Long-Term Function of Single-Implant Restorations: A 17- to 19-Year Follow-Up Study on Implant Infraposition Related to the Shape of the Face and Patients' Satisfaction

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ABSTRACT

Background: Various levels of infraposition of single-implant restorations have been observed in long-term follow-up studies, but little knowledge is available on the biological mechanism behind this pattern.

Purpose: The primary aim of this study is to report the frequency and severeness of implant infraposition in the anterior single-implant application after 17 to 19 years in function and, secondly, to try to relate these observations to anatomical appearance of the shape of the face of the patient.

Materials and Methods: The present study comprised of 57 patients who were provided with 65 CeraOne™ single-tooth restorations (Nobel Biocare AB, Gothenburg, Sweden) between 1989 and 1991. Altogether 46 of these patients were treated with single implants in the anterior region. Besides clinical and radiographic data, clinical photographs, study casts, and patient's assessment of the long-term aesthetic result (visual analog scale) was collected at the termination of the present study. The degree of implant crown infraposition was related to assessed facial shape and to patient and clinical assessment of the aesthetic result by means of Pearson's correlation test. To increase the numbers of patients, another group of 25 patients presented in another similar study were pooled with the present material for prevalence calculations.

Results: Altogether 47 patients showed up for the final examination after an average of 18 years (82%). Two implants failed (18 years cumulative survival rates [CSR] – 96.8%) and eight original single-crown restorations were replaced (CSR 83.8%). Three of the replaced crowns were replaced because of infraposition of the crowns. About 40% of the patients showed signs of infraposition, similar in younger and older age groups, but more frequently observed in female patients at termination of the study ($p < 0.05$). There was a weak trend indicating an association between "long-face" appearance and infraposition of the crown restoration ($p > 0.05$), and patients were more satisfied with the aesthetic clinical result than the participating clinicians ($p < 0.05$).

Conclusion: Single-implant restorations in the anterior upper jaw may present small degrees of infraposition in long-term perspectives. Female patients seem to be at a higher risk of infraposition ($p < 0.05$), but no clear relationship between age at implant placement or facial shape and degree of infraposition was possible to establish ($p > 0.05$). Patients were more satisfied with the aesthetic result, as compared with the clinicians ($p < 0.05$), and patients seemed to pay less attention to the degree of infraposition in their aesthetic assessments, as compared with most of the clinicians.

KEY WORDS: aesthetics, complication, facial growth, facial shape, follow-up, infraposition, patient satisfaction, single implants

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INTRODUCTION

Craniofacial growth and subsequent implant infraposition is a well-documented problem today in single-implant patients.[1–17] This problem has not only been observed in young growing children but also in older patients as well.[9,12,16,17] Accordingly, today's studies have to rather focus on identifying risk factors and prevalence of infraposition in different groups of patients than to describe the problem per se.[17]

In a previous study, it was shown that single implants in the anterior maxilla, adjacent to permanent anterior teeth, showed a higher incidence of infraposition in female patients than in male patients after 15 years in function.[17] It was also shown a significant relationship between female patients and more increase of anterior face height in the control group in the same study. This indicates a possible relationship between gender, increase of anterior face height, and risk for implant infraposition.[17] However, the study covered only 28 implant crown restorations in 25 patients, and no analysis was performed on facial appearance of the patients.

The aim of the present study was to further analyze the prevalence of infraposition in a group of long-term follow-up single-implant patients and to try to relate these changes to gender and facial appearance of the patients, as well as to the patient's satisfaction of the final aesthetic result after 17 to 19 years in function.

MATERIALS AND METHODS

The present publication is based on the same patient material, as previously accounted for in the clinical follow-up studies covering patients who are being treated at a specialist clinic (Specialist Clinic of Prosthetic Dentistry, Mölndal Hospital, Public Dental Health Service, Region of Västra Götaland, Sweden) between 1988 and 1991.[18,19] These patients were provided with the first CeraOne™ single-implant crown restorations (Nobel Biocare AB, Gothenburg, Sweden), and are now followed up for 17 to 19 years.[19]

Patients

The patients have been accounted for more in detail in previous publications.[18,19] In brief, the original study group comprised of 57 patients, where 25 patients were female (42%). The mean age at implant placement was 31.9 years (standard deviation [SD] 10.66), and the age ranged from 15 years to 57 years. After 17 to 19 years of follow-up, the mean age of the examined patients was 50.0 years (SD 10.59).

