

# A Parulis-Like Soft Tissue Tumor in Relation With a Dental Implant: Case Report

Fotios Bountaniotis, DDS<sup>1\*</sup>  
 Konstantinos Tosios, DDS, MSc, PhD<sup>2</sup>  
 Fotios Tzerbos, DDS, MD, PhD<sup>3</sup>  
 Ioannis Melakopoulos, DDS, MD, PhD<sup>4</sup>  
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## INTRODUCTION

**R**eactive lesions of peri-implant mucosa seem to be rare, judging from the number of published reports, and most of them represent pyogenic granulomas (PGs)<sup>1-4</sup> or peripheral giant cell granulomas (PGCGs).<sup>5</sup> Factors such as dental plaque accumulation due to inadequate oral hygiene, traumatic factors, and anatomic drawbacks are common etiologic factors for those lesions.<sup>1,2,6</sup> We report a case of tumor on the covering mucosa of a dental implant consistent with parulis and discuss its possible pathogenesis, differential diagnosis, and management.

## CASE REPORT

A 52-year-old woman was referred to our clinic from her dentist for the rehabilitation of the edentulous anterior mandible with dental implants. Two implants (3.75 × 13 mm; MIS Implants Technologies Ltd., Savion, Israel) were placed in the left and right lateral incisors positions for the support of a fixed prosthetic restoration. Due to insufficient bone level, a bone graft (allograft combined with autogenous bone chips) and membrane for bone augmentation were placed in the area of the right implant. The cover screw was used for the stabilization of the membrane. A partial denture was used as a temporary restoration during the healing period. Three months after placement, the patient presented with a mass over the right implant that had a red-blue color and a soft consistency and measured approximately 0.6 × 0.6 × 0.5 cm (Figure 1). The patient stated that the lesion was painless and nonhemorrhagic. Radiographic examination revealed that there was no bone loss around implant's neck, but the cover screw was obviously loose (Figure 2). Differential diagnosis contained PGs and PGCGs, and an excisional biopsy was performed under local anesthesia. After removal of the lesion and chlorhexidine

irrigations, the loosened cover screws were easily removed and replaced with the healing abutments (Figure 3). Metronidazole, 500 mg twice a day for 7 days, was also prescribed. Five-micrometer-thick sections of the formalin-fixed and paraffin-embedded tissue showed that the lesion consisted of inflamed vascular fibrous connective tissue exhibiting areas of neutrophil abscess formation (Figure 4A). A sinus tract opening on the covering acanthotic, parakeratinized stratified squamous epithelium could be discerned (Figure 4B). Focal calcifications, possibly related to the graft material, were also present (Figure 4C). The findings were consistent with a parulis. Two weeks after surgery, the soft tissues contour was normal and the fabrication procedure of the prosthetic restoration was initiated (Figure 5). The patient remained free of recurrence for the last 6 months.

## DISCUSSION

In the present case, a parulis-like soft tissue tumor developed in relation with a dental implant having a loosened cover screw, as it was shown radiographically and during the surgical removal of the lesion. Mechanical trauma from the temporary removable denture or the cover screw may have acted as the stimulus for the inflammation,<sup>7</sup> whereas the latter may have acted as a foreign body and led to the formation of the fistula. Kim et al<sup>8</sup> described soft tissue complications in association with a loosened cover screw, in particular as dehiscence of the mucosa and exposure, and in cases where a bone graft and barrier membrane have been used.

Differential diagnosis in the case presented herein includes PG and PGCG. PG develops as a response to different stimulating factors and presents as a painless, smooth, or lobulated mass, with its color ranging from pink to dark red and its size varying from a few millimeters to several centimeters.<sup>1,9,10</sup> Only 7 cases of PG associated with dental implants have been reported in the literature. All cases were treated with excision of the lesion and curettage, except for one that was treated with an Er:YAG laser, and no recurrences are mentioned.<sup>1-4,11-13</sup>

The PGCG is a reactive lesion commonly caused by local irritation that presents as a smooth-surfaced, reddish-blue, sessile or pedunculated mass, with a firm consistency.<sup>14,15</sup> A PGCG associated with dental implants is rare, and exposure of the rough surface of the dental implant may act as a source of chronic local irritation.<sup>16</sup> Jané-Salas et al,<sup>11</sup> in their systematic

<sup>1</sup> Dentoalveolar Surgery, Department of Oral & Maxillofacial Surgery, Dental School of Athens, National and Kapodistrian University of Athens, Goudi, Athens, Greece

