Poster # 158

Vestibuloplasty as a treatment option in cases of periimplant mucositis and periimplantitis: a report of 9 cases

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ABSTRACT

Objectives: The aim of this case series of 9 cases, presenting a total of 13 implants was to evaluate the effectiveness of a modified, minimally invasive vestibuloplasty technique to reestablish stable soft tissue conditions around ailing dental implants exhibiting compromised soft tissue conditions.

Methods: All treated patients exhibited moderate periimplant bone loss, increased probing depths, bleeding on probing and lack of buccal attached periimplant mucosa. Mechanical debridement and chemical disinfection of periimplant pockets were performed as conservative treatment prior to surgery. After 1 month healing time, a modified, minimally invasive vestibuloplasty procedure was used to deepen the vestibular fold, and to reestablish previously lost attached mucosa around ailing dental implants. Following local anesthesia, a paramarginal, inverse bevelled incision was placed 2-3 mm from the mucosal margin. A split thickness flap was elevated, and fixed with continuous resorbable sutures (Coated Vicryl 6/0, Etichon, East Brunswick NJ, USA) to the underlying periosteal layer, 3-6 mm apically from the incision line. The uncovered periosteum was left to heal by secondary epithelialization. Periodontal dressing was applied for 7 days; sutures were removed after 14 days.

Results: 3-5 mm gain of non-inflammatory attached mucosa was observed at the buccal aspect of treated dental implants. Bleeding on probing and probing depths were reduced at each implant. Reestablished mucogingival conditions were more consecutive for oral hygiene, and helped to prevent from bacterial irritation resulting from masticatory movements.

Conclusions: The presented minimally invasive, secondary epithelialization based vestibuloplasty technique may improve soft tissue conditions around ailing dental implants. Reestablished attached mucosa, and vestibular fold may result in improved periimplant tissue health. The presented surgical approach may also serve for creating more appropriate soft tissue conditions for further periimplant hard tissue reconstructions.

Keywords: Periimplantitis and Vestibuloplasty

INTRODUCTION

There is conflicting data in the literature concerning the need for adequate keratinized tissue around endosseous implants[1-3]. But during the examination of periimplant mucositis and periimplantitis cases, we can observe that unfavorable soft tissue conditions around ailing implants often aggravate the symptoms. Shallow vestibular fold cannot support the patients proper oral care maintenance, and moveable mucosa at implant sites cannot save the gingival closure of the endosseous implants from the bacterial irritation as a result of masticatory movements of the oral mucosa[4]. Several techniques are described in the dental literature to deepening of the vestibule.[5] Most frequently used vestibuloplasty methods with free grafts or pedicle flaps, have the disadvantage of increased morbidity, postoperative pain and risk of complications at the donor site. Implant patients, who had undergone hard tissue augmentation, implantation and prosthetic procedures, would not like to have more complicating, invasive and painful operation. They could be motivated with a reduced time operation with minimal risk of postoperative pain. In our case series we used a modified, minimally invasive, secondary epithelialization vestibuloplasty technique. Secondary epithelialization techniques were concluded to be less effective in the dental literature, in cases of total edentoulism, to improve the stability of dentures, because of the wound contraction[6], but in cases of implants they seems to provide enough attached mucosa, that can improve periimplant soft tissue health.

MATERIAL AND METHODS

Nine patients were treated at the Department of Periodontology at Semmelweis University of Budapest, and at a private practice in Budapest (Parodont Private Practice). Patients exhibited moderate periimplant bone loss around osseointegrated dental implants.*(Fig.1)* All implants had been inserted more than 10 years ago. Most of the patients did not have any documentation about the type of implants the clinicians had used, and the exact date of implantation. All patients presented increased probing depths, BOP, lack of attached periimplant mucosa.*(Fig.2)*

