



IMMEDIATE FUNCTION WITH NOBEL PERFECT™ IMPLANTS:

A RETROSPECTIVE STUDY OF 21 IMPLANTS PLACED IN THE LAST 20 MONTHS

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INTRODUCTION AND PURPOSE STATEMENT

THE AIM OF THIS RETROSPECTIVE STUDY IS TO EVALUATE THE CLINICAL, RADIOGRAPHIC AND ESTHETIC OUTCOME OF THE NEW SCALLOPED IMPLANT DESIGN IN CASE OF IMMEDIATE FUNCTION.

MATERIALS AND METHODS

21 NOBEL PERFECT™ IMPLANTS HAVE BEEN PLACED IN THE LAST 20 MONTHS TO BE RESTORED WITH AN IMMEDIATE TEMPORARY RESTORATION. 18 IMPLANTS HAVE BEEN PLACED IN THE REGION OF THE PREMOLARS, CANINES AND INCISORS OF THE MAXILLA, 3 IN THE REGION OF THE INCISORS OF THE MANDIBLE. 11 IMPLANTS WERE PLACED IN FEMALES, 10 IN MALES. THREE IMPLANTS HAVE BEEN PLACED IN SMOKERS WITH 10 TO 20 CIGARETTES PER DAY. SIX TEETH IN THE IMPLANT REGIONS HAVE BEEN REMOVED BECAUSE OF ENDODONTIC FAILURES, THREE TEETH BECAUSE OF VERTICAL LONG-AXIS ROOT FRACTURES, FOUR TEETH BECAUSE OF A TRAUMATA, FOUR TEETH BECAUSE OF PERIODONTAL PROBLEMS, THREE TEETH BECAUSE OF EXTERNAL ROOT RESORPTIONS AND ONE WAS MISSING BECAUSE OF CONGENITAL APLASIA.

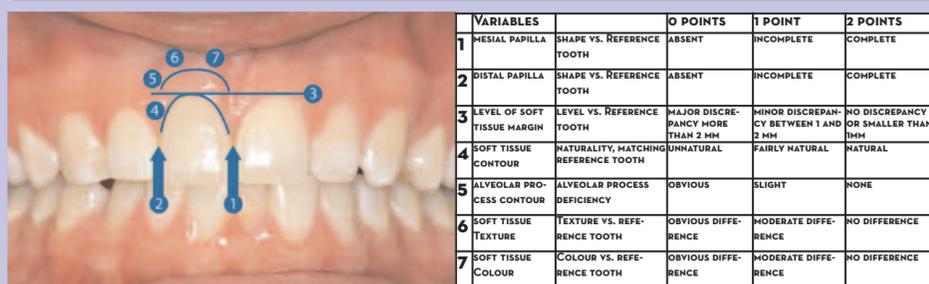
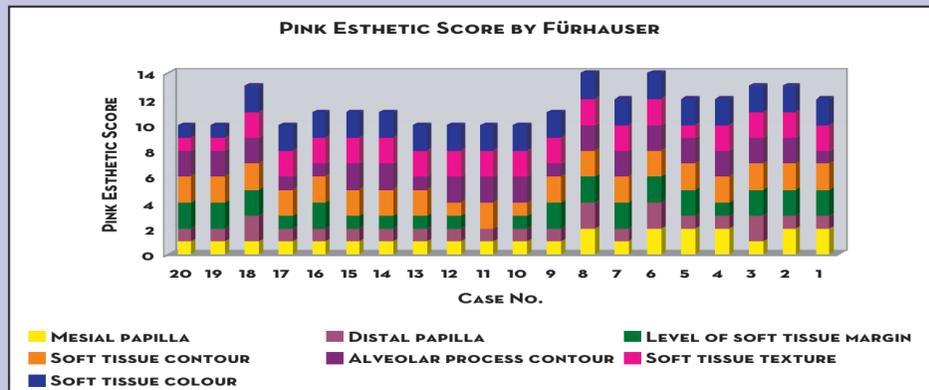


FIG. 3: PINK ESTHETIC SCORE BY FÜRHAUSER AND ITS CRITERIA.



