

## MULTIPLE PERIPHERAL GIANT CELL GRANULOMA ASSOCIATED WITH DENTAL PROSTHESIS: A CASE REPORT\*

### Diş Proteziyle İlişkili Multipl Periferik Dev Hücreli Granülom: Olgu Sunumu

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#### Özet

Periferik dev hücreli granülom (PDHG) ağız boşluğunun göreceli olarak sık rastlanan bir lezyonudur (oral patoloji materyellerinin %0,4-1,9' u) ve dişetin lokalize tümör benzeri büyümesidir. Mikroskopik olarak lezyon periodontal ligament ya da mukoperiostiumdan gelişir ya da en azından bu bölgelerle ilişkilidir ve içi şekilli hücrelerle birlikte aktif vasküler stroma içerisindeki multinükleer dev hücrelerden oluşan kitlelerdir. Kötü oral hijyen ve zayıf tükürük akımı bu lezyonların oluşumunda rol oynayan faktörlerdir. Tedavide kitlenin eksizyonu gerekir. Rekürrens genellikle local irritatif faktörlerle ilişkilidir. Bu makalede PDHG nedeniyle opere ettiğimiz ve postoperatif 18. ayında operasyon sahasının dışında diğer protezli dişlerin etrafında yeni lezyonları olan 42 yaşında bayan hastayı sunuyoruz. PDHG' un etkin tedavisinde yalnızca lezyonun tümünün eksize edilmesinin değil aynı zamanda irritatif faktörlerin de uzaklaştırılmasının gerekliliğini vurgulamak istedik.

**Anahtar Kelimeler:** Dev hücreli granülom; Diş protezi; Mandibula.

#### Introduction

Peripheral giant cell granuloma (PGCG), is a relatively common lesion of the oral cavity (from 0,4% to 1,9% of oral pathology material) and appears as a localized tumor-like enlargement of the gingiva (1). Patients are usually above 20 years of age, and men are affected more often than woman (2). PGCG is presented as a sessile or pediculated red or bluish growth on the gingiva or edentulous alveolar ridge (3). The maxilla

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#### Abstract

Peripheral giant cell granuloma (PGCG) is a relatively common lesion of the oral cavity (from 0.4% to 1.9% of oral pathology material) and appears as a localized tumor-like enlargement of the gingiva. Microscopically, the lesion arises from, or is at least attached to, the periodontal ligament or the mucoperiosteum and consists of a mass of multinucleated giant cells in an active vascular stroma with plump spindle-shaped cells. Factors such as poor oral hygiene and a decrease in salivary flow may play a role in the development of these lesions. In the treatment, excision of the entire lesion is essential. Recurrences are generally related to locally irritating factors. We present a 42-year-old woman with PGCG on the postoperative 18<sup>th</sup> month showing additional lesions, not on the operation site, but on other teeth with prosthesis. We would like to stress that in the effective treatment of PGCG, not only excision of the entire lesion but also removing irritating factors are necessary.

**Key Words:** Dental prosthesis; Granuloma, giant cell; Mandible.

and mandible are affected with equal frequency, the premolar/molar region being the area most often involved (4). A soft to firm mass forms in the gingiva, may push the teeth aside, and erode the mandible (5).

Microscopically, the lesion arises from, or is at least attached to, the periodontal ligament or the mucoperiosteum and consists of a mass of multinucleated giant cells in an active vascular stroma with plump spindle-shaped cells and occasionally, small amounts of re-formed bone are evident (5). The lesion is covered with stratified squamous epithelium, and a connective tissue clear zone has been described between the lesion and the epithelium (2).

In radiological images, cortical expansion and erosion in the bone may be seen (2, 6). PGCG produces a round or oval radiolucency occasional fine trabeculations (7). Aggressive tumors may involve and destroy large areas of the mandible or maxilla (8).

We present a 42-year-old woman with PGCG on the postoperative 18<sup>th</sup> month showing that there were new lesions, not on the operation site, but on other teeth with prosthesis.

### **Case Report**

A 42-year-old-woman was presented with swelling on the left side of the lower gingiva (mandible), which had been present for six months. There was no bleeding or pain. Her dentist had fitted dental prosthesis for her teeth two years previously.

On physical examination, on the left side of the mandible, a 4x3.5x2cm diameter, red-purple colored mass which covered the canine and premolar teeth and had spread to the lingual side of the gingiva was detected (Picture 1). The teeth in the mass had seen loosen. Oral hygiene and salivary flow were satisfactory. No lymph node was detected. Systemic examination revealed normal findings. Routine laboratory findings were normal. On panorex, a radiolucent-mass area and minimal erosion on the mandible were determined.

During the operation, alveolectomy was performed. The prosthesis on first premolar and canine teeth had become loose and were both excised. No complication developed in either the per- and post-operative period.