Almost all patients (n = 54) were healthy and without any medication at inclusion (94.7%). Information on the use of tobacco was at inclusion available for 27 patients (47%) of whom 19 patients (70%) reported no use of tobacco at all. At termination, nine patients reported the use of tobacco (18%).

Surgical and Prosthetic Procedures

Altogether 65-turned Brånemark implants (Nobel Biocare AB) were placed according to a standard two-stage surgical procedure between 1988 and 1990.[18–20] Most implants were placed in the maxilla, 51 in the incisor area, one in the canine, and 10 in the premolar areas, respectively. In the mandible, three implants were placed in the premolar areas. Fifty patients were provided with one implant, six patients with two implants, and one patient with three implants each, respectively.[18,19]

Five out of 54 patients (9%) were prior to implant placement treated with orthodontic appliances. Altogether 11 patients (19%) used no temporary restoration before surgery or during the healing period. Out of the remaining 46 patients, 24 patients had different types of retained acid-etch temporary restorations either retained directly to the adjacent teeth ($n = 8$) or by means of a retained acid-etch partial prostheses ($n = 16$). Twelve patients had a removable partial denture and two patients had the temporary restoration attached to the orthodontic appliance. Five patients had both acid etch retained and removable temporary appliances during the treatment period, and information on temporary restorations was missing for three patients.

CeraOne™ abutment cylinders, available in different lengths (1 to 5 mm) were permanently connected at second stage surgery and tightened to the implants at 32 Ncm with a special torque driver (Nobel Biocare AB).[18]

Sixty-two all-ceramic crowns (95%) and three porcelain fused to metal crowns (5%) were cemented with zinc-phosphate cement (De Trey® Zinc cement, Dentsply De Trey GmbH, Konstanz, Germany) onto the CeraOne™ abutments.[18,19]

Follow-Up and Final Registrations

Patients were followed up according to a standardized clinical and radiographic protocol for the first 5 years and then recalled for a final examination on an average

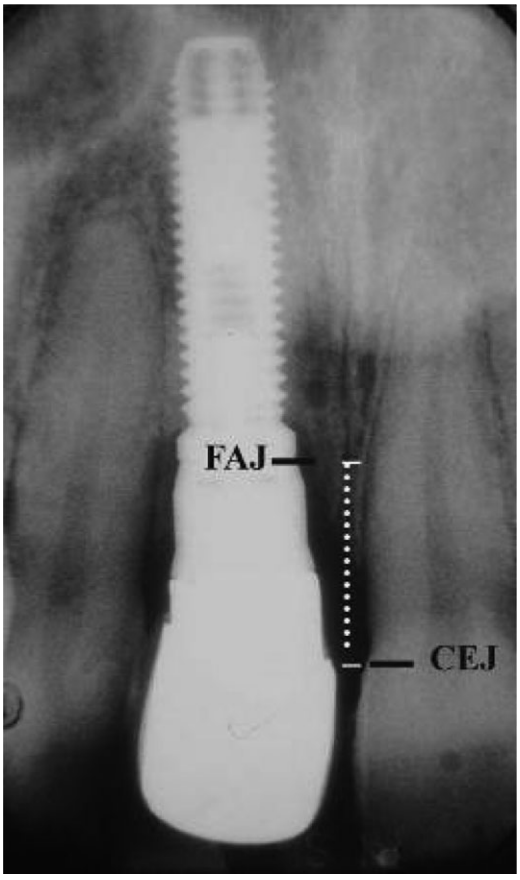

Figure 1 The vertical distance was measured (in mm) between fixture/abutment junction (FAJ) and cement/enamel junction (CEJ) at the adjacent mesial tooth.