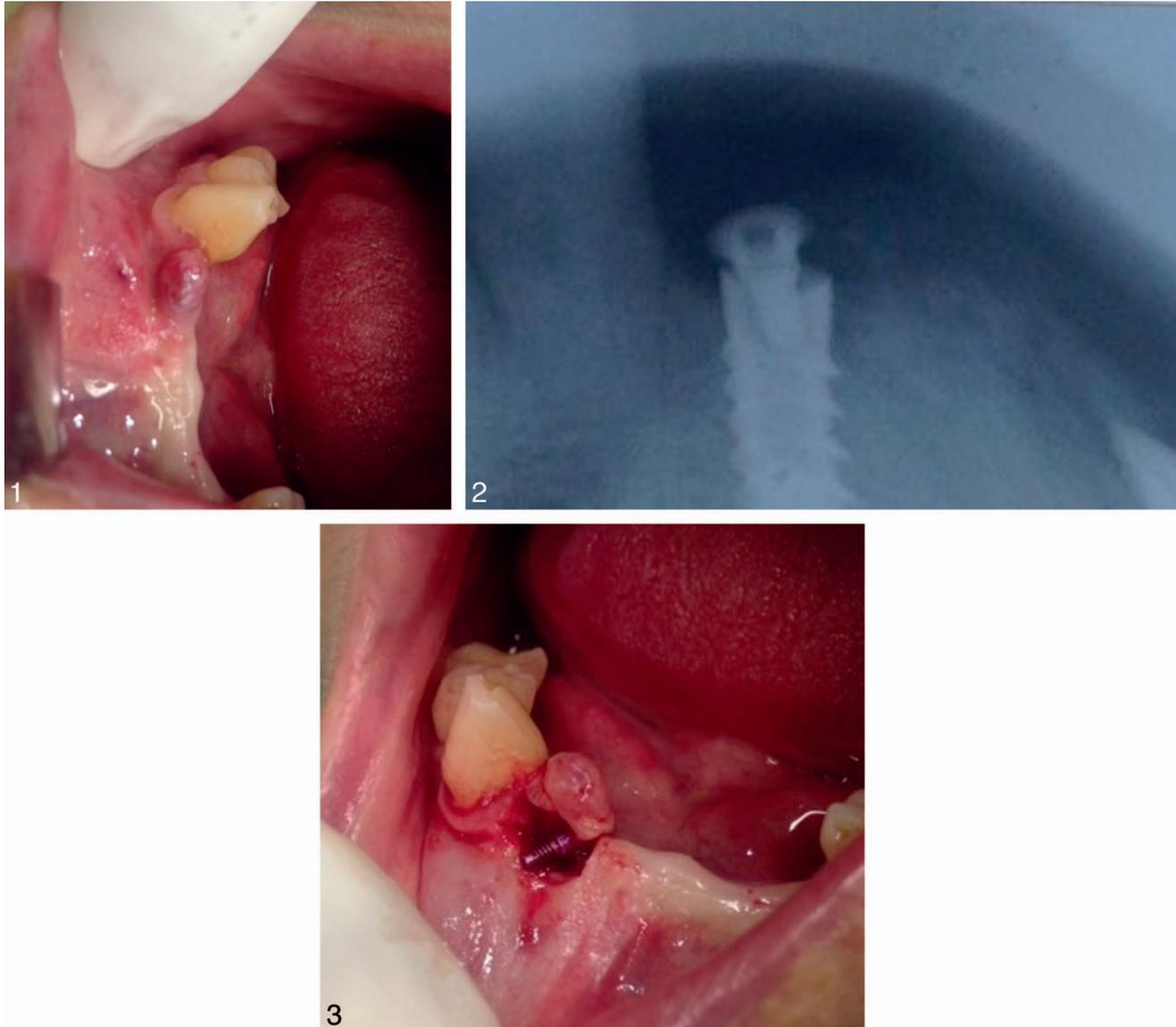
<sup>2</sup> Department of Oral Pathology, Dental School of Athens, National and Kapodistrian University of Athens, Goudi, Athens, Greece

<sup>3</sup> Department of Oral and Maxillofacial Surgery, Dental School of Athens, National and Kapodistrian University of Athens, Goudi, Athens, Greece

<sup>4</sup> Department of Oral and Maxillofacial Surgery, Dental School of Athens, National and Kapodistrian University of Athens, Goudi, Athens, Greece

\* Corresponding author, e-mail: fboudaniotis@yahoo.gr

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**FIGURES 1–3.** **FIGURE 1.** Clinical photograph showing a red-blue colored exophytic mass on the overlying mucosa of the right implant. **FIGURE 2.** Radiographic image, with no marginal bone loss, revealing the loosened cover screw. **FIGURE 3.** The surgical site during the removal of the lesion

review, found 15 cases of PGCGs associated with dental implants and reported 2 new cases of reactive lesions of peri-implant mucosa: a PG and a PGCG. According to Brown et al,<sup>5</sup> the recurrence rate is 46.2%, which is considerably higher than that of a PGCG not associated with dental implants, where a recurrence rate of 9.9% has been reported.

