


# Maintenance of the buccal fat pad (Bichat) as a resource for regional grafting: A case report and literature review

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## Abstract:

**Objective:** Report a case of pyogenic granuloma with two years of evolution, three previous removals with external oral and maxillofacial surgeons, and new recurrences.

**Case Report:** A 25-year-old male patient with a history of a pyogenic granuloma with two years of evolution had three previous removals with external maxillofacial and had relapses. The treatment indicated after these relapses were the extraction of the involved teeth and the lesion, performing the closure with a buccal fat pad flap. The lesion underwent metaplasia, transforming into mucosa. **Conclusion:** This case emphasizes keeping the buccal fat pad as a possible future resource for regional grafting.

**Keywords:** Surgical flaps; Surgery, Oral; Granuloma, Pyogenic.

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## INTRODUCTION

The buccal fat pad, also known as Bichat's ball, was mentioned for the first time by Heister in 1732<sup>1</sup> and better described by Bichat in 1802<sup>1</sup>. Bichat described the buccal fat pad as only an anatomical element. However, Egyedi<sup>1</sup>. was the first to report using the buccal fat pad for oral reconstructions, helping to treat the closure of oroantral and oronasal communications. Tideman et al.<sup>2</sup> concluded that there is no need to cover the buccal fat pad with skin graft when used for cavity defects. The buccal fat pad can also be used as a pedicled graft to close maxillary defects<sup>3</sup>.

The buccal fat pad offers some advantages for filling and sliding facial spaces between mimetic muscles, i.e. muscles that promote facial expressions, facilitating intermuscular movements by separating the mastication muscle from adjacent muscle, thus neutralizing the negative pressure during suction. In addition to protecting neurovascular bundles from injury, the buccal fat pad is composed of a venous network involved in exoendocranial blood flow in the pterygoid plexus<sup>1</sup>.

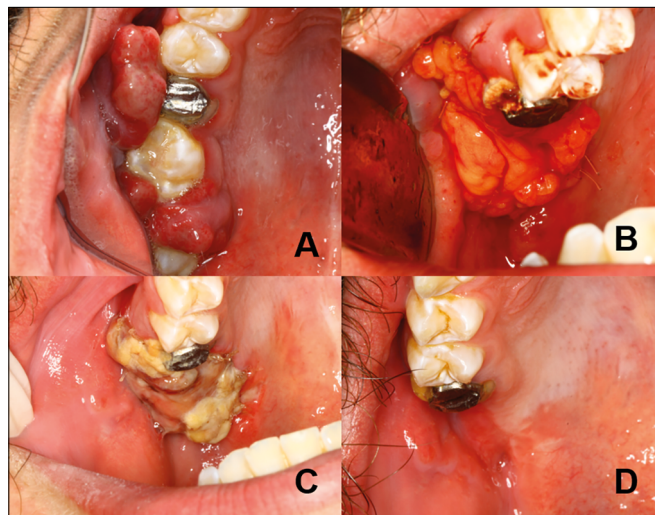
Currently, the buccal fat pad is also used as an esthetic procedure, and its excision is performed to obtain a more refined facial esthetics<sup>2</sup>. However, there is little evidence in the literature to confirm its long-term esthetic benefit and the absence of complications. Nowadays, numerous procedures of this type are published on social networks<sup>2</sup>.

Herein we report a case in which the buccal fat pad was used as a resource for regional grafting in a pyogenic granuloma patient. Two tooth extractions were performed, and the lesion was removed, and after identifying the extent of the lesion, we chose to use the buccal fat pad to cover the surgical defect. Over time, the buccal fat pad suffered metaplasia into mucosa.

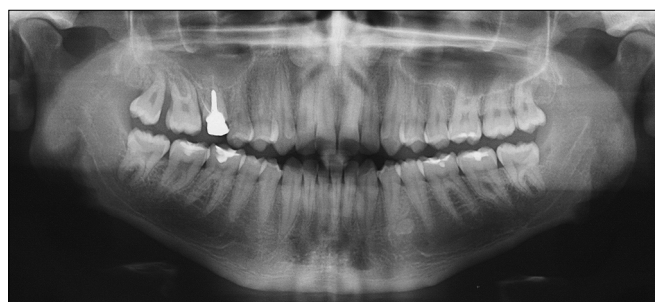
## CASE REPORT

A 25-year-old male patient was referred for evaluation with a diagnosis of pyogenic granuloma with two years of evolution; he had three previous removals with external maxillofacial and relapses in those two years.

