



# Retrospective study of implant bone loss in department of Oral & Maxillofacial surgery in Kyung Hee university dental hospital: Long-term follow-up study

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## Introduction

Over the last decades, Implant treatment in the edentulous jaw is a routine and well-documented procedure. The prognosis of implant treatment is often reported as survival rate. Several longitudinal studies have reported survival rated of around 90-95% over periods of 5-10 years. This study deals with implants followed from the implant installation to the last control in dept. of OMFS in Kyung Hee university dental hospital. The observation time is over 8 years. The purpose of this study is to report the survival rate of dental implant during 8 years of follow up, focusing on the peri-implant bone loss.

## Patient and Methods

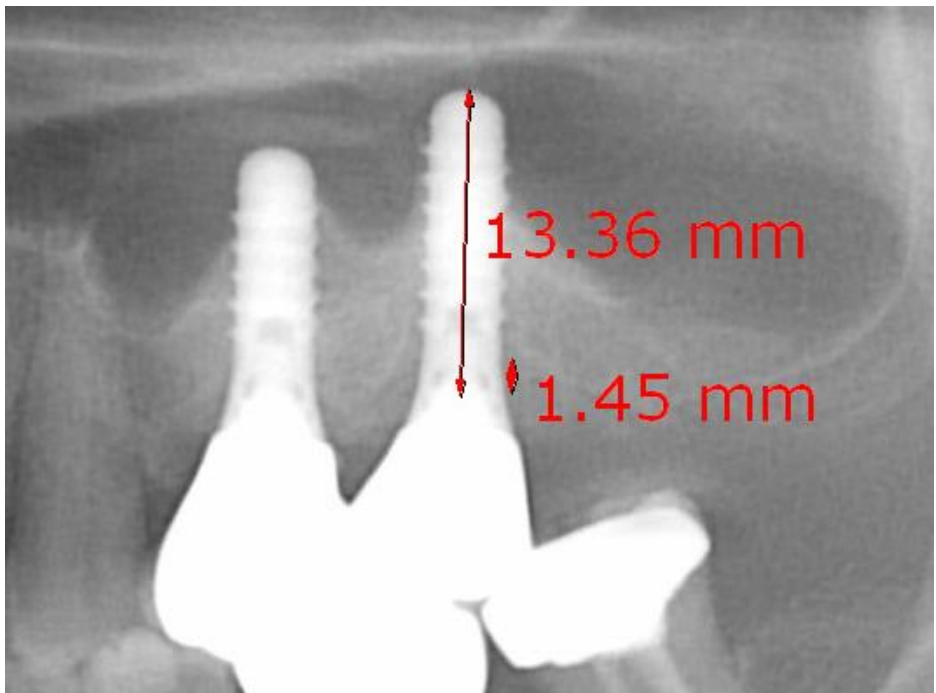
### Patient selection

- A retrospective study was conducted, including all patients treated with dental implant who were examined more than 8 years in the Dept. of OMFS, Kyung Hee University Dental Hospital, from January 2005 to March 2008.
- The samples consisted 99 patients with 285 implant.

### Methods

- Panoramic radiograph of 99 patient were collected immediately after surgery(T1), more than 8 years after surgery(T2).
- P value is calculate by IBM SPSS statistics(Correlation between group1 and group2).
- The bone loss was evaluated with panoramic radiograph compared with T1 and T2( Infinitt PiviewSTAR).

- Panoramic radiograph doesn't represent real size of implant, we used proportional expression to measure marginal bone loss of implant.
- Length on panoramic radiograph: fixture length(A), length of bone loss(B)
- Bone loss:  $(B \times \text{actual fixture length}) / A$



- The following variables were studied in this descriptive and analytic report: age, gender, medical history(Diabetes mellitus), implant manufactures, location(anterior or posterior), type of implant(width, length, marginal level), additional treatment(bone graft). Data were collected from the patient's medical history. 99 patients with 285 implant were included.

## Result

- # of P: number of patients
- # of I: number of implants
- Exp.: explantation
- Max.: maximum value of bone boss

### 1. Gender

	# of P	Average of age	# of I	Exp.	Bone loss	Max.
Male	44	49.94±13.52	145	10(6.8%)	0.69±1.10	4.95
Female	55	48.93±12.36	140	2(1.4%)	0.53±0.75	3.6
Total	99	49.38±12.90	285	12(4.2%)	0.61±0.94	4.95

### 2. Medical History(Diabetes mellitus)

	# of I	Exp.	Bone loss(mm)	Max.
DM	22	2(9.1%)	0.69±1.17	4.71
No DM hx.	263	10(3.8%)	0.60±0.92	4.95

### 3. Position of implant

	# of I	Exp.	Bone loss(mm)	Max.
Anterior	36	3(8.3%)	0.47±0.68	2.5
Posterior	249	9(3.6%)	0.62±0.97	4.95

- Ant.: incisor, canine
- Post.: premolar, molar

### 4. Bone graft

	# of I	Exp.	Bone loss(mm)	Max.
Bone graft	61	2(3.3%)	0.64±0.91	4.95
No bone graft	224	9(4.0%)	0.60±0.95	4.71

- Bone graft: ridge splitting, block bone graft, GBR

### 5. Implant manufacturer

	#	Exp.	Bone loss (mm)	Max.
Strauman	223	9(4.0%)	0.43±0.72	4.35
Nobel Biocare	34	0	1.48±1.38	4.95
Dentsply	16	1(6.2%)	1.02±0.83	2.21
Osstem	8	0	0.98±1.49	4.71
Dentium	4	2(50%)	0.585±0.585	1.17

### 6. Type of implant

	#	Exp.	Bone loss (mm)	Max.	P
Tissue level	223	9(4.0%)	0.43±0.72	4.35	0.00*
Bone level	62	3(4.8%)	1.26±1.29	4.95	
Narrow	31	3(9.6%)	0.33±0.52	1.71	0.99
Standard	229	8(3.4%)	0.65±0.99	4.95	
Wide	25	1(4.0%)	0.54±0.82	2.40	
Narrow: ~3.6mm, Standard: 3.7~4.5mm, Wide: 4.6~mm					
Short	17	0	0.27±0.47	1.65	0.739
Standard	167	7(4.1%)	0.62±0.84	4.71	
Long	101	5(4.9%)	0.65±1.13	2.95	
Short: ~8mm, Standard: 10mm, Long: 12~mm					

## Discussion

The results of the present 8-year follow-up study of patient treated with dental implant demonstrated an implant success rate of 95.8%. The results also indicate a mean marginal bone loss of  $0.61 \pm 0.94$  during the follow-up period. Although the value of bone loss in this study may not correct because of distortion of panoramic radiograph, we can expect reliability of dental implant.