of 18.4 years (SD 0.90 years, range 17 to 19 years) after crown placement.[19] The final examination covered a clinical and radiographic protocol, in detail accounted for in the previous studies.[18,19] Vertical distance between the fixture/abutment junction (FAJ) of the single implant in relation to the cement/enamel junction (CEJ) of the adjacent tooth on the mesial side (Figure 1) was also measured at the baseline and at the final examination, as described by Jemt.[21]

Furthermore, intraoral photographs and photographs *en face* and in profile were taken at the termination of the study. Study casts of upper and lower jaws were fabricated, and patients were reporting their satisfaction with the aesthetic results by means of a questionnaire using a visual analog scale (VAS).

Evaluation of Implant Infraposition and Shape of Face

All four participating authors (observers) evaluated independently the degree of implant crown infraposition from the photographs taken on 34 patients provided with single-implant restorations in the aesthetic zone in the upper jaw (canine to canine). One crown restoration was selected by random when two implants or more had been placed in this region. The patients were allocated to four different groups (Table 1) with regard to the degree of infraposition by the four different observers (individual infraposition index), as described by Jemt and colleagues.[17]

In brief, this index related the implant crown restoration to the adjacent teeth where "Score A" indicated no signs of infraposition in relation to the adjacent teeth (Score A; 0 mm), "Score B" indicated small signs of infraposition that clinically was less than half a millimeter (Score B; < 0.5 mm), "Score C" signs of infraposition of a half to 1 mm to the adjacent teeth (Score C; < 1.0 mm), and "Score D" showed a more pronounced infraposition of more than 1 mm (Score D; > 1.0 mm), respectively.

After this, an arrangement was made by the four different observers independently; a consensus discussion was performed within the group for patients

TABLE 1 Distribution of Patients with Regard to Degree of Vertical Infraposition of Single-Implant Crown Restorations and Gender in the Present Study and as Pooled Data with Results from Jemt et al.[17]

Implant Infraposition Index	Number of Patients with Regard to Degree of Infraposition					
	Present Study			Pooled Results with Jemt and Colleagues[17]		
	Female	Male	Total	Female	Male	Total
Score A; 0 mm	3 (21%)	7 (35%)	10 (29%)	3 (15%)	16 (41%)	19 (32%)
Score B; < 0.5 mm	3 (21%)	4 (20%)	7 (21%)	6 (30%)	10 (26%)	16 (27%)
Score C; < 1.0 mm	2 (14%)	3 (15%)	5 (15%)	3 (15%)	5 (13%)	8 (14%)
Score D; >1.0 mm	6 (43%)	6 (30%)	12 (35%)	8 (40%)	8 (21%)	16 (27%)
Total	14 (100%)	20 (100%)	34 (100%)	20 (100%)	39 (100%)	59 (100%)

that had been placed in different groups by different observers. This resulted in a final arrangement of all participating patients with regard to the degree of infraposition of implant restorations (mean infraposition index). The three crown restorations, replaced after 15 to 16 years in function because of infraposition, were retrospectively denoted as Score D (>1 mm infraposition) at the final registration.

Moreover, the shape of the face was judged independently by the four observers from the photographs by allocating the patients to show either a "long-face" (1), a "normal" (2), or a "square-face" (3) appearance, respectively (individual observer facial score index). This was performed by the individual observers' perception on facial appearance without any general discussion prior to the assessments. A mean value was created for each patient based on the four individual scores (mean facial score index).

Patient Evaluation of Aesthetic Result

The patients were asked to complete a questionnaire with one question formulated: "How satisfied are you with the aesthetic appearance of your implant crown restoration?" The answer was given by placing a vertical line along a 100-mm long horizontal line ranging from "not at all satisfied" (left) to "100% satisfied" (right). The distance from the start (left) to the marked line was measured in millimeter (VAS score in mm) and, thereafter, arranged into five different levels, as given in Table 3.

Each of the four participating observers made a corresponding assessment of the individual patients using the same VAS scale. These results are presented as "individual observer satisfaction" results and also presented as "mean observer satisfaction" values of the group, respectively.

