A case repot of the implant overdenture using Magfit SX2®.

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Abstract

A 76 - year - old man with a chief complaint of a masticatory disturbance with his upper denture came to our hospital in September 2010. Although we fabricated the upper acrylic resin base denture, the patient was not satisfied. Then, after consulting, we fabricated an implant overdenture.

In the case of the implant overdenture, it is difficult to get a well-balanced adjustment for the amount of tissue displacement between the mucosal surface and the implant abutment. In some cases the attachment may not obtain suction by the mucous membrane. Magfit SX2® which was used in this case has a 0.4mm range of motion which is approximate for the amount of tissue displacement. We fabricated the implant over denture with Magfit SX2® using this procedure in order to take advantage of this attachment's characteristics and shorten the treatment time.

Four years have passed since insertion of this denture; the function has been working well and also the patient is currently satisfied. It seems this method can easily acquire the balance of amount of tissue displacement.

Introduction

Magnetic attachments have been medically approved and 4-th half a century became common as an abutment device for dentures, and it has also qualified for national exams of dentistry. In the case of a natural tooth as an abutment, there is interference capability for the displacement amount of about 70 μm due to the periodontal ligament. However, in the case of the

osseointegrated oral implant abutment, adjustment of the displacement amount of the mucosa and the pressure of the implant, it often depends on clinical experiences, such as design, implant implantation position and impression pressure.

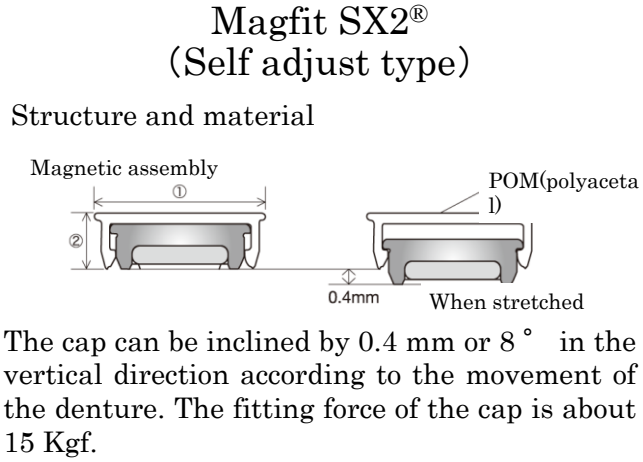


Fig. 1 Magfit SX2® (self-adjust type)

This figure shows the schematic diagram of a Magfit SX2® (self-adjust type) which has the loose pressure capability, which was used this time (Fig. 1). In this issue, we will introduce the method of denture fabrication taking the Magfit SX2® into consideration for adjustment of pressure displacement amount.

Outline of case

A 76 - year - old man with a chief complaint of masticatory disturbance with his upper denture came to our hospital in September 2010. His current medical history hopes to produce a new denture, because the upper complete denture which was made three years ago is unable to chew much. His past history is cholecystectomy and ossification of posterior longitudinal ligament. He is currently using an upper complete denture which has no spillway and an anti-Monson curve condition. Moreover, because the denture margin is short, due to posterior osteoporosis, I made an upper-jaw resin denture together with the patient's desire. However, he was not satisfied; therefore, I decided to

produce a magnet implant overdenture with the implant hope from the patient.

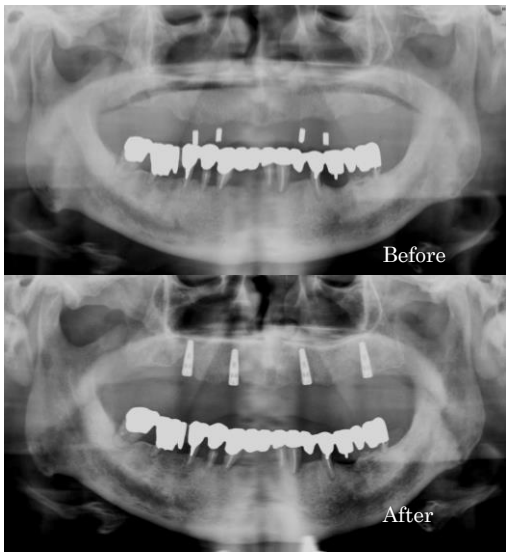


Fig. 2 X-ray photograph before and after implant placement surgery

Shows panoramic X-ray images before and after implant implantation (Fig. 2). Absorption of the maxillary alveolar bone is recognized, but in March 2011 we implanted a 4.3 mm x 13 mm tapered implant at the maxillary bilateral canine tooth and the second molar tooth (17, 13, 23, and 27).