THE IMPLANTS HAVE BEEN INSERTED IN THE TIME FROM OCTOBER 2003 UNTIL MARCH 2005.

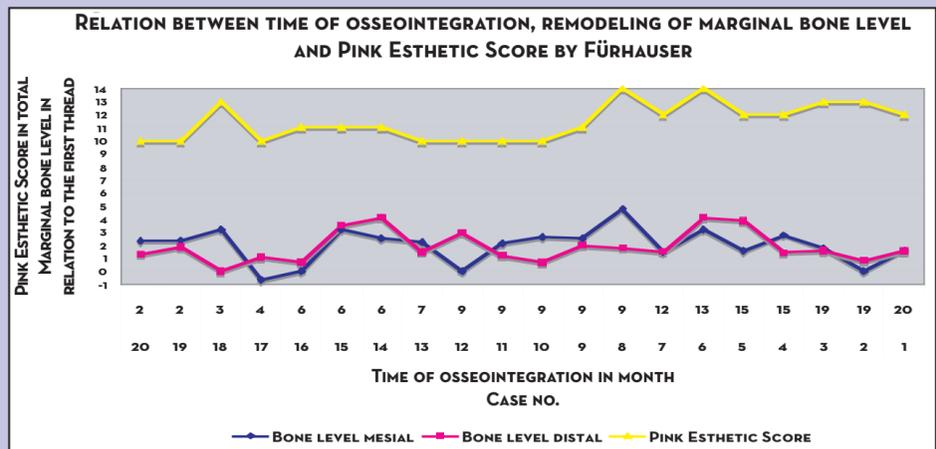
ALL SUCCESSFUL NOBEL PERFECT™ IMPLANTS WERE EVALUATED BY AN INDEPENDENT EXPERT ESPECIALLY REGARDING THE CLINICAL, RADIOGRAPHIC AND ESTHETIC OUTCOMES. THE ESTHETIC OUTCOME WAS EVALUATED BY THE PINK ESTHETIC SCORE BY FÜRHAUSER REGARDING THE FORMATION OF THE MESIAL AND DISTAL PAPILLA, THE LEVEL AND SYMMETRY OF THE SOFT TISSUE MARGIN, THE CONTOUR OF SOFT TISSUE AND ALVEOLAR PROCESS AND THE TEXTURE AND COLOUR OF THE SOFT TISSUE.

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RESULTS

FIFTEEN IMPLANTS HAVE BEEN PLACED IMMEDIATELY INTO FRESH EXTRACTION SOCKETS, THREE IMPLANTS IN HEALED SITES AND THREE AFTER RECONSTRUCTION OF LARGE DEFICIENCIES OF THE ALVEOLAR CREST. THREE IMPLANTS WERE PLACED SIMULTANEOUSLY TO AN INTERNAL SINUS ELEVATION PROCEDURE, FOUR IMPLANT SITES WERE AUGMENTED BY SUBEPITHELIAL CONNECTIVE TISSUE GRAFTS AND TWO SITES BY GUIDED BONE REGENERATION WITH A RESORBABLE MEMBRANE SIMULTANEOUSLY. THE FACIAL BONY LAMELLA WAS DEFECT IN FOUR SITES. THE LENGTH OF 19 IMPLANTS WAS 16 MM AND OF 2 IMPLANTS 13 MM, THE DIAMETER OF 9 IMPLANTS WAS 3.5 MM, OF 9 IMPLANTS 4.3 MM AND OF 2 IMPLANTS 5 MM. THE IMMEDIATE TEMPORARY RESTORATION HAS BEEN CEMENTED DIRECTLY ON TOP OF TITANIUM ABUTMENTS. POSTOPERATIVELY, 17 IMPLANTS AND THEIR TEMPORARY RESTORATIONS HAVE BEEN SPLINTED TO NEIGHBORING TEETH, TWO ADJACENT IMPLANTS JUST TO EACH OTHER AND TWO IMPLANTS WERE LEFT UNSPLINTED. IN A POSTOPERATIVE PERIOD OF 2 TO 20 MONTHS, ONE IMPLANT FAILED AFTER 5 WEEKS. THE PINK ESTHETIC SCORE BY FÜRHAUSER OF 20 SUCCESSFUL NOBEL PERFECT™ IMPLANTS SHOWS HIGH ESTHETIC VALUES BETWEEN 10 AND 14. THE PROBING DEPTHS OF THE INTERPROXIMAL SITES RANGE FROM 2 TO 5 MM, OF THE ORAL AND FACIAL SITES FROM 1 TO 5 MM. THE WIDTH OF THE FACIAL ATTACHED GINGIVA WAS BETWEEN 1 AND 7 MM. IN MOST CASES THE INTERPROXIMAL BONE LEVEL WAS OBVIOUSLY 1 TO 4 MM ABOVE THE FIRST THREAD. JUST THREE IMPLANTS SHOWED BONE REMODELING NEAR TO THE FIRST THREAD, ONE IMPLANT SHOWED REMODELING SLIGHTLY UNDERNEATH THE FIRST THREAD.