Pooled Prevalence Data

Patients treated in the anterior upper jaw and followed up in a similar way have been accounted for in an earlier study.[17] This group is comprised of altogether 25 patients (18 male patients and 7 female patients) provided with altogether 28 single-implant crown restorations in the anterior upper jaw. Moreover, these patients had been allocated into four different groups regarding the degree of infraposition of the implant crowns, as also used here. These patients have been pooled together with the present group to increase the number of long-term observations with regard to prevalence of single-implant infraposition in the upper anterior jaw (see Table 1).

Statistics

Descriptive statistics and conventional life table analysis with regard to cumulative survival rates (CSR) for implants and original crown restorations have been used in the present study. Measurements of agreement between observers were performed by means of the kappa test, where the guidelines for interpreting the strength of agreement (k) were used, as suggested by Altman.[22] Student's *t*-test was used for comparisons between VAS scale measurements; chi-square tests was used for comparisons between genders; and the coefficient of correlation was calculated for relationships between individual and mean facial scores, individual and mean VAS scores, and mean infraposition index, respectively.

Overall statistical significance was set to 5%, and statistical comparisons were only performed on patient level. Statistical tests were used with caution to limit problems with mass significance. Still, several individual statistical tests were performed in the present study (12 tests). In order to avoid false positive statistical results because of mass significance and to maintain an overall 5% level of significance, a correction of the *p* value was performed according to Bonferroni[23] to a nominal level of $p < 0.004$ for the individual test (*p* value; 0.05/12 [tests] = 0.004 for individual tests).

RESULTS

Patients Lost to Follow-Up

Out of 57 original patients included at the start, 47 patients (82%), provided with 52 crown restorations (80%), showed up for final examination after 17 to 19 years. Three patients had moved from the area, and another three patients were not compliant. Out of the remaining four patients, two were deceased and two lost their implants and were recorded as failures.

Implants and Crown Restorations

Overall, an 18-year implant CSR was 96.8%. Altogether two implants were lost during the follow-up, one during the first year, and one after 9 years in function because of fracture.

Overall, an 18-year original crown CSR was 83.8%, where altogether 10 original single crowns were lost

during the follow-up period. Besides the two implant failures, three original crowns were replaced because of infraposition, two because of porcelain fractures, and one because of a too wide cement margin, one because of poorly seated abutment onto the implant head, and one because of a persistent fistula, respectively. The three implant crowns in infraposition were replaced after 15 to 16 years in function, all placed in female patients. Based on the information in the files, these three crowns with obvious infraposition have been allocated to Score D in the following analyses, as presented below.

Implant Crown Infraposition and Facial Shape

Out of the 47 patients followed up at termination of the study, 34 patients presented at least one single-crown restoration (total 37 crowns) in the upper anterior aesthetic zone (canine to canine). Fourteen of these patients were female and 20 were male with a mean age of 31.4 (SD 10.75) years at inclusion (age ranged from 18 years to 56 years) and 49.9 (SD 10.70) years at termination. These 34 patients were followed up on an average of 18.5 (SD 0.90) years. Twenty-nine of the patients were provided with their original crowns, two patients were provided with a new crown, replaced during the first year in function, and three patients had their crowns replaced after more than 15 years in function because of implant crown infraposition. Distribution of these patients related to the degree of implant crown infraposition is presented in Table 1. Altogether 50% of the patients showed only small insignificant infrapositions between the incical edge of the implant crown (<0.5 mm; Figure 2) and the adjacent teeth after 17 to 19 years of follow-up (see Table 1; Score A and B). The most severe signs of infraposition (Figure 3) were observed in altogether 12 patients (see Table 1; Score D).

Distribution of patients with regard to the degree of infraposition and age at crown placement is presented in Figure 4. As noticed, more patients were restored in younger age groups, where also most patients with the most severe infraposition (Score D) were found. However, considering proportions of patients with the most severe signs of infrapositions (Score C and D), also patients in higher age groups were well represented (see Figure 4). Accordingly, in the three youngest age groups (see Figure 4), the proportion of the two most severe situations (Score C and D) ranged between 50% and 60%, while in the three oldest age groups, the corresponding range was 33% to 100% of the patients, respectively (see Figure 4).

