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Original Research

To evaluate the profile of peri-implant tissues in periodontally compromised patients

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***ABSTRACT*:**
Background: Peri-implant diseases are broadly divided into peri-implant mucositis and peri-implantitis depending on whether bone loss has occurred or not. The present study was conducted to evaluate the profile of peri-implant tisssues in periodontally compromised patients. **Material and methods:** The present study was conducted to evaluate the profile of peri-implant tissues in periodontally compromised patients. Initially clinical and radiographic history of the individuals selected for the study was taken. After collection of clinical and radiographic data, each implant was classified as defined by Mir-Mari *et al*. All the distances were measured by software program. A correlation is considered significant when $p < 0.05$. All the statistical analysis was done by SPSS software. **Results:** In the present study 90 implants were selected in which 14.44% were classified as healthy and 18.88% as clinical stable, 40% had peri-implant mucositis and 26.66% had peri-implantitis. The mean PPD of the healthy implants was 4.2mm, the mean PPD for clinical stable implants was 5.7mm, in Peri-implant mucositis the mean PPD was 5.1mm and in Peri-implantitis the mean PPD was 5.1mm. Bone level>2 threads in clinical stable implants was 47.05% and in peri-implantitis was 66.66%. Bleeding on probing sites in peri-implant mucositis were 66 and in peri-implantitis were 60. **Conclusion:** The present study concluded that implant therapy can be successfully used in periodontally compromised patients, as long as the periodontitis is properly treated and patient adheres to periodontal maintenance program.
Keywords: Peri-implant mucositis, Peri-implantitis Bleeding on probing sites.

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INTRODUCTION:

Oral implants are currently an essential and routine part of any dental practice. Yet despite their formidable success, complications and failure rates have been progressively rising.[1,2] Peri-implantitis is one of the most common biological complications affecting functional implants. It is a destructive inflammatory disease associated with pocket formation and peri-implant bone loss.[3] The placement of standard-length implants in conjunction with vertical bone augmentation and major reconstructive procedures usually implies longer treatment times and increased risk of post-operative complications.[4] Periimplantitis affects around 13% of implants and 18.5% of patients[5], with its incidence rising from 0.4 to 43.9% within 3–5 years.[6] However, so far only on few facts associated with increased risk of peri-implant disease development: 1) lack of regular supportive therapy; 2) plaque accumulation; 3) smoking; 4) history of periodontal disease; and 5) excess cement.[7] Marginal bone level changes after initial remodelling, accompanied by bleeding on peri-implant probing (BOP), are recommended for its diagnosis.[3] It has been established that patient-

administered mechanical plaque control and professional intervention comprising oral hygiene instructions and mechanical debridement are adequate measures to reduce peri-implant mucositis and its progression to peri-implantitis.[8] The present study was conducted to evaluate the profile of peri-implant tissues in periodontally compromised patients.

MATERIAL AND METHODS:

The present study was conducted to evaluate the profile of peri-implant tissues in periodontally compromised patients. The sample was selected from patient records over a period of 6 months. In the present study, individuals who had lost at least one tooth due to periodontal disease were diagnosed as periodontally compromised patients. Therefore, patient included in the study were periodontally compromised patient, partially edentulous with complete clinical documentation. Patient excluded from the study were individuals who had taken antibiotics or anti-inflammatory drugs within 2 months before the data collection, Individuals who did not sign the free and informed consent form, Smokers, Implants with fractured prosthetic crowns, Individuals diagnosed with moderate-to-severe chronic periodontitis, Individuals diagnosed with aggressive periodontitis, Diabetic individuals. Firstly clinical and radiographic history of the individuals selected for the study was taken. All patients underwent clinical examination, performed by a single examiner. All measurements were performed for each implant using a periodontal probe (PCPNU 15 Hu-Friedy Inc., Chicago, IL, USA). For the evaluations of the marginal BL, digital intraoral periapical radiographic images of the implants were obtained. After collection of clinical and radiographic data, each implant was classified as follows, as defined by Mir-Mari *et al.*[9]

1. Healthy–BL<2 thread without BoP
2. Clinical stability – BL ≥2 thread without BoP
   Inflammation
3. Peri-implant mucositis – BL <2 thread with BoP
4. Peri-implantitis – BL ≥2 thread with BoP or suppuration.

