

A Five-Year Prospective Cohort Study on Single-Tooth Restorations with a One-Piece CAD/CAM Abutment for Screw-Retained Prostheses

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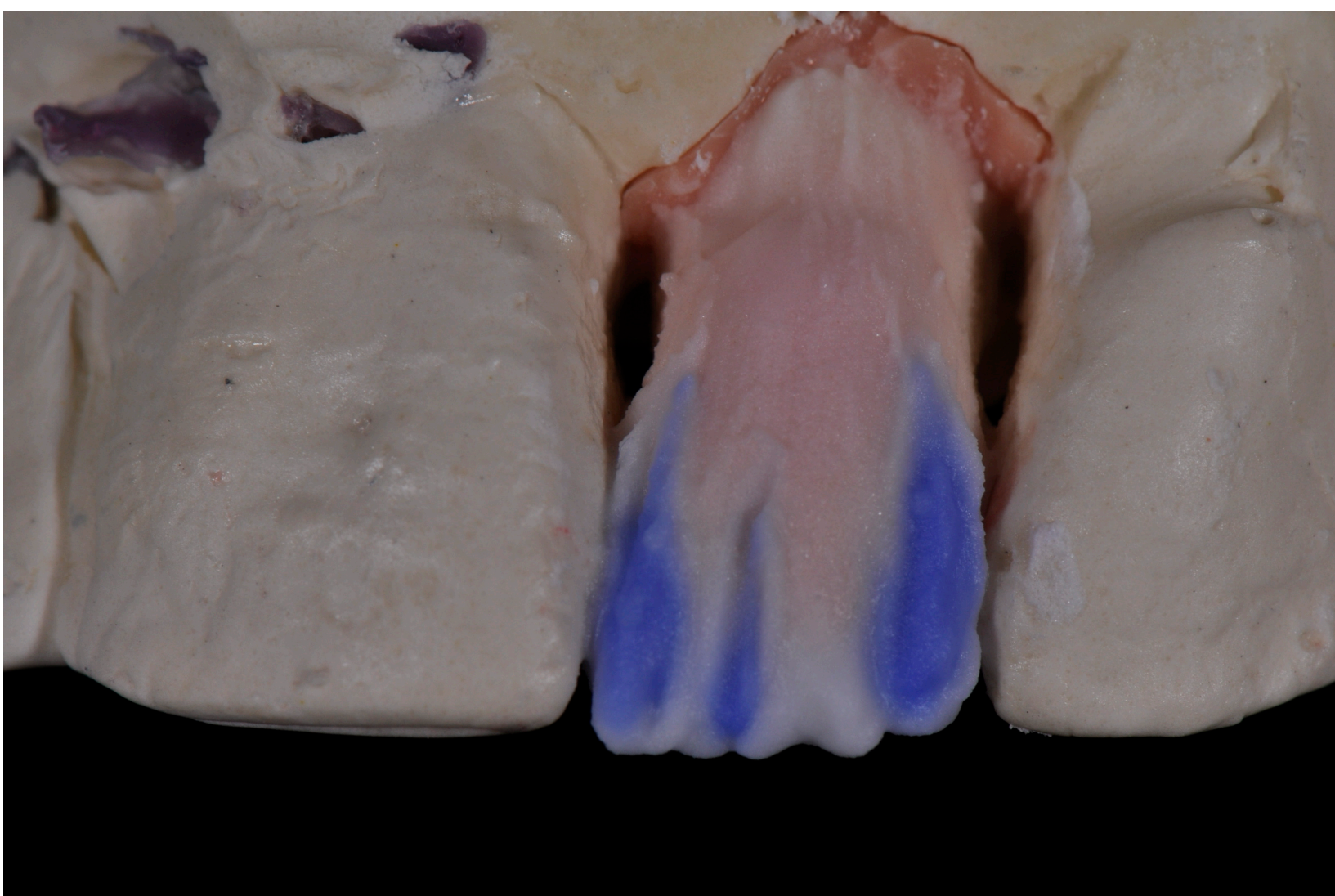
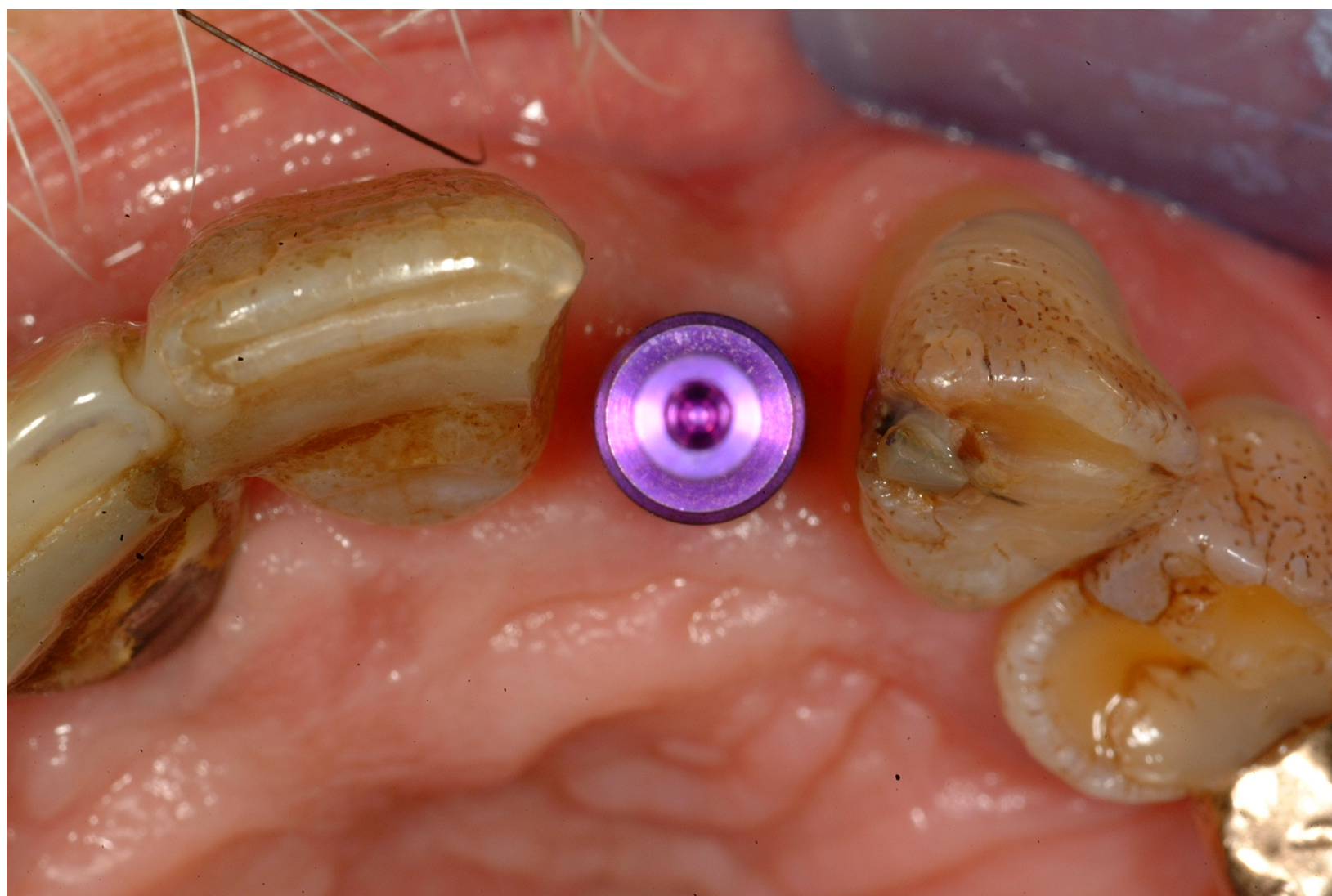
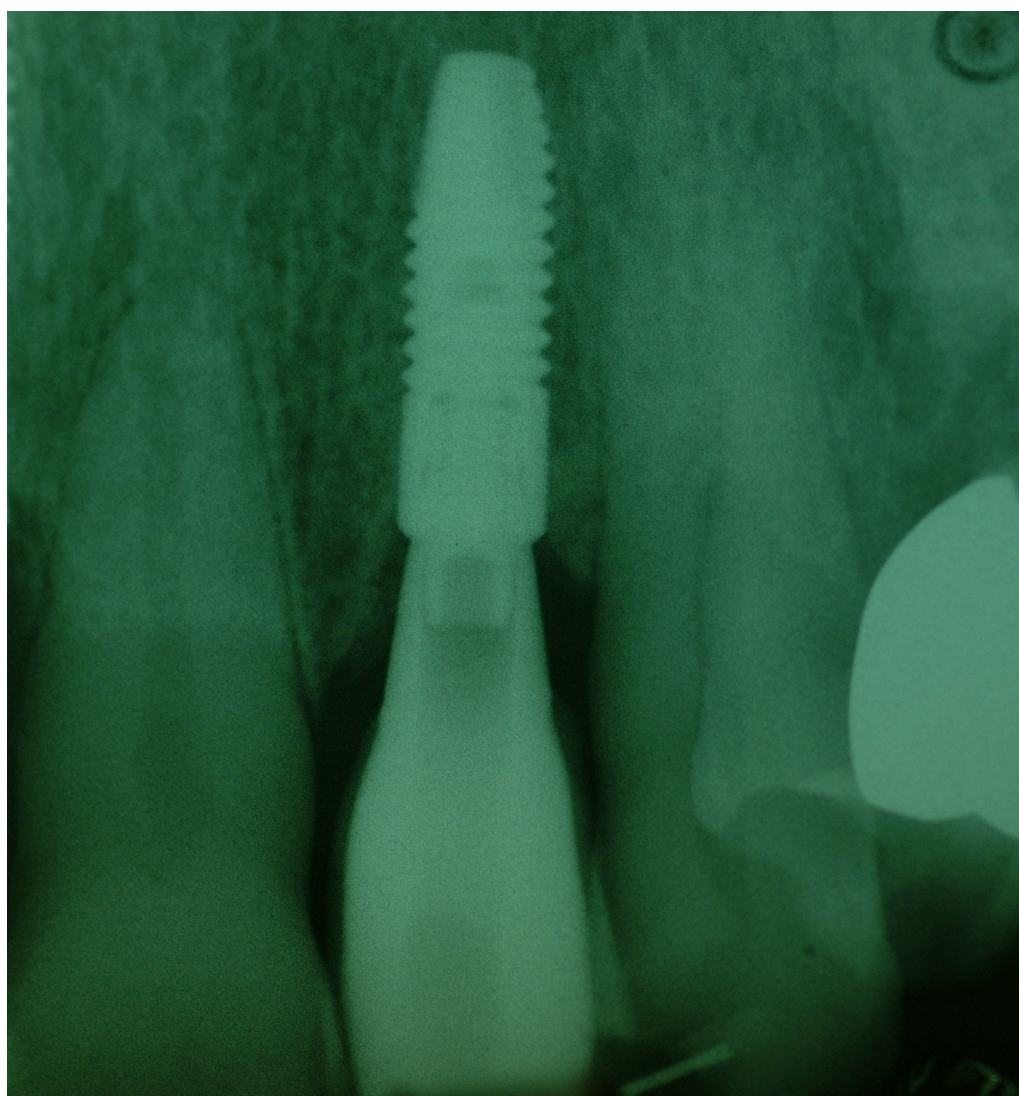


