

# Patient Reported Outcome of immediate loaded mandibular 2-implant overdentures retained by magnetic attachments: 3 years follow-up

Y. Uehara<sup>1</sup>, M. Kanazawa<sup>1</sup>, A. Miyayasu<sup>1</sup>, R. Shimada<sup>1</sup>, M. Negoro<sup>1</sup>, D. Sato<sup>2</sup>, S. Minakuchi<sup>1</sup>

<sup>1</sup>Gerodontology and Oral Rehabilitation, Graduate school of Medical and Dental Science, Tokyo Medical and Dental University

<sup>2</sup>Oral Implantology and Regenerative Dental Medicine, Graduate school of Medical and Dental Science, Tokyo Medical and Dental University

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## Abstract

### Objectives

There is much evidence about immediate loading of mandibular implant overdenture. But the long-term prognosis of immediate loading is lacking. This study aimed to evaluate the patient-reported outcomes of immediate and conventional loaded mandibular 2-implant overdentures retained by magnetic attachments.

### Methods

Nineteen patients with edentulous mandibles were enrolled in this study. Patients were randomly divided into the immediate loading group (IL group) and the conventional loading group (CL group). The keepers of the magnet attachments were connected to the implants on the day of implant surgery for IL group, while for CL group, keepers are connected in 3 months. OHRQoL was evaluated by the Japanese version of the Oral Health Impact Profile for edentulous subjects (OHIP-EDENT-J), and 100mm VAS was used to measure satisfaction ratings.

### Results

Patient satisfaction tended to be high in both groups from the early stage of implant placement.

The improvement of OHIP only showed in IL group up to the first 3 months after implant surgery, and in both groups after 6 months.

Three years after implant placement, patient-reported outcomes were suggested to be maintained at high levels in both groups.

## Introduction

In recent years, several studies have reported that immediate loading of 2-IOD with non-splinted attachments is a feasible way of treating mandibular edentulous patients<sup>(1,2)</sup>. However, the evidence of the long-term prognosis of immediate loading compared with conventional loading is lacking.

## Objective

This study aimed to evaluate the patient-reported outcomes of immediate and conventional loaded mandibular 2-implant overdentures retained by magnetic attachments.

## Materials and Methods

- (1) Nineteen patients were randomly divided into the immediate loading group (IL group) and the conventional loading group (CL group) (Figure 1). Before implant surgery, a new mandibular complete denture will be delivered to each patient. Assessments were done after they adapted to the new denture. The result was used as baseline data.
- (2) The keepers of the magnet attachments were connected to the implants on the day of implant surgery for IL group, while for CL group, keepers are connected in 3 months. (Figure 2)
- (3) OHRQoL was evaluated by the Japanese version of the Oral Health Impact Profile for edentulous subjects (OHIP-EDENT-J), and 100mm VAS was used to measure satisfaction ratings.
- (4) The differences were analyzed by using the Wilcoxon signed-rank test in the group, and using Mann-Whitney U test between groups.

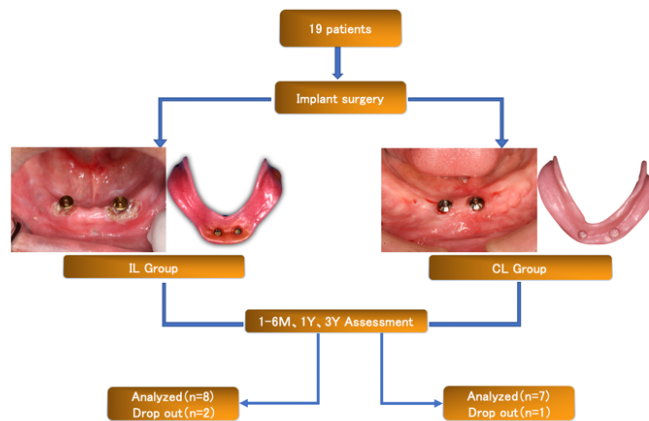


Figure 1

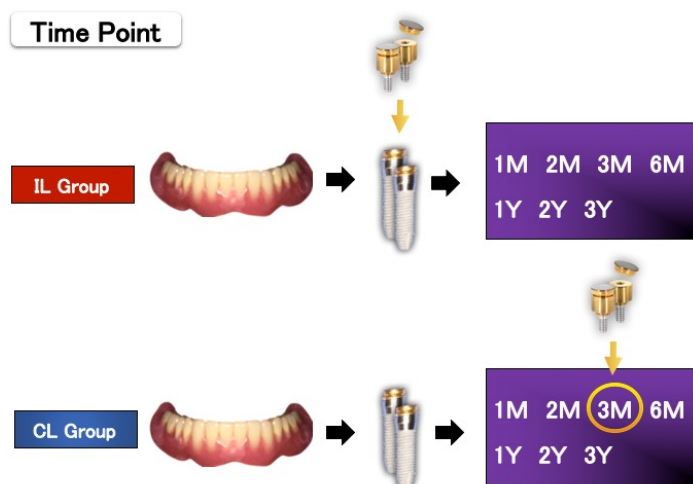


Figure 2

## Results

1. OHRQoL

- There were no significant differences compared to the baseline in 1Y and 3Y assessment within nor between IL group and CL group. (Figure3,4)

