

Mandibular IOD using riegel telescope with magnetic attachment

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Abstract

【Objective】

Retention and stability of mandibular complete denture for fully edentulous patients can be improved by implant placement. In this case, three implants were placed in the mandibular jaw, and riegel telescope denture with magnetic attachments was delivered to obtain well function.

【Method】

Three implants (Branemark MK II RP 10 mm, Nobel Biocare) were placed between the foramen mentale in the edentulous mandibular jaw. Riegel telescope system was selected as a retainer of mandibular implant overdenture (IOD), the milling bar and outer crown were fabricated with optimal fitting. Three implants were connected by a milling bar with two holes which two rods could be inserted. The keeper and magnetic attachment (Hyper slim 5213, Neomax) were attached to the rods and outer crown of the denture, respectively. The riegel telescope, metal backing, and T-shape structured framework were cast with Au-Pt alloy and then accurately constructed.

【Results, Discussion】

Approximately 18 years were passed after delivery, there were little bone resorption around implants and patient's satisfaction could be kept by well denture stability. Magnetic attachment must be useful device for not only direct retainer on the root and implant but also fixing of the rods in the riegel telescope.

Introduction

The use of implant support and retention to rehabilitate a mandibular edentulous jaw has become a well-established and contemporary clinical method. There are lots of evidences that an mandibular implant overdenture (IOD) significantly reduces certain problems compared to conventional mandibular complete denture.

Outline of the Case

The patient was a 55 years partially edentulous woman with 3 remaining teeth (#11, #13, and #14) in the maxillary jaw and fully edentulous mandibular jaw. Her chief complaint was an unstable existing mandibular denture. (Fig.1).

The patient received an explanation of treatment plan and was informed of the possibility for using the conventional removable denture, implant-fixed prosthesis or an implant-retained overdenture. After informed consent was obtained, the patient selected conventional overdenture for maxillary jaw and implant-retained overdenture for mandibular jaw for economical and anatomical reasons.



Fig.1 Intraoral view before treatment:

Clinical Procedure

Three implants (Branemark MK II RP 10 mm, Nobel Biocare) were placed between the foramen mentale in the edentulous mandibular jaw (Fig.2). Riegel telescope system was selected as a retainer of mandibular implant overdenture (IOD), the milling bar and outer crown were fabricated with optimal fitting. Three implants were connected by a milling bar with two holes which two rods can be inserted. The keeper and magnetic attachment (Hyper slim 5213, Neomax) were attached to the rods and outer crown of the denture, respectively (Fig.3,4). The riegel telescope, metal backing, and T-shape structured framework were cast with Au-Pt alloy and then accurately constructed.

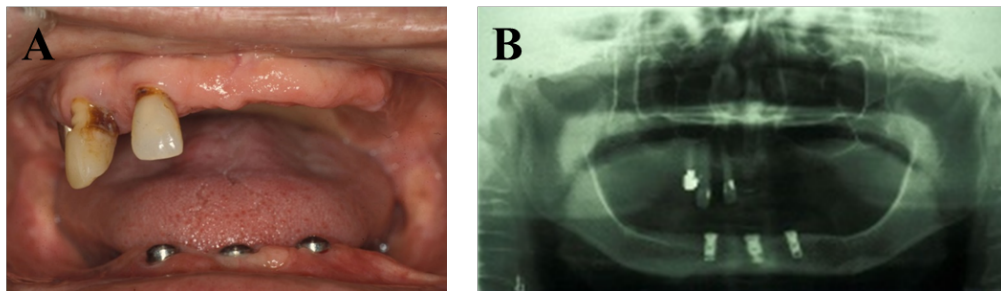


Fig.2 Three implants were placed following the surgical template:

- A. Intraoral photography
- B. Panoramic X-ray photography

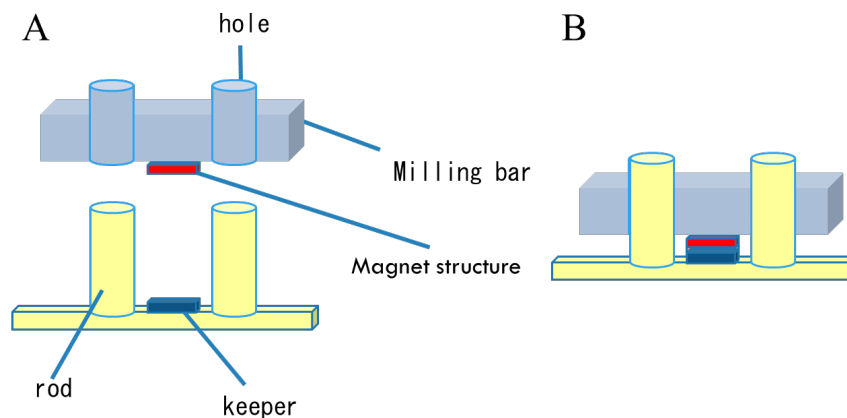


Fig.3 Schematic drawing of riegel telescope system: A. Without locking, B. With locking