On pathologic examination, mixed type inflammatory cell infiltration was determined under and in the epithelium. Fibrovascular stroma and the region under the epithelium, multinucleated giant cells were observed and diagnosed as peripheral giant cell granuloma (Picture 2).

On the postoperative 18<sup>th</sup> month, no recurrence was seen on the primary lesion, but around all the other prosthesis upper right and left premolar and molar

teeth and lower right molar teeth; new lesions had formed (Picture 3). The patient refused the treatment of remainder of the lesions, both surgically and medically. On the postoperative 36<sup>th</sup> month, no additional lesion other than those mentioned above had developed.

### **Discussion**

PGCG resembles the pyogenic granuloma clinically, but arises from deeper tissues and is thought to be an unusual proliferative response to injury (3). In general, these tumors are slow-growing, painless and commonly present many years before they become apparent to the patient or clinician. An oral surgeon or dentist on routine dental radiographs often finds them incidentally.

PGCGs presumably arise from either the periodontal ligament or the mucoperiosteum. However, despite their familiarity, the histogenesis of the multinucleated giant cells remains controversial (9). In fact, evidence can be found to support both histiocyte/macrophage (10, 11) and osteoclast origins (5). The precursors of giant cells were thought to be stromal macrophages. However, current opinion is that the osteoclasts and macrophages derive from distinct stem cells. The osteoclasts may therefore reach the lesion through circulation and not originate from stromal cells. Other suggested precursors of these giant cells are fibroblasts, pericytes and endothelial cells, based on morphologic similarities (3).

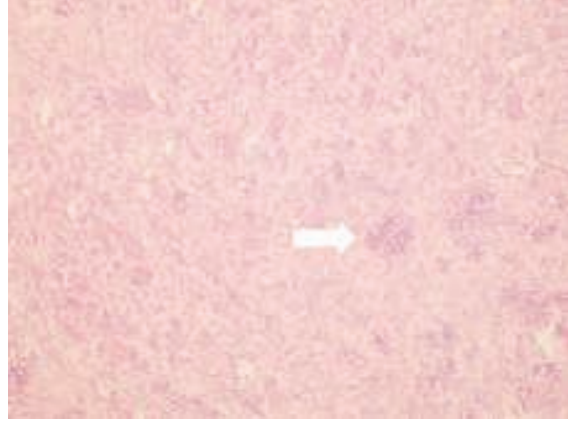
The fundamental histological features of the giant cell granuloma are the fibroblast and capillary rich stroma, and the variably distributed multinucleated giant cells (5). In our case, on pathologic examination, mixed type inflammatory cell infiltration was determined under and in the epithelium. In the fibrovascular stroma and the region under the epithelium, multinucleated giant cells were determined and diagnosed as peripheral giant cell granuloma.

This type of lesion is also believed to occur in patients between 10 and 25 years of age, a period when facial trauma may occur more often (12). However our case was a 42 year-old-woman and no facial trauma was present.

Other factors such as poor oral hygiene and decreased salivary flow may also play a role in the development of these lesions (13). Although our patient had sufficient oral hygiene and salivary flow, new lesions around the other prothesised teeth developed.

PGCG produces a round or oval radiolucency with occasional fine trabeculations (7). Teeth roots are seen as dislocated rather than resorbed. On radiographs widening and damage may be seen on the bone (2,3). Thinning on the cortex may be detected although perforation is rare (5). Aggressive tumors may involve and destroy large areas of the mandible or maxilla (8). In our case minimal bone erosion was present.

Most of the lesions reported in the literature are smaller than 1.5 cm. Larger lesions are usually seen in cases with poor oral hygiene (3). The lesion of our case was 4 x 3.5 x 2 cm diameter, which led us to believe that this cannot be definite rule. However, accordance with this theory, our findings may be related to duration of the lesion.



**Picture 2:** Fibrovascular stroma and the region under the epithelium, multinucleated giant cells were determined.



**Picture 1:** On the left side of the lower gingiva, a 4x3,5x2-cm diameter, red-purple colored mass which covered the canine and first premolar teeth and spread to lingual side of the gingiva is seen.



**Picture 3:** Around all other prothesised upper right premolar and molar teeth, new lesions were determined.

There have been no reported cases of malignant transformation in the literature, and recurrence is usually due to local irritating factors (2). On follow-up there was no malignant transformation in our case.

Treatment should be directed towards elimination of local irritating factors and complete surgical removal of the lesion in order to prevent recurrence (2). In our case, no recurrence was present in the primary lesion site. Although, around the prosthesis on other teeth, new lesions developed. This suggests that PGCG is related to irritating factors rather than poor oral hygiene and decreased salivary flow.

The patient was advised that the new lesions should be treated but she refused treatment and has been followed-up clinically.

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