-Up to the first 3 months, improvement of OHRQoL was observe only in IL group. Both groups showed lower OHIP scores in 6 months follow up, which means, both groups got higher OHRQoL, and immediate loading led to the improvement at a comparatively earlier period after implant placement. (Figure5)

2. Patient Satisfaction

-There were no significant differences between IL group and CL group compared to the baseline up to 1Y and 3Y. (Figure 6)

-Within IL group, patient satisfaction was significantly increased in 1Y and 3Y after implant placement. Both groups had higher satisfaction compared to baseline and had kept at a high level from the early stage to 3 years. (Figure7,8)

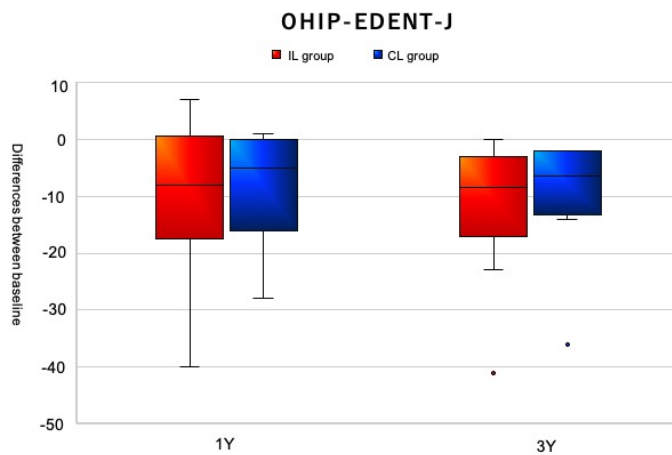


Figure3

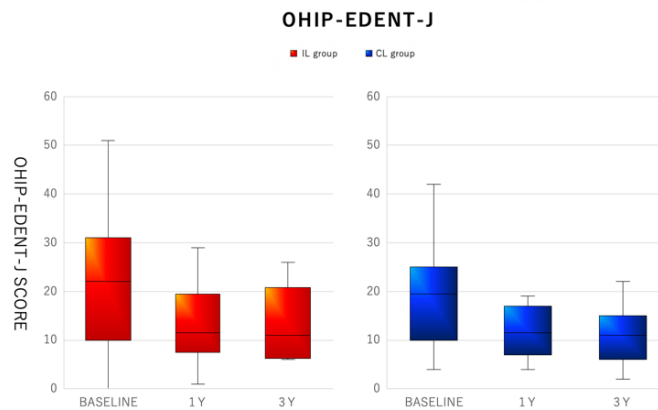


Figure4

\* P < 0.05

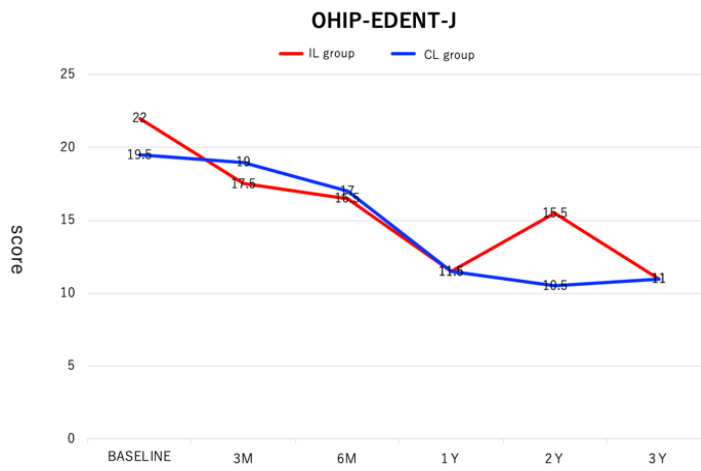


Figure5

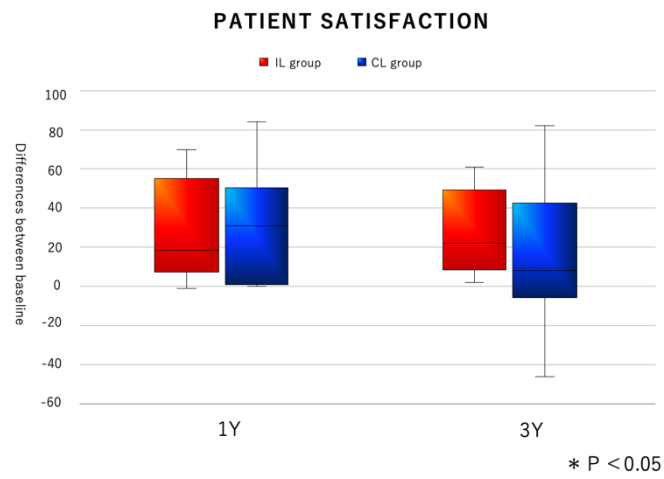


Figure6

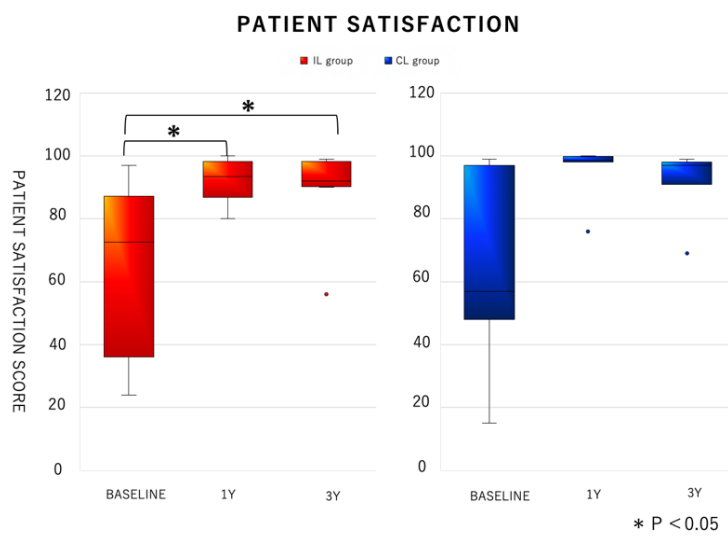


Figure7

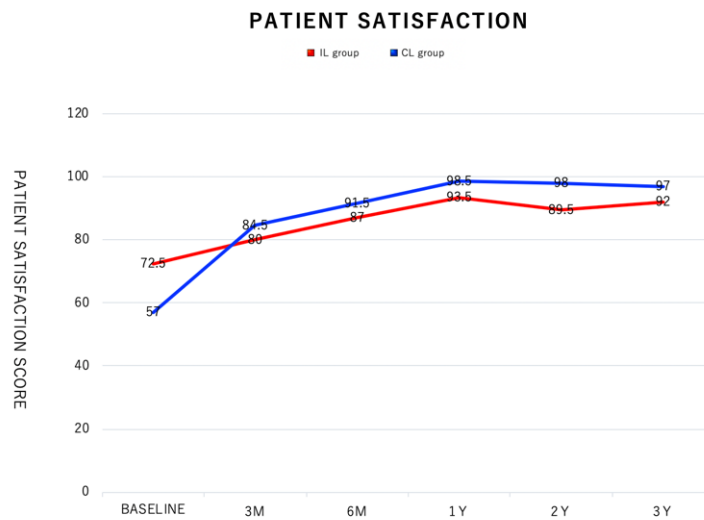


Figure8

## Discussions

1. Why there was no significant differences about OHRQoL within nor between IL group and CL group.
  - OHIP scores were already at a low level at baseline.
  - OHIP only captures negative impacts, which is not good at showing positive changes in patients who had few complains about their dentures.
  - Small sample size is a limitation due to its low statistical power.
2. Why there was no significant differences about patient satisfaction between IL group and CL group?
  - Patient satisfaction is a complex phenomenon which influenced by many factors, not only the oral system.
  - Complains about the upper dentures were heard in this study, which may indirectly affect the satisfaction of the 2-IODs.
  - Small sample size is a limitation due to its low statistical power.

## Conclusions

Immediate loading of mandibular two-implant overdentures with magnetic attachments is a feasible treatment for mandibular edentulous patients. The results indicate that immediate loading may achieve sooner satisfaction improvement compared to conventional loading protocol.

## References

- [1] Marzola R, Scotti R, Fazi G, Schincaglia GP. Immediate loading of two implants supporting a ball attachment-retained mandibular overdenture: A prospective clinical study. *Clin Implant Dent Relat Res* 2007;9(3):136-143.
- [2] Büttel AE, Gratwohl DA, Sendi P, Marinello CP. Immediate loading of two unsplinted mandibular implants in edentulous patients with an implant-retained overdenture: an observational study over two years. *Schweiz Monatsschr Zahnmed* 2012;122(5):392-397.