Figure 2 *A* and *B*, Male patient restored with a left lateral incisor implant crown restoration. Clinical situation after 18 years in function showed no signs of infraposition (Score A). Patient satisfaction and mean observer satisfaction scores (visual analog scale; mm) at termination were 100 mm and 89 mm, respectively. No. 41.

Regarding the 34 anterior single-implant crowns, radiographs were available for 30 patients to allow a measurement of the vertical distance between the implant head (FAJ) and the CEJ of the adjacent teeth. This distance ranged from 2.0 mm to 10.0 mm, with a mean distance of 6.8 mm (SD 2.16) at inclusion of the study. The corresponding distance ranged from 2.0 mm to 11.0 mm with a mean of 7.1 (SD 2.25) mm at termination. Mean intraindividual difference (baseline to termination) was 0.2 mm (SD 0.31), where 12 implants showed an increase and 18 implants showed an unchanged distance, respectively (Table 2).

Distribution of the 34 patients with regard to assessed mean facial shape index, presenting a "long-face", "normal", or "square-face" appearance is shown in Table 3. Agreement between the four different observers was calculated to be "moderate" according to kappa test ($k = 0.509$). Correlation between distribution of infraposition of implant crowns (see Table 1) and facial

Figure 3 *A* and *B*, Female patient restored with a right central incisor implant crown restoration. Clinical situation after 19 years in function showed signs of obvious infraposition (Score D). Patient satisfaction and mean observer satisfaction scores (visual analog scale; mm) at termination were 90 mm and 50 mm, respectively. No. 14.

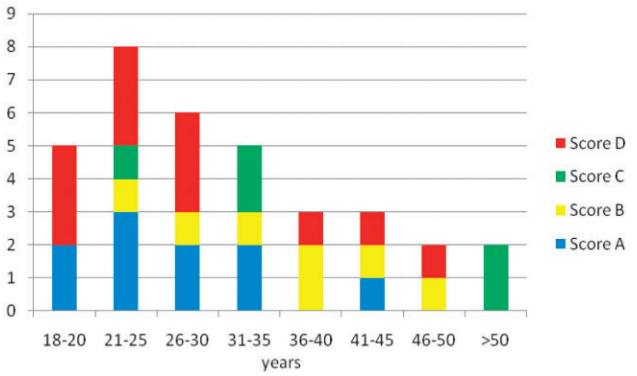

Figure 4 Distribution of number of patients with regard to the degree of infraposition (Score A to Score D) and the age at crown placement (34 patients).

shape index (individual and as mean observer; see Table 3) did not reach significant levels ($p > 0.05$). However, a weak trend of a relationship between the infraposition scores and facial shape appearance could be observed in three out of four observers, indicating possibly a relationship where "long-face" appearance could be related to a higher risk of infraposition (see Table 3).

Pooled Prevalence Data Regarding Infraposition

Pooled data regarding prevalence of implant restoration infraposition is given in Table 1, covering altogether 59 patients followed up for 15 to 19 years in function. Significantly, more male patients ($p < 0.05$) presented a stable situation during the follow-up period (see Table 1; Score A). Small, clinically insignificant signs of implant restoration infraposition were found in 59% of the entire group (see Table 1; Scores A and B), while 27% showed some obvious signs of infraposition (see Table 1; Score D), more often observed in female patients (see Table 1).