DISCUSSION

THE PINK ESTHETIC SCORE BY FÜRHAUSER IS A HELPFUL TOOL TO EVALUATE THE ESTHETIC OUTCOME OF IMPLANTS IN THE ANTERIOR REGION (FÜRHAUSER, ACCEPTED FOR PUBLICATION). THE SCALLOPED IMPLANT DESIGN SHOWS PROMISING INTERPROXIMAL BONE LEVELS ATTACHED TO THE TiUNITE™ SURFACE AND ALLOWS HIGH ESTHETIC RESULTS (WOEHRLE, 2003). THERE IS NO SIGNIFICANT RELATION BETWEEN TIME AND PES OR INTERPROXIMAL BONE LEVEL AND PES VISIBLE (ROCCI ET GOTTLAW, 2004).

CONCLUSION

NOBEL PERFECT™ IMPLANTS WITH IMMEDIATE TEMPORARY RESTORATIONS ARE A RELIABLE ALTERNATIVE FOR THE REPLACEMENT OF TEETH IN THE ANTERIOR REGION WITH PROMISING ESTHETIC PROPERTIES. FUTURE INVESTIGATIONS ARE NECESSARY TO PROVE THE LONG-TERM STABILITY OF THE PERI-IMPLANT HARD AND SOFT TISSUES.

LITERATURE

FÜRHAUSER R, FLORESCU D, BENESCH T, HAAS R, MAILATH G, WATZKE G. EVALUATION OF SOFT TISSUE AROUND SINGLE-TOOTH IMPLANT CROWNS - THE PINK ESTHETIC SCORE. CLIN ORAL IMPLANTS RES - ACCEPTED FOR PUBLICATION.
 ROCCI A, GOTTLAW J. ESTHETIC OUTCOME OF IMMEDIATELY LOADED SCALLOPED IMPLANTS PLACED IN EXTRACTION SITES USING FLAPLESS SURGERY. A 6 MONTH REPORT OF 4 CASES. APPL OSSEO RES 2004; 4: 55-62
 WOEHRLE PS. NOBEL PERFECT™ ESTHETIC SCALLOPED IMPLANT: RATIONALE FOR A NEW DESIGN. CLIN IMPLANT DENT RELAT RES 2003; 5 (SUPPL 1): 64-73