Therapeutic procedures

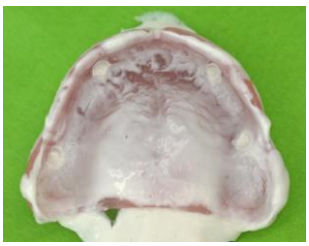
We surgically removed the stent for implantation with reference to the denture made at the first visit and after the first operation second operation, since the outer mucosal symptoms on the buccal side of the second molar teeth on both sides were remarkable. After that observation was done using mucosal conditioning material. For the final denture production, we made a pilot denture, duplicated it and attached the magnet structure to the denture after the metal floor denture was made, and completed it.

Fig. 3 Working cast・Record base with occlusion rim・Wax denture

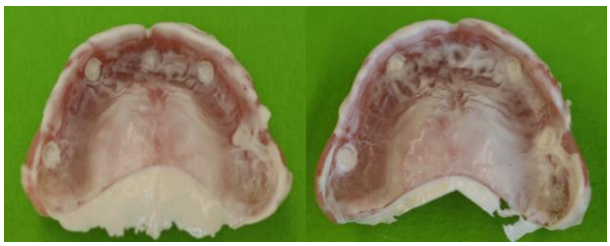
The pilot denture working model, the occlusal floor and the crescent teeth are shown (Fig. 3). The implant was planted in a good position by using the dental prostheses made at the initial visit for examining the implant implantation position.

Fig. 4 Wax denture・bite seating impression・finished denture

A crescent tooth and bite impression and a completed denture are shown (Fig. 4). The fitting of the pilot denture was also good.



Installation of denture



After 5days　　After 15days

Fig.5 Mucosal surface matching state

The temporal course of mucosal surface and the change in conformity state at occlusion are shown (Fig. 5). Compliant condition was improved five days and fifteen days after wearing the denture.

Fig. 6 Impression of the pilot denture

The bite-seating impression using the pilot denture is shown (Fig. 6). The fitting and occlusion of the pilot denture was also good. The bite-seating impression and the pilot denture with instructions on the finishing line and palate denture margin have

been written in.

Fig. 7 Working cast and Wax denture

The working cast and wax denture are shown (Fig. 7). A buccal side core, arrangement of artificial teeth, and finished wax dentures were obtained.

Fig. 8 Finish denture and Put magnetic attachment on the denture

The impression for the finished denture and the magnetic attachment put on the denture are shown. From the thickness of the impression material it can be seen that the fit of the denture is good. On the model after injection of gypsum in the

laboratory, the magnet structure was attached to the denture (Fig. 8).

Fig. 9 After inserting dentures

The patient is shown after putting on the denture (Fig. 9). The fitting and maintaining power of the denture was good, and the patient was also satisfied with the oral sensation by the palatal denture base. Due to the stabilization of the maxillary dental prosthesis, the bridge of the mandible had been worn for about two years and was confirmed to be flushed. After the tooth extraction, it became a complete denture.

Fig. 10 Three years and six months after providing patient with dentures

An intraoral photograph after three years and six months is shown (Fig. 10). The occlusion stabilized by making the lower jaw into a complete denture.

Fig. 11 Four years and three months after providing patient with dentures

Photographs of the inside of the mouth and the dentures after four years and three months are shown (Fig. 11). Although five years have not passed, I was satisfied when the patient visited last month and was satisfied.

Discussion

It is difficult to adjust the pressure amount of the implant part in a well-balanced manner, and in some cases the attachment may not be adsorbed due to repulsion of the mucosal tissue. Gonda et al. Show that a self-adhesive type of attachment is clinically advantageous over other attachments.[1)] The Magfit SX2® which was used this time has a range of motion of 0.4 mm, which is close to the amount of pressure displacement of the mucosa. Furthermore, the denture was made considering its characteristics and impression pressure control. It is thought to be method which makes it easy to balance the displacement amount of implant and mucosa pressure, even for dentist who do not have clinical experience, since the patient has satisfactorily functioned well now, even after four years have passed since its installation.

Conclusion

Furthermore, the denture was made considering its characteristics and impression pressure control. It is thought to be method which makes it easy to balance the displacement amount of implant and mucosa pressure, even for dentist who do not have clinical experience, since the patient has satisfactorily functioned well now, even after four years have passed since its installation.

References

1. Gonda.T , Yang.T , Takahashi.T ,et al. :Functional Properties of Attachments for Implant Overdentures : Comparison among Magnetic Attachments, Anchor and Stud Type Attachments,J.Jpn.soc.Oral Implant,22,15-20,2009