

# The Modified Latero-Coronally-Positioned Flap After Excision Of Peripheral Giant Cell Granuloma

G Gassmann, A Dannan, W Grimm

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## Abstract

The peripheral giant cell granuloma (PGCG) is a reactive lesion caused by trauma or irritation. The lesions can vary in size from a few millimeters to several centimeters. Surgical excision is the treatment to be carried out for PGCG. This case report describes the clinical and histopathological findings of PGCG diagnosed in the maxilla of a 24-year-old female, and the treatment of a gingival defect, which occurred following the excision of the lesion, by means of a modified latero-coronally positioned flap.

In the reevaluation 6 weeks postoperatively, a stable keratinized cervical margin could be seen in the transplantation site with 1 mm recession. The donor site showed no recession.

The modified latero-coronally-positioned flap technique has been suggested as a surgical solution after removal of PGCG to minimize patient discomfort and the loss of precious tissues.

## INTRODUCTION

Peripheral giant cell Granuloma (PGCG) is a rare, benign, hyperplastic lesion which might occur on the marginal gingiva, in the interdental papilla, or on the alveolar bone.<sup>1-3</sup>

The etiology of PGCG is unclear. The proliferation of giant cells associated with resorption of deciduous teeth has been implicated in the development of giant cell lesions.<sup>2</sup> It is also thought that a history of trauma might be related to the development of the lesion.<sup>3, 4</sup> Other possible etiological factors include hormonal disturbances, tooth extraction, poor dental restorations, orthodontic therapy, dental plaque, and calculus.<sup>5-11</sup>

Females are more frequently affected than males, and the lesion can be found in all age groups.<sup>12</sup>

Surgical excision is the treatment of choice for PGCG, with removal of local factors or irritants.<sup>13</sup> However, such surgical procedures may result in considerable defects in the gingival tissues. In order to correct such defects, many esthetic surgical treatments were suggested like a laterally positioned flap, a subepithelial connective tissue graft, and a coronally positioned flap as reported by Walters et al. (2001), who repaired resulting gingival defects after excision of peripheral ossifying fibroma by means of the previous techniques in 3 different cases.<sup>14</sup>

This case report describes the clinical and histopathological

findings of PGCG diagnosed in the maxilla of a 24-year-old female, and the treatment of a gingival defect, which occurred following the excision of the lesion, by means of a modified latero-coronally positioned flap.

## CASE REPORT

A 24-year-old female presented at the Department of Periodontology/Faculty of Dental Medicine at Witten/Herdecke University for evaluation of a recurrent gingival lesion located at the buccal marginal gingiva of the maxillary right central incisor (tooth #11) (Fig. 1).

### Figure 1

The gingival lesion located at the gingival margin on tooth #11



In the first visit, the patient mentioned the gingival change which she noticed for more than one year. She was worried about the diagnosis and the results of therapy.

One week later, the lesion was surgically removed leaving the covering keratinized gingiva in place using tunneling preparation. The histopathological examination of the excision confirmed the clinical diagnosis of PGCG. The patient was informed about the high incidence of recurrence of such lesions, and accordingly, she was asked to visit the clinic once again after 6 weeks.

In the reevaluation after 6 weeks, a recession of 1.5 mm and a recurrent lesion could be seen (Fig. 2).

**Figure 2**

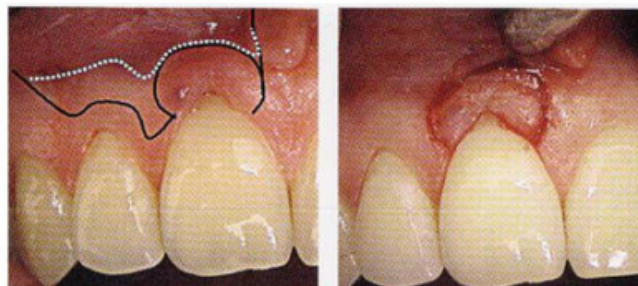
The recurrence of the lesion after 6 weeks



In order to prevent future recurrence of the lesion, a radical procedure was discussed with the patient. It was expected, that performing an excision with safety margins would result in a complete loss of the marginal keratinized gingiva. Thus, covering the resulting defect required a laterally positioned flap<sup>15</sup>. The flap was modified to achieve complete coverage of the defect area and the donor site, too. This was done by modifying the distal vertical releasing incision to a diagonal one reaching far into the vestibule apically to tooth #13. Accordingly, the incision in the keratinized gingiva was carried out down to the periosteum in order to achieve a mucoperiosteal flap in this region (Fig. 3).

**Figure 3**

Surgical cut performance and extraction of the lesion with suitable safety margins



On the mucogingival border, the preparation changed to a superficial subepithelial split-thickness flap according to Greenwell et al. (2004).<sup>16</sup> This kind of preparation allows optimal mobility. Thus we reached at a complete coverage of the defect and the donor and the donor site, too. For suturing, an atraumatic 6.0 suture was used (Fig. 4).