All the distances were measured by software program. A correlation is considered significant when $p < 0.05$. All the statistical analysis was done by SPSS software.

RESULTS:

In the present study 90 implants were selected in which 14.44% were classified as healthy and 18.88% as clinically stable, 40% had peri-implant mucositis and 26.66% had peri-implantitis. The mean PPD of the healthy implants was 4.2mm, the mean PPD for clinical stable implants was 5.7mm, in Peri-implant mucositis the mean PPD was 5.1mm and in Peri-implantitis the mean PPD was 5.1mm. Bone level>2 threads in clinical stable implants was 47.05% and in peri-implantitis was 66.66%. Bleeding on probing sites in peri-implant mucositis were 66 and in peri-implantitis were 60.

Table 1: According to presence or absence of peri-implant disease

Implant classification	N(%)
Healthy	13(14.44%)
Clinical stability	17(18.88%)
Peri-implant mucositis	36(40%)
Peri-implantitis	24(26.66%)
Total	90(100%)

Table 2: Implant classification according to average probing

Implant classification	N	Probing pocket depth (PPD) mean (mm)	Bone level>2 threads (mesial and distal), n (%)	Bleeding on probing sites (n)
Healthy	13	4.2±0.45		
Clinical stability	17	5.7±0.78	8(47.05%)	
Peri-implant mucositis	36	5.1±0.56		66
Peri-implantitis	24	5.1±1.76	16(66.66%)	60

DISCUSSION:

Periodontal disease has been strongly associated with periimplantitis.[10,11] Active periodontitis at the adjacent teeth is further considered a predictor of future peri-implantitis.[12] Periodontally compromised patients have twice the risk of developing peri-implantitis compared with healthy individuals.[13]

In the present study 90 implants were selected in which 14.44% were classified as healthy and 18.88% as clinical stable, 40% had peri-implant mucositis and 26.66% had peri-implantitis. The mean PPD of the healthy implants was 4.2mm, the mean PPD for clinical stable implants was 5.7mm, in Peri-implant mucositis the mean PPD was 5.1mm and in Peri-implantitis the mean PPD was 5.1mm. Bone level>2 threads in clinical stable implants was 47.05% and in peri-implantitis was 66.66%. Bleeding on probing sites in peri-implant mucositis were 66 and in peri-implantitis were 60.

Peri-implant probing provides an assessment of different parameters such as bleeding on probing, suppuration, and exudation from the sulcus and peri-implant tissues.[14] Studies have shown that, when used, probe pressure of 0.5 N penetrates an average of 0.7 mm deeper at implant sites.[15] Clinical probing depth is higher around implants versus teeth, as the probe tip ends apically to the junctional epithelium into the connective tissue close to the bone crest.[16]

Ong et al. demonstrated that non periodontitis patients had better implant outcomes than treated periodontitis patients; however, it was shown variability in the definitions of treated periodontitis and nonperiodontitis patients, outcome criteria and quality of periodontal maintenance.[17]

Roos-Jansåker *et al.*[18] who found 6.6% of implants classified with peri-implantitis and Rokn *et al.*[19] who found 8.8% of 13 implants classified with peri-implantitis.

Roccuzzo et al.[20] found a 10-year survival rate of 96.6%, 92.8% and 90% for 61, 95 and 90 implants placed respectively in periodontally healthy patients, patients with a history of moderate periodontitis and patients with a history of severe periodontitis.

A study by Zorzano et al.[21], where 786 implants were placed in 239 periodontally compromised patients, who regularly received supportive periodontal therapy; after a mean follow-up of 63 months, 12.8% of the implants were affected by peri-mucositis and 9.8% by peri-implantitis.

Shibli *et al.*[22] evaluated implants diagnosed with peri-implantitis and healthy implants. Implants diagnosed with peri-implantitis presented higher GBI and greater marginal bone loss when compared to healthy implants, and these two variables showed a statistically significant difference.

CONCLUSION:

The present study concluded that implant therapy can be successfully used in periodontally compromised patients, as long as the periodontitis is properly treated and patient adheres to periodontal maintenance program.

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