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IMMEDIATE LOADING OF INTRAORALLY WELDED SHORT IMPLANTS

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Introduction

Few studies currently exist evaluating the outcome of short-length dental implants in immediate loading[1]. Some studies suggest that short implants achieve similar results as long implants when supporting immediately loaded cross-arch prostheses both in maxillae and mandibles[1,2]. When immediate loading is planned, adequate stability of implants is essential to prevent the risk of micromovements and loss of implants[3]. Degidi et al. published several papers to describe the intraoral welded bar technique, which has been proven to offer a solution for the stabilisation of the immediately loaded implants[4-6]. In this report, two short Ankylos implants and one long Ankylos implant were welded together intraorally and immediately loaded.

Materials and Methods

An immediate loading was digitally planned for the rehabilitation of a partially edentulous mandible using the Simplant® software. On the day of surgery, two premolars with root fractures were removed. Two Ankylos 3.5 x 6.6 mm were inserted in the posterior mandible and one Ankylos 3.5 x 14 mm was placed in the anterior post extraction socket. During implant placement, final insertion torque (FIT) was digitally recorded.
Then welding abutments were connected, and a 2-mm diameter titanium bar was shaped and intraorally welded to the abutments using the WeldOne™ welding unit. Then the temporary prosthesis was relined and screwed into place. 4 months after the implant placement, the provisional restoration was removed and final impressions were recorded. A definitive metal-ceramic restoration was screwed on the posterior abutments and cemented on the anterior abutment.

Results

The immediate post operative computer tomography scanning showed an implant placement complying with the software planning. Implants presented a FIT of 18, 36, and 30 Ncm respectively, from posterior to anterior. Clinical status at 1 year after implant placement demonstrated remarkable soft tissue stability. 1-year follow-up radiograph showed stable peri-implant tissues.

Conclusions

The absence of micromotion at the bone-implant interface is fundamental for osseointegration during the healing period. Although no firm clinical consensus has yet been reached, minimum insertion torque values for immediate loading reported in the literature have ranged from 15 to 50 Ncm. Within the limitations of a single case report, the present paper seems to suggest that intraoral welding technique can limit the micromovements of short-implants even when inserted with low torque values, providing predictable osseointegration results.


Fig 1. Preoperative clinical view


Fig 2. Preoperative X-ray

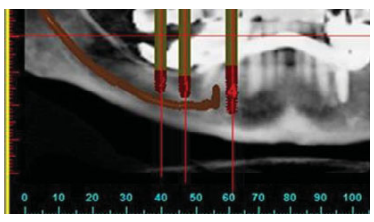

Fig 3. Digital planning

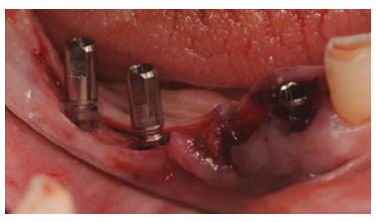
Fig 4. Clinical view after implant placement

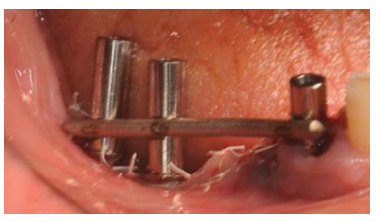
Fig 5. The titanium bar welded to the abutments


Fig 6. Occlusal view of the welded bar

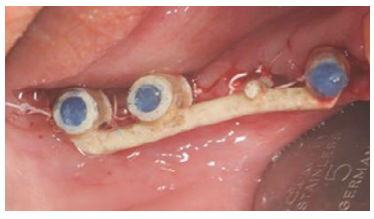
Fig 7. The opaqued titanium framework


Fig 8. Provisional restoration after relining


Fig 9. Screw-retained metal-reinforced provisional restoration


Fig 10. Definitive restoration at 1-year follow up

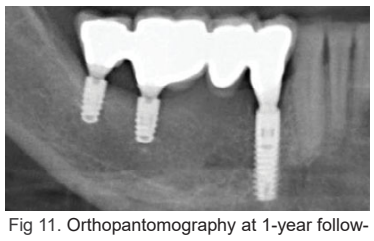
Fig 11. Orthopantomography at 1-year follow-up

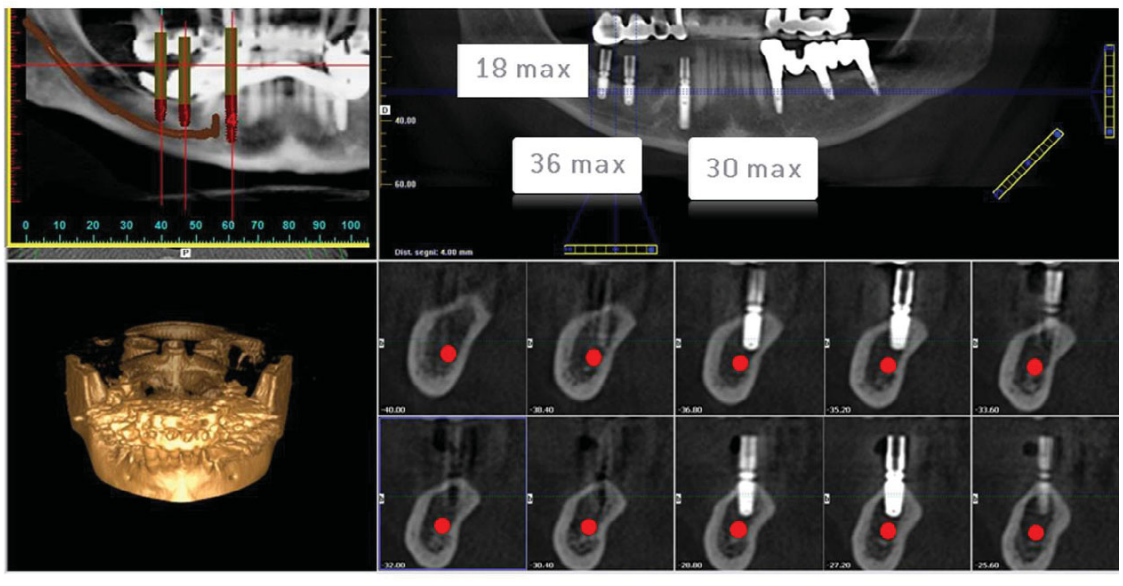

Fig 12. The immediate post operative computer tomography scanning showing an implant placement conforming with the software planning

Bibliography |
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