Introduction: The study evaluates the performance of one-piece titanium CAD/CAM abutments with porcelain veneering for screw-retained implant-supported single crowns (SC) in oral rehabilitation. This approach offers a promising alternative to conventional cemented metal- ceramic restorations, with potential advantages in fit, durability, and customization.

Methods: Twenty patients meeting specific inclusion criteria underwent implant placement with subsequent prosthetic rehabilitation using CAD/CAM titanium abutments. Clinical, radiographic, and esthetic parameters were assessed over a 5-year period. Outcome measures included peri- implant marginal bone level (MBL), probing pocket depth (PPD), bleeding on probing (BoP), Plaque Index (PI), Pink Esthetic Score (PES), White Esthetic Score (WES), and overall PES/WES.

Results: At baseline, mean MBL was 0.41 ± 0.44 mm, PPD averaged 2.05 ± 0.56 mm, and BoP and PI were low. Radiographic evaluations at 1 and 5 years revealed slight improvement in MBL (0.11 mm and 0.15 mm, respectively). The PES/WES demonstrated highly satisfactory esthetic outcomes (mean: 15.00), with both PES and WES values indicating excellent pink and white esthetics. Only Distal Papilla and Translucency and Characterization parameters scored relatively lower.

Conclusion: The utilization of one-piece titanium CAD/CAM abutments with porcelain veneering for screw-retained single crowns yielded favorable outcomes over a 5-year follow-up. The technique demonstrated robust peri-implant tissue health, implant stability, and promising esthetic results. This approach presents itself as a reliable and clinically viable option in oral rehabilitation, warranting further exploration in extended studies.



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