

A Minimally Invasive Approach Using Bio-Miniatures Implant System for Full Arch Rehabilitation

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Abstract : The advent of ultra-narrow diameter implants initially offered an alternative to wider conventional implants. However, their design limitations have restricted their applicability primarily to overdentures and cement-retained fixed prostheses, often with unpredictable long-term outcomes. The introduction of the new Miniature Implants has revolutionized the field of implant dentistry, leading to a more streamlined approach. The utilization of Miniature Implants has emerged as a promising alternative to the traditional approach that entails the traumatic sequential bone drilling procedures and the use of conventional implants for full and partial arch restorations. The innovative "BioMiniatures Implant System serves as a groundbreaking bridge connecting mini implants with standard implant systems. This system allows practitioners to harness the advantages of ultra-small implants, enabling minimally invasive insertion and facilitating the application of fixed screw-retained prostheses, which were only available to conventional wider implant systems. This approach streamlines full and partial arch rehabilitation with minimal or even no bone drilling, significantly reducing surgical risks and complications for clinicians while minimizing patient morbidity. The ultra-narrow diameter and self-advancing features of these implants eliminate the need for invasive and technically complex procedures such as bone augmentation and guided bone regeneration (GBR), particularly in cases involving thin alveolar ridges. Furthermore, the absence of a microcap between the implant and abutment eliminates the potential for micro-leakage and micro-pumping effects, effectively mitigating the risk of marginal bone loss and future peri-implantitis. The cumulative experience of restoring over 50 full and partial arch edentulous cases with this system has yielded an outstanding success rate exceeding 97%. The long-term success with a stable marginal bone level in the study firmly establishes these implants as a dependable alternative to conventional implants, especially for full arch rehabilitation cases. Full arch rehabilitation with these implants holds the promise of providing a simplified solution for edentulous patients who typically present with atrophic narrow alveolar ridges, eliminating the need for extensive GBR and bone augmentation to restore their dentition with fixed prostheses.

Keywords : mini-implant, biominiatures, miniature implants, minimally invasive dentistry, full arch rehabilitation

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