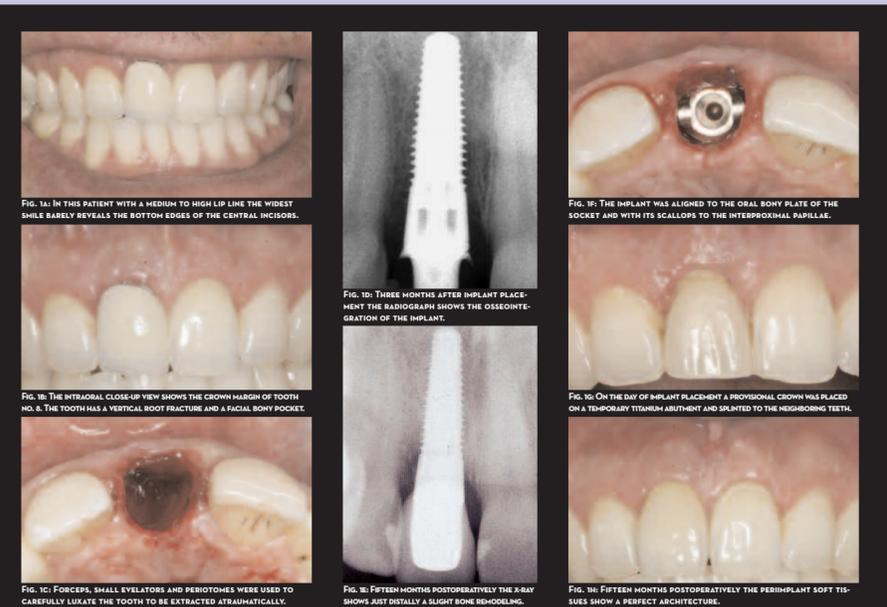


FIG. 1: CASE NO. 6 - TOOTH NO. 8 - VERTICAL ROOT FRACTURE - DEFECT FACIAL BONY LAMELLA - IMMEDIATE IMPLANT PLACEMENT - DEFECT AUGMENTATION WITH AUTOGENOUS BONE CHIPS FROM THE RAMUS - IMMEDIATE PROVISIONALIZATION - SPLINTING - FINAL RESTORATION AT 4 MONTHS - SLIGHT REMODELING - PINK ESTHETIC SCORE IN TOTAL 14.
 FIG. 2: CASE NO. 14 AND 15 - TEETH NO. 8 AND 9 - ENDODONTIC FAILURE - FACIAL BONY LAMELLAE INTACT - IMMEDIATE IMPLANT PLACEMENT - IMMEDIATE PROVISIONALIZATION - SPLINTING - FINAL RESTORATION AT 6 MONTHS - HIGH BONE LEVEL - INTERIMPLANT BONY PEAK - PINK ESTHETIC SCORE IN TOTAL 11 EACH.
 FIG. 3: THE PANORAMIC X-RAY ILLUSTRATES THE PRECISE ANGLE AND SPACING OF THE IMPLANTS AND THE OPTIMAL USE OF THE VERTICAL BONY HEIGHT.
 FIG. 4: THE SCALLOPED IMPLANT PRESERVES THE NATURAL CONTOURS OF THE PERI-IMPLANT SOFT TISSUES.
 FIG. 5: 6 MONTHS POST-OP THE FINAL DFM CROWNS HAVE BEEN DELIVERED. PAPILLAE ARE FILLING THE INTERPROXIMAL SPACES.
 FIG. 6: THE UPPER CENTRAL INCISORS WERE HORIZONTALLY FRACTURED AND HOPELESS. THEIR ROOT CANAL TREATMENT HAD FAILED BEFORE.
 FIG. 7: THE TEETH WERE REMOVED ATRAUMATICALLY BY FORCEPS AND PERIOTOMES. THE FACIAL BONY LAMELLAE AND THE INTERPROXIMAL TISSUES WERE PRESERVED.
 FIG. 8: THE NOBEL PERFECT™ IMPLANTS WERE IMMEDIATELY PLACED INTO THE SOCKETS. THE SCALLOPS WERE ALIGNED TO THE DENTAL ARCH.
 FIG. 9: THE IMPLANT WAS ALIGNED TO THE ORAL BONY PLATE OF THE SOCKET AND WITH ITS SCALLOPS TO THE INTERPROXIMAL PAPILLAE.
 FIG. 10: THREE MONTHS AFTER IMPLANT PLACEMENT THE RADIOGRAPH SHOWS THE OSSEOINTEGRATION OF THE IMPLANT.
 FIG. 11: FIFTEEN MONTHS POSTOPERATIVELY THE X-RAY SHOWS JUST DISTALLY A SLIGHT BONE REMODELING.
 FIG. 12: ON THE DAY OF IMPLANT PLACEMENT A PROVISIONAL CROWN WAS PLACED ON A TEMPORARY TITANIUM ABUTMENT AND SPLINTED TO THE NEIGHBORING TEETH.
 FIG. 13: FIFTEEN MONTHS POSTOPERATIVELY THE PERI-IMPLANT SOFT TISSUES SHOW A PERFECT ARCHITECTURE.
 FIG. 14: FOLLOWING A COMPLEX TRAUMATA OF THE INCISORS TEETH NO. 6 AND 7 SHOWED CROWN AND ROOT FRACTURES.
 FIG. 15: AT THE DAY OF IMPLANT INSERTION TEMPORARY SPLINTED CROWNS WERE CEMENTED ON TITANIUM ABUTMENTS.
 FIG. 16: THE FRACTURED ROOTS WERE CAREFULLY REMOVED BY PERIOTOMES IN ORDER TO PRESERVE THE INTERPROXIMAL SOFT TISSUES.
 FIG. 17: AT 3 MONTHS THE PERI-IMPLANT AND INTERPROXIMAL SOFT TISSUES ARE PRESERVED IN NATURAL CONTOURS.
 FIG. 18: THE SCALLOPED IMPLANTS WERE PLACED INTO THE EXTRACTION SITES AND ALIGNED TO THE DENTAL ARCH. THE INTERPROXIMAL SPACE IS JUST 1.5 MM.
 FIG. 19: THE RADIOGRAPH AT 3 MONTHS SHOWS SLIGHT BONE REMODELING AT THE MESIAL SITE OF IMPLANT IN REGION NO. 6.
 FIG. 20: AT 3 MONTHS THE INTERPROXIMAL PAPILLA SHOWS SLIGHT RETRACTING WHILE THE PERI-IMPLANT SOFT TISSUE CONTOUR IS STILL VERY NICELY.
 FIG. 21: CASE NO. 3 AND 3 - TEETH NO. 6 AND 7 - SHOKER - TRAUMATIC VERTICAL AND HORIZONTAL ROOT FRACTURES - FACIAL BONY LAMELLAE INTACT - IMMEDIATE IMPLANT PLACEMENT - IMMEDIATE PROVISIONALIZATION - SPLINTING - FINAL RESTORATION AT 3 MONTHS - SLIGHT REMODELING INTERPROXIMAL - PINK ESTHETIC SCORE IN TOTAL 13 EACH.
 FIG. 22: CASE NO. 5 - TOOTH NO. 9 - ENDODONTIC FAILURE - FACIAL BONY LAMELLA DEFECT - AUGMENTATION WITH AUTOGENOUS BONE CHIPS AND TITANIUM MESH - MESH REMOVAL AND IMMEDIATE IMPLANT PLACEMENT - IMMEDIATE PROVISIONALIZATION - SPLINTING - FINAL RESTORATION AT 6 MONTHS - HIGH BONE LEVEL - PINK ESTHETIC SCORE IN TOTAL 13.