Prior to surgery, mechanical debridement with plastic curettes (Light Curette for Implants, Straumann, Basel, CH), chemical disinfection of periimplant pockets (Corsodyl Dental Gel, GSK, Brentford UK) were performed and oral hygiene instructions were given to patients. After 3 months healing time, a modified vestibuloplasty procedure was used[7]. Following local anesthesia, an apically oriented paramarginal beveled incision was placed 3 mm from the mucosal margin at the implant sites and at the neighboring dentition. A split thickness flap was elevated up to 5-8 mm apically from the incision line, with paying attention to branches of the mental nerve.*(Fig.3)* The muscle fibers in the subcutaneous tissues were dissected. 7-10 mm apically from the mucosal margin, only a thin, non-moveable periosteal layer were left in place. The split thickness flap was fixed with continuous, resorbable sutures (Coated Vicryl 6/0, Etichon, East Brunswick NJ, USA).*(Fig.4)* The uncovered periosteal layer was left to heal by secondary epithelialisation [7-9]. Periodontal dressing (COE-PAK, GC America Inc., Alsip Ill., USA), was applied to cover the wound during the first postoperative week.

Postoperative care consisted of 0,20 % chlorhexidine-digluconate rinses (Curasept ADS 220, Curaden, Kriens CH) twice a day for 2 weeks, and analgesic medication (diclofenac, 50 mg every 6 hours) as needed. Periodontal dressing was removed at 7 days postoperatively.*(Fig.5)* Sutures were removed 14 days postoperatively. Brushing of the surgical area was not initiated until the beginning of the third postoperative week.*(Fig.6)* Patients were observed regularly during the healing period of 3 months, supragingival scaling, and oral hygiene instructions were repeated when needed.

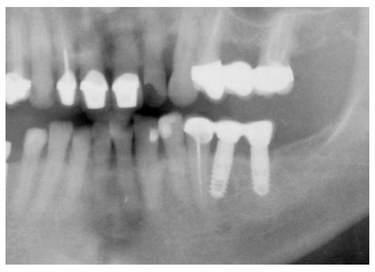

Fig.1: Panoramic X-ray

Fig.2: Initial clinical situation

Cases	Implant pos.	PD (mm)			WAM (mm)			BOP		
		disto-buccal	*mid-buccal*	*mesio-buccal*	*disto-buccal*	*mid-buccal*	*mesio-buccal*	*disto-buccal*	*mid-buccal*	*mesio-buccal*
1 (KL)	36	4	5	4	0	0	0	+	+	+
	37	4	4	4	0	0	0	-	+	+
2 (MKE)	35	2	4	3	2	1	0	-	-	+
	36	4	4	3	0	0	0	-	+	+
3 (ML)	36	4	5	4	1	0	0	-	+	+
4 (MP)	14	4	6	5	1	1	2	-	+	+
	12	6	7	5	0	0	1	+	+	-
5 (JM)	46	3	3	3	0	0	0	+	+	-
	47	4	3	4	0	0	0	+	-	+
6 (KJ)	47	6	7	7	0	0	0	+	+	-
7 (MGY)	46	4	4	3	0	0	0	-	+	-
8 (PJ)	45	5	4	5	0	0	0	+	-	+
9 (HH)	16	5	5	4	0	0	0	-	+	+

Table 1: Measurements prior to hygienic phase

Cases	Implant pos.	PD (mm)			WAM (mm)			BOP		
		disto-buccal	*mid-buccal*	*mesio-buccal*	*disto-buccal*	*mid-buccal*	*mesio-buccal*	*disto-buccal*	*mid-buccal*	*mesio-buccal*
1 (KL)	36	3	4	4	3	3	4	+	-	+
	37	3	4	3	4	3	2	-	-	-
2 (MKE)	35	2	3	3	5	4	3	-	-	-
	36	3	3	3	4	3	3	-	-	-
3 (ML)	36	3	4	4	4	3	3	-	-	+
4 (MP)	14	3	3	3	5	5	6	-	-	-
	12	3	4	3	6	5	4	-	+	-
5 (JM)	46	3	3	3	4	4	5	-	-	-
	47	4	4	3	3	2	3	-	-	-
6 (KJ)	47	5	6	5	3	4	5	-	+	-
7 (MGY)	46	3	3	3	6	5	7	-	-	-
8 (PJ)	45	4	4	4	3	2	4	+	-	-
9 (HH)	16	4	4	4	4	2	3	-	-	-