Patient Satisfaction

Distribution of observers and patient aesthetic satisfaction index is presented in Table 4. On an average, patient satisfaction was 91.2 (SD 16.65) mm compared with mean observer satisfaction of 56.9 (SD 20.08) mm, respectively. Agreement between the four different observers was calculated to be "fair" (k = 0.390), and agreement between mean observer scores and patients response was found to be "poor" (k = 0.194). Patients showed a significantly higher satisfaction with the aesthetic situation at termination (see Figure 3), as compared with the average assessment of the observer

TABLE 2 Distribution of Patients with Regard to Facial Shape Index and Changed Distance between FAJ and CEJ during Follow-Up

Change of Distance FAJ–CEJ in mm	Distribution of Patients* with Regard to Facial Shape Index		
	1 – "Long Face"	2 – "Normal"	3 – "Square Face"
0 mm	3	8	7
0.5 mm	4	5	2
1.0 mm			2

*Four patients missing.
FAJ = fixture/abutment junction; CEJ = cement/enamel junction.

TABLE 3 Distribution of Patients Provided with Single-Implant Restorations in the Anterior Upper Jaw with Regard to Facial Shape Index for Individual Observers as Well as a Mean for All Observers

	Facial Shape Index				
	Individual Observer				
	No. 1	No. 2	No. 3	No. 4	Mean Observer
	Distribution of Individual Patients				
"Long face" (1)	12	11	16	9	8
"Normal" (2)	14	13	7	11	15
"Square face" (3)	8	10	11	14	11
Facial shape index related to infraposition index					
Coefficient of correlation	0.075	−0.003	−0.045	−0.207	−0.052

($p < 0.05$). Correlation between observer aesthetic satisfaction index and infraposition scores and patient satisfaction index and infraposition scores showed negative values, possibly indicating that more pronounced infraposition resulted into lower levels of aesthetic satisfaction (see Table 4). However, none of these correlation tests reached significant levels ($p > 0.05$) after correction for mass significance according to Bonferroni[23] (see Table 4). It can also be noticed that shorter clinical experience of single-implant treatment was among observers consistently related to successively increase of negative values of the correlation coefficient (see Table 4).

DISCUSSION

The aim of the present study was to provide more data on prevalence and risks for implant infraposition after long-term follow-up situations, and to test the possible relationship between implant infraposition and facial shape and gender. This relationship was based on the assumption that patients with slow continuous posterior rotation of the mandible, combined with slow increase of anterior face height, would present a more "long-face" appearance in combination with more infraposition of single-implant restorations in relation to adjacent anterior teeth in the upper jaw. Regarding prevalence and risk factors, the present study further support the observation that implants by time may be found in infrapositions, and that female patients seems to present a higher risk than male patients for this potential problem.[9,15–17] Reliable long-term clinical data covering more than 15 years are difficult to find, but comparing and pooling data from similar studies[17]

TABLE 4 Aesthetic VAS Score Assessments for Observers and Patients Measured in mm

		Aesthetic Satisfaction VAS Assessment					
		Individual Observer					
		No. 1	No. 2	No. 3	No. 4	Mean Observer	Patients
Patients	Mean	3.4	3.1	3.2	3.4	3.3*	4.6*
	SD	1.31	1.41	1.39	0.96	1.04	0.85
VAS score	mm	Distribution of individual scores					
1 – not satisfied	0–20	4	7	4	1	1	1
2 – partly satisfied	21–40	4	5	8	4	7	0
3 – acceptably satisfied	41–60	8	7	7	12	10	2
4 – satisfied	61–80	10	9	6	13	12	5
5 – completely satisfied	81–100	8	6	9	4	4	26
Aesthetic satisfaction index correlated to infraposition index							
Coefficient of correlation		−0.402	−0.291	−0.266	−0.110	−0.282	−0.162

*Significantly different ($p < 0.05$).
VAS = visual analog scale; SD = standard deviation.

seems to further strengthen the trend that male patients show a more stable situation than female patients; female patients being in a higher degree represented in the group of most pronounced infraposition. This observation is further supported by the aforementioned reports on the more pronounced increase of anterior face height and posterior rotation of the mandible in the female patient.[17]