FIG. 22: THE RADIOGRAPH AT 6 MONTHS SHOWS THE PRESERVATION OF THE INTERPROXIMAL BONY PEAK.
 FIG. 23: THE RADIOGRAPH AT 18 MONTHS SHOWS SLIGHT REMODELING AT THE MESIAL SITE.
 FIG. 24: HOMOGENOUS SOFT TISSUE CONTOUR AROUND THE FINAL DFM CROWN 15 MONTHS AFTER IMPLANT PLACEMENT.
 FIG. 25: THE RADIOGRAPH AT 3 MONTHS SHOWS SLIGHT BONE REMODELING AT THE MESIAL SITE OF IMPLANT IN REGION NO. 6.
 FIG. 26: THE RADIOGRAPH AT 20 MONTHS SHOWS BONE REMODELING NEAR TO THE FIRST THREAD AT THE DISTAL IMPLANT.
 FIG. 27: THE RADIOGRAPH AT 30 MONTHS SHOWS BONE REMODELING NEAR TO THE FIRST THREAD AT THE DISTAL IMPLANT.
 FIG. 28: THE RADIOGRAPH AT 3 MONTHS SHOWS SLIGHT BONE REMODELING AT THE MESIAL SITE OF IMPLANT IN REGION NO. 6.
 FIG. 29: THE RADIOGRAPH AT 20 MONTHS SHOWS BONE REMODELING NEAR TO THE FIRST THREAD AT THE DISTAL IMPLANT.
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