**Figure 4**

Complete coverage of the defect by means of laterally positioning without dehiscence

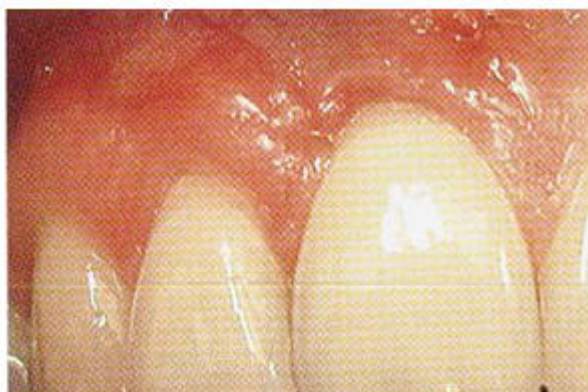


Postoperative instructions, including Chlorhexidine rinses and Ibuprofen 600 mg every 4 to 6 hours as needed, were provided to the patient.

In the reevaluation 6 weeks postoperatively, a stable keratinized cervical margin could be seen in the transplantation site with 1 mm recession. The donor site showed no recession (Fig. 5).

**Figure 5**

Narrow zone of attached gingiva six week post-operatively



Eight months postoperatively, a wider zone of keratinized gingiva with a reduction of the recession (0.5 mm) could be seen (Fig. 6).

**Figure 6**

Stable situation 8 weeks post-operatively



## DISCUSSION

The peripheral giant cell granuloma is not a neoplasm, but rather a reactive lesion caused by trauma or irritation. Histologically, the PGCG can be differentiated from other reactive lesions mainly by the abundance of multinucleated giant cells.<sup>4, 17-19</sup>

Surgical excision is the treatment to be carried out for PGCG. The lesions can vary in size from a few millimeters to several centimeters. Kfir et al.<sup>1</sup> reported PGCG ranging in size from 0.1-3 cm, with 94% of the lesions smaller than 1.5 cm. Bodner et al.<sup>12</sup> showed that some PGCGs can reach 5 cm in diameter. In this report, the lesion was located in an attached esthetic area measuring 3x5mm, and the excision would have resulted in a gingival defect, namely the whole

keratinized gingiva. To our knowledge, this is the first report describing the use of a modified latero-coronally-positioned flap to repair the defect resulting from a wide excision of a PGCG.

The laterally positioned gingival flap has been first described by Grupe and Warren<sup>15</sup> in 1956 as a procedure which aims at covering two singular neighboring recessions maximally. From that time on, many modifications of this method have emerged in order to avoid possible recessions in the donor region<sup>20</sup>, and to come across possible bone loss due to denudation.

Staffileno<sup>21</sup> has suggested leaving the periosteum on the bone surface by achieving a split thickness flap. Grupe<sup>22</sup> modified his own method to that effect by leaving the marginal border of the donor region with sufficient wider keratinized attached gingiva, and to carry out a lateral-coronal transposition in the recession site.

Nevertheless, this modification leaves the donor area with morbidity. Covering the exposed area with mucosal flap from the neighboring region was previously suggested, and covering the exposed bone by means of lateral-positioned mucoperiosteum flap was described with a free gingival graft (FGG) from the palate. This method showed good results in the recipient site.<sup>23</sup>

However, the negative patient's sensation in the donor region has sufficiently been documented in the literature after using FGG.<sup>24</sup>

According to Pini Prato et al.<sup>25</sup>, achieving a tension-free flap is a critical factor in order to complete a full coverage. After mobilization of the flap, it was possible to move it in a mesial-coronal direction. Due to the flap flexibility, a complete coverage in the apical region of the donor site was possible without tension, too. The good result which has been achieved in this case is related in part to the fact that this patient shows a thick gingival biotype according to the definition of Weisgold,<sup>26</sup> and Seibert and Lindhe.<sup>27</sup>

Although the PGCG is relatively rare, dental practitioners may be confronted with cases of PGCG during their practice. Surgery is always the method of choice to treat such lesions and it does not guarantee optimal results without affecting the soft tissues. This report introduces the modified latero-coronally-positioned flap technique as a surgical solution after removal of PGCG to minimize patient discomfort and the loss of precious tissues.

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**Author Information**

**Georg Gassmann, Dr. med.dent., Ph.D., Lecturer**

Department of Periodontology, Faculty of Dental Medicine  
Witten, Germany

**Aous Dannan, Dr. med.dent., Ph.D., Lecturer**

Department of Periodontology, Faculty of Dental Medicine  
Syria  
aousdannan@yahoo.com

**Wolf-Dieter Grimm, Dr. med.dent., Ph.D., Professor**

Department of Periodontology, Faculty of Dental Medicine  
Witten, Germany