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Immediate implant placement with socket shield technique in the maxilla: a prospective case series evaluation at 1-year follow-up

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Abstract

Background: The aims of this case series were to investigate the clinical, radiographic, implant success, complication incidence, esthetic, and patient-reported outcomes of 10 immediately placed implants associated with the socket shield technique at 12 months post-loading and to assess the ridge width changes that occurred at 8 months following implant placement.

Methods: A total of 10 patients received 10 socket shield immediate implants (MegaGen AnyRidge). At 8 months postimplantation, casts were made to assess the ridge width changes by measuring the ridge width at the implant sites and comparing them with the corresponding measurements at the contralateral tooth site. At 12 months post-loading, clinical indices, marginal bone loss, pink esthetic score, and patient-assessed outcomes were evaluated. The mean, standard deviation and median were calculated for all continuous variables.

Results: All implants demonstrated a 100% success rate, while 2 implants presented with external shield exposure that was managed successfully. The mean marginal bone loss was 0.08 ± 0.14 mm mesially and 0.21 ± 0.23 mm distally. Esthetic evaluation yielded an average modified pink esthetic score of 8.65. A mean gain of 0.17 mm in the facial-palatal ridge width was recorded at 8 months postimplantation.

Conclusions: The socket shield technique enhanced the functional and esthetic results by preserving the alveolar bone and peri-implant soft tissues. However, this is a sensitive technique and still needs more robust evidence before it can be recommended for everyday clinical practice.

Keywords: Dental implantation, Success rate, Osseointegration, Socket shield, Case series

Background

Tooth extraction is usually followed by vertical and horizontal alveolar ridge resorption [1, 2], especially on the buccal side [1]. This is highly expected because once the tooth is extracted, the alveolar ridge loses one of the main vascular supplies to the facial plate, which is the periodontal ligament [3]. In addition, the facial plate thickness in the anterior maxilla

has been reported to be 1 mm or less for nearly 90 % of patients, making it more prone to surgical trauma and resorption [3, 4]. Furthermore, this 1-mm facial plate is composed mainly of cortical bone without any vascular supply from the endosseous marrow [3]. This ridge resorption has a negative subsequent impact on the implant position and on the emergence profile of the implant restoration [5], leading to aesthetic and biological complications, mainly in the maxillary anterior region. Consequently, every effort has been made to preserve or limit the physiological ridge remodeling that occurs following tooth extraction, including socket preservation techniques [6, 7] and bone

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