Table 2: Measurements after 3 months healing time

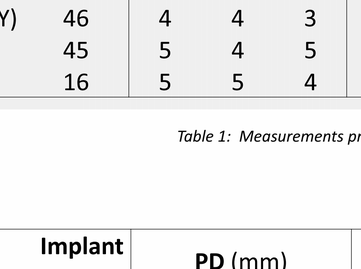

Fig.3: Split thickness flap elevation

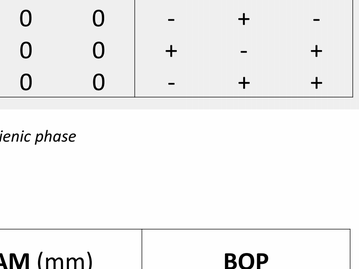

Fig.4: Split thickness flap sutured to periosteum

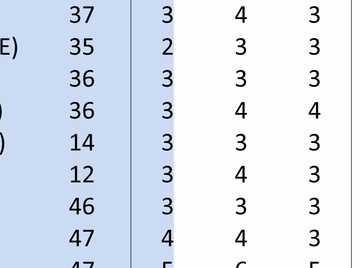

Fig.5: Wound 7 days postoperatively

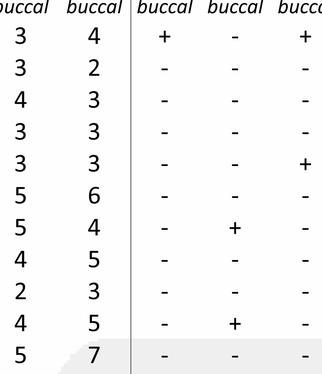

Fig.6: Wound 4 weeks postoperatively

RESULTS

Following measurements were taken prior to hygienic phase, and after the healing on the vestibular aspect of implant sites: probing pocket depth (PPD), width of attached mucosa (WAM)[10], bleeding on probing (BOP).*(Table 1,2)* After 3 months of healing 3-6 mm gain of non-inflammatory attached mucosa was observed around treated implants.*(Fig.7,8)* PD and BOP were reduced at each implant. Patients reported minimal postoperative pain and many of them had not even taken any analgesic medication. Bony defects did not show any improvement, but the presence of attached mucosa eventuated resolution of the symptoms of inflammation. Reestablished vestibular fold and presence of attached mucosa allowed more consecutive oral hygiene for the patients.

Fig.7: Final result 2 years postoperatively

Fig.8: Final result 2 years postoperatively

CONCLUSION

The presented minimally invasive, modified vestibuloplasty may be an efficient and predictable modality of therapy to increase the apico-coronal dimension of attached mucosa with minimal morbidity around ailing dental implants. Reestablished attached mucosa, and vestibular fold may result in improved periimplant soft tissue health. The presented method seems to be effective in cases of periimplant mucositis and moderate periimplantitis, with eliminating the bacterial irritation originated from the masticatory movements of oral mucosa, and supporting patients' oral hygiene. Further investigation needed to evaluate the long term effectiveness of this technique, according to the possibilities of relapse[5]. We can may conclude that reconsideration of the notability of preprosthetic reestablishment of attached mucosa needed[11]. With the presented technique we cannot heal the bony defects in cases of periimplantitis, but this minimally invasive surgical approach may also serve for creating more appropriate soft tissue conditions for further periimplant hard tissue reconstructions.

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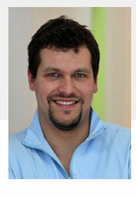

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