When it comes to the hypothesis regarding facial shape, it is much more difficult to show in the present study that infraposition may be related to the shape of the face, as suggested in an earlier publication.[17] To test this hypothesis, it is important to have a reliable and accurate baseline and a good index for determining the shape of the face. Cephalographic radiographs and profile and *en face* photographs at the inclusion of the study would have been the optimal baseline information for testing this hypothesis. However, such data was not available in the present retrospective study; instead the present observers had to rely on individual perception of how facial appearance should be for the different faces, assessed from photographs taken at termination of the study. Agreement between the observers was calculated to be "fair,"[22] indicating a potential improvement if a more stringent definition had been made before the assessments had been performed. Accordingly, the hypothesis regarding a relationship between facial shape and degree of infraposition was difficult to establish in the present study, but predominantly negative values of the coefficient of regression for most observers still indicate a possible trend towards the suggested direction (see Table 3).

Regarding the age at implant placement, Ödman[5] reported a high risk for implant infraposition when implants were placed in some young age groups before the patients reach their growth maxima. However, in the present study, all patients had completed their body growth but still obvious signs of infraposition were observed in some patients. Reports on the relationship between age and risk for infraposition of implants have been contradictory in the literature. Accordingly, Op Heij and colleagues[11] reported a relationship between age and infraposition, while Bernard and colleagues[15] reported that basically all young as well as older patients presented some degree of infraposition at follow-up. The present study indicates that some patients present a stable situation while others have signs of infraposition, and where the present study has tried to establish individual characteristics as facial shape to this pattern. Even though the present study fail to establish a clear relationship between selected parameters and risk for infraposition, it still supports the observation, as reported by others, that the risk for infraposition is not completely age dependant (Figure 4) and could be observed also in higher age groups.[9,12,16,17]

In clinical situations, the observed degree of infraposition is small, showing in most situations the differences between teeth and implant restorations to be less than 1 mm (see Table 1). This means that if it is being considered and indicated, implant crown restorations could easily be replaced with a good aesthetic prognosis. Furthermore, it also indicates that it would be difficult to observe these changes in positions between implants and adjacent teeth in standard radiographs because of the lack in precision and accuracy of radiographic measurements.[19,24] A more accurate, digital technique must apparently be used to allow more accurate measurements in this area.[15] Accordingly, the present measurements between the implant head and the CEJ of the adjacent teeth (see Figure 1) did not indicate any clear relationships to either the degree of infraposition or the facial shape (see Table 2), and more accurate techniques are probably necessary to establish such relationships.

Patients expressed a higher satisfaction of the aesthetic treatment result, as compared with the clinical observers (see Figure 3 and Table 4, $p < 0.05$). This is in accordance with Chang and colleagues,[25] also reporting higher degrees of aesthetic satisfaction from patients than from dentists. Accordingly, not only the agreement between patients and dentists was "poor" according to kappa test but also the agreement between the different observers was weak. The kappa test indicated only "fair" agreement between the observers, which was weaker than the observed agreement between the observers regarding facial-shape assessment. Chang and colleagues reported that "surrounding soft-tissue appearance" and "form of the crown" influenced most on the dentists' assessment of the aesthetic appearance.[25] In the present study, it was observed that there was an increase in the strength of the correlation index between aesthetic satisfaction and degree of implant crown infraposition with less clinical experience of single-implant treatment (see Table 4). This indicates that clinicians with longer clinical experience pay less aesthetic attention to implant infraposition in accordance with the lower importance

also paid by the patients (see Table 4). Because there seems to be a great variation in the aesthetic VAS assessment, using a more detailed and objective criteria should be considered, as suggested by others.[26–28]

CONCLUSION

Within the limitations of the present study, it can be concluded that patients restored with single-implant restorations in the anterior upper jaw may present implant infraposition after 15 to 20 years of follow-up. The majority of these patients will show only small degrees of infraposition of less than 1 mm, where female patients seems to be a majority, also showing the highest risk for the greatest levels of infraposition. Furthermore, despite of a weak trend, it was not possible to show a clear relationship between the infraposition and shape of the face. Patients were more satisfied with the aesthetic result at termination of the study, as compared with the clinicians, and patients seemed to pay less attention to the degree of infraposition in their aesthetic assessments, as compared with most of the clinicians.

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