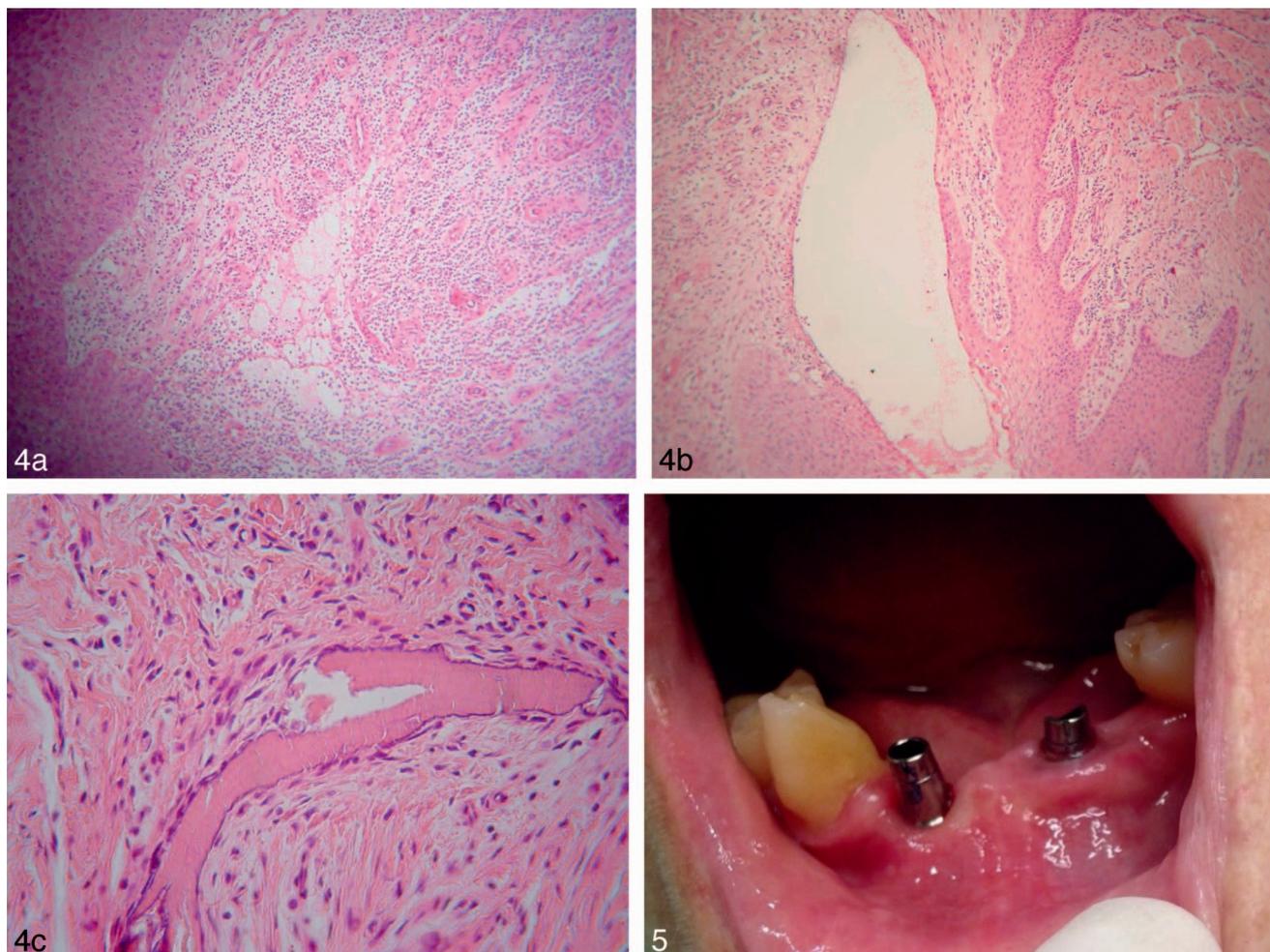
Surgical excision and laser application are usually applied in the management of reactive lesions of the peri-implant tissues. However, the most crucial aspect of management is the elimination of possible irritating factors to prevent recurrence

of the lesions.<sup>1,16</sup> The decision to remove the involved implant should be based on the clinical judgment of the surgeon that will take into account the risk of recurrence of the lesion due to inadequate removal when the implant remains in place.<sup>16</sup>

#### ABBREVIATIONS

PG: pyogenic granuloma  
PGCG: peripheral giant cell granuloma

**FIGURES 4 AND 5.** **FIGURE 4.** (a) Inflamed vascular fibrous connective tissue with areas of neutrophil abscess formation. (b) Sinus tract opening on the covering acanthotic, parakeratinized stratified squamous epithelium. (c) Focal calcifications in the connective tissue. **FIGURE 5.** Normal soft tissues contour 2 weeks postoperatively.



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