase 3 Extended Multident Maintenance & Review

Multident Nano-Silver Hydrogel was continued for an extended duration after scaling and curettage, well beyond the immediate post-operative window, to provide sustained antimicrobial protection and anti-inflammatory support through the full soft- and hard-tissue healing period. The patient was reviewed periodically and reinforced on home-care technique until follow-up at four months.



Multident Nano-Silver Hydrogel Application & Home Care

- ✓ Prescribed before the procedure to reduce microbial load ahead of instrumentation, given the patient's diabetic status, and applied directly to the gingival sulcus at 11 and 35.
- ✓ Continued for an extended duration after scaling and curettage - well beyond the immediate post-operative window - alongside a short course of antibiotics appropriate to the patient's diabetic risk profile.
- ✓ Paired with soft-brush technique, interdental cleaning, dietary counselling, and blood-glucose guidance to sustain plaque control and support healing through the recovery period.

No bone graft material was used at any stage of therapy.



Follow-Up & Outcomes

Early Review: In the weeks following scaling and curettage, the patient reported good comfort and excellent compliance with Multident gel application. Gingival erythema and oedema showed a steady, uneventful reduction, with no signs of secondary infection despite the patient's diabetic status.

4-Month Review: The patient returned after four months for follow-up. Clinical examination revealed healthy gingiva with no bleeding on probing, and tooth mobility at 11 and 35 was tremendously reduced. IOPA radiographs at both sites showed vertical bone regeneration compared with the pre-treatment films - a favourable outcome achieved through debridement and adjunctive antimicrobial support alone, without bone grafting.

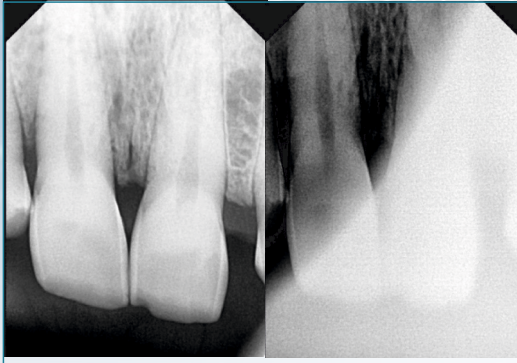


Figure 1: IOPA radiographs at presentation, showing vertical bone loss at 11 and 35

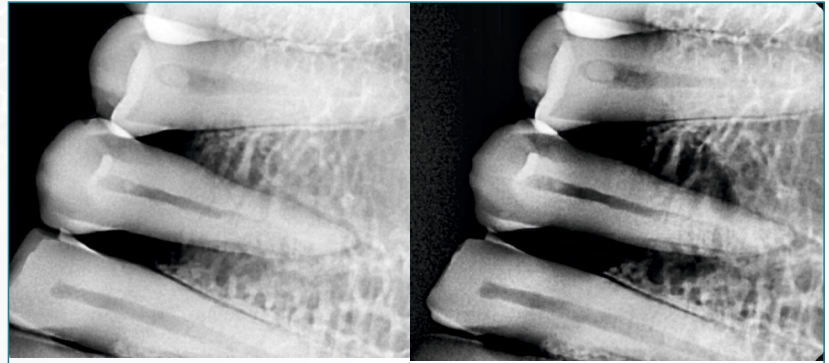


Figure 2: IOPA radiographs at 4-month follow-up, showing vertical bone regeneration at 11 and 35

Discussion & Conclusion

This case highlights the therapeutic value of Multident Nano-Silver Hydrogel as an adjunct to non-surgical management of chronic gingivitis with vertical bone loss in a diabetic patient. Despite impaired healing capacity and without the use of bone grafts, scaling and curettage supported by systemic antibiotics for initial pharmacological cover and sustained local antimicrobial and anti-inflammatory action of Multident at the gingival sulcus^{1,2} resulted in favourable healing. The reduction in cytokine-mediated tissue damage likely created an environment conducive to periodontal healing and bone regeneration². The resolution of gingival inflammation, marked reduction in tooth mobility, and radiographic evidence of vertical bone regeneration at four months demonstrate that a conservative approach with sustained topical support can achieve clinically meaningful outcomes even in a diabetic host.

Key Takeaways

- ✓ Effective infection control and healing support in a diabetic, higher-risk patient
- ✓ Resolution of chronic gingivitis with no bleeding on probing at follow-up
- ✓ Marked reduction in Grade 2 tooth mobility at both treated sites
- ✓ Radiographic vertical bone regeneration achieved without bone grafting
- ✓ Simple, well-tolerated adjunct with excellent patient compliance over an extended application period

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References: 1) Raghav P, Khera 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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