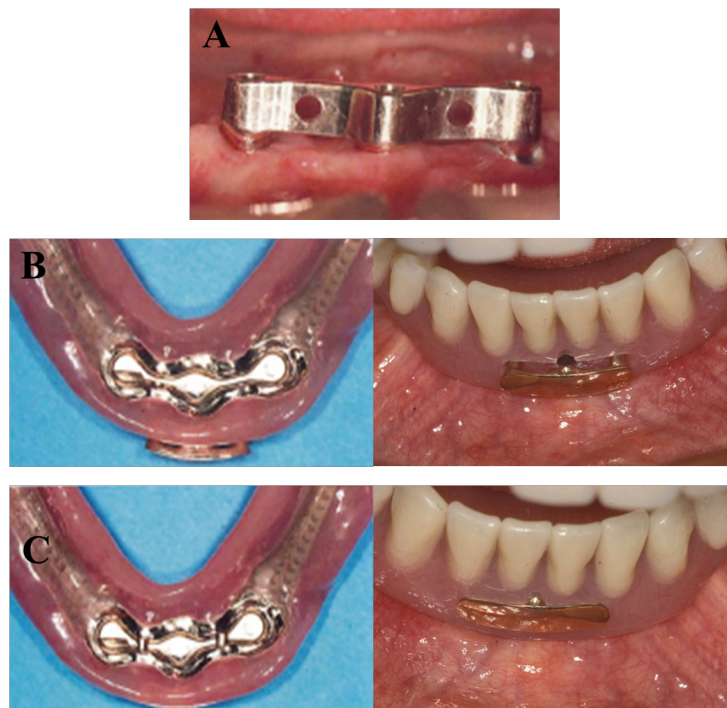


Fig.4 Riegel Telescope system
 A. milling bar on the three implants
 B. Inner and labial surface of denture base without locking
 C. Inner and labial surface of denture base with locking

After the auto-polymerizing PMMA resin was polymerized, the implant-stabilized overdenture was delivered. For the maxillary arch, the middle coping was placed the right canine and second premolar and a conventional overdenture was fabricated (Fig.5).

Results

The denture maintenances have been continued at once every six months. Approximately 18 years were passed after delivery, there was little bone resorption around implants and patient's satisfaction could be kept by well denture stability (Fig.6). Although the lateral incisor was extracted by periodontal disease, the maxillary denture could be continued to use by performing the direct relines and repairs.



Fig.5 Placement of the dentures: A. maxillary view, B. Front view, C. Mandibular view

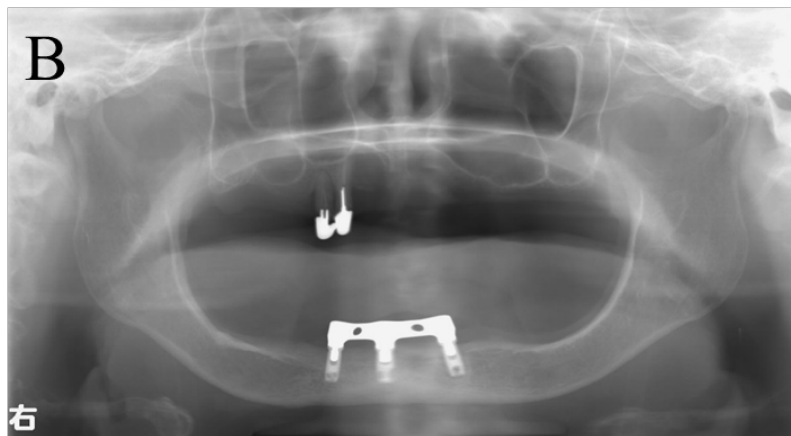
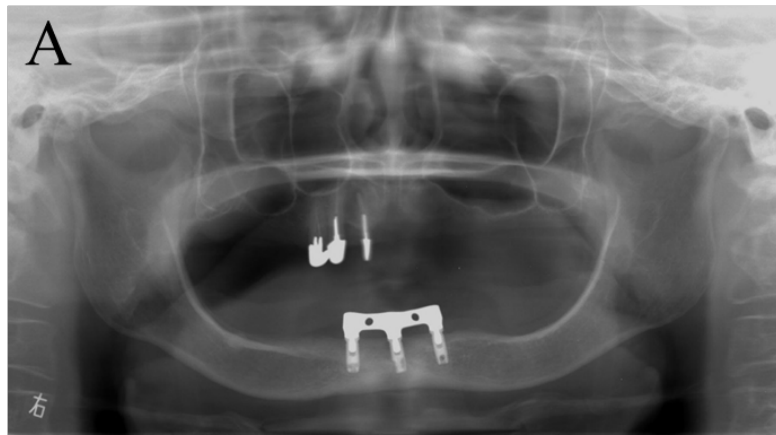


Fig.6 Panoramic X-ray: A. 10 years after wearing dentures, B. 17 years after wearing dentures

Discussion

Sufficient retention and stability could be provided by the combination of riegel telescope system and magnetic attachments, and satisfactory aesthetic and function could be achieved using the mandibular IOD. Magnetic attachment must be useful device for not only direct retainer on the root and implant but also fixing of the rods in the riegel telescope.