Clinically, a pedunculated lesion measuring 5 cm in its greatest diameter, in the region of the right posterior jaw, pedunculated, with a lobulated surface, bleeding to the touch, without base infiltrations, reddish in color, adjacent to the maxillary second and third molars. (Figure 1A) Associated teeth showed marked mobility. There was a loss of bone attachment of the teeth involved on the panoramic radiograph. (Figure 2).



**Figure 1.** A) Pyogenic granuloma in posterior right maxila. B) Immediate post-operative, buccal pad fat flap sutured. C) Seven days post-operative. Beginning of the epithelialization. D) Two years of post-operative. No signs of recurrence. The surgical site healed.



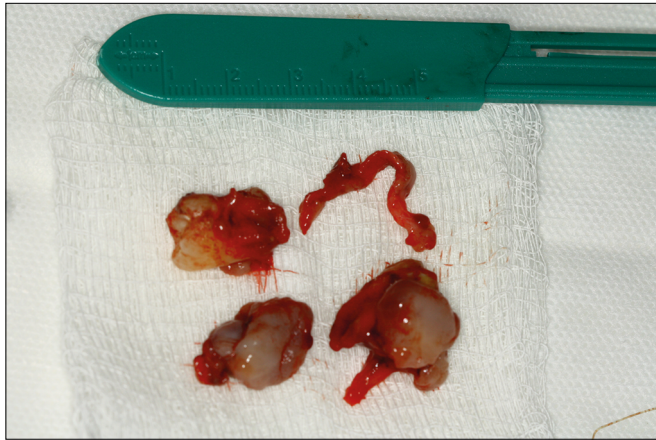
**Figure 2.** Panoramic radiograph. Loss of bone attachment of the teeth involved.

Under local anesthesia, extractions of the two involved teeth and the lesion were performed, leaving an extensive defect of 5 cm in the region resolved with an advancement flap with the buccal fat pad and synthesis with 4-0 absorbable thread. (Figure 1B) The lesion was sent for anatomopathological analysis, which confirmed the diagnosis of pyogenic granuloma (Figure 3). In the seven-day postoperative period, one could notice the beginning of epithelialization of the buccal fat pad. (Figure 1C).

After two years, the mucosa is completely epithelialized, with no signs of recurrence. (Figure 1D).

## DISCUSSION

The buccal fat pad, also called Bichat's ball, was described by Marie François Xavier Bichat in 1802 as an anatomical region composed of fatty tissue located bilaterally in the maxilla<sup>4</sup>. It is described as a round, encapsulated, biconvex fatty tissue located in the buccal



**Figure 3.** Macroscopic aspect of the excised lesion and involved teeth.

area, surrounded by the buccinator muscle medially, the deep cervical fascia and muscles of facial expression anterolaterally and the parotid gland posteriorly<sup>9</sup>.

The buccal fat pad is divided into three lobes: anterior, intermediate, and posterior; in the posterior, it has four extensions that include the buccal process, pterygopalatine, pterygoid, and temporal process<sup>4</sup>. The lobes are encapsulated by independent membranes covered by ligaments and nourished by several arteries<sup>5</sup>. Its average volume is approximately 10 ml and weighs 9.3 g, has a slight variation in size or weight, and has a different rate of lipolysis compared to subcutaneous fat. Surgeons can use it to fill defects up to 4 cm in diameter<sup>3</sup>.

Early studies showed that it is like a non-functional region. However, over time, studies observed the relevant role of the buccal fat pad in some functions of the oral area, such as babies who are in the process of suction, growth of intermuscular movement resembling orbital fat and use for reconstructive surgery<sup>4</sup>. The buccal fat pad is widely used as a graft or pedicled flap to reconstruct intraoral defects such as oroantral communication (fistula closure) and for the reconstruction of maxillary defects<sup>6</sup>.

The removal of the buccal fat pad commonly used for aesthetic functions is performed intraorally through a local anesthesia in the mucosal region and an incision of around 2.5 cm exposing the buccal fat pad and performing blunt divulsion<sup>4</sup>. However, some complications can happen with this procedure, such as trismus, bruising, parotid duct injury, over-resection, hardening and asymmetry<sup>4</sup>. This procedure, described as “bichectomy,” which removes the buccal fat pad for “chubby” cheeks, is intended to be used as liposuction of the face commonly

performed in Latin American countries. However, it still lacks evidence in the scientific literature due to the low number of patients followed up and few prospective studies and clinical trials<sup>4</sup>.

The resection of the buccal fat pad as an aesthetic improvement of the middle third of the face still requires long-term follow-up related to loss of subcutaneous fat and aging of the face, as well as late deformities<sup>2</sup>. For Kahn et al.<sup>7</sup>, the buccal fat pad does not undergo lipid metabolism like most fats in the body. The surgeon must have regional anatomical knowledge of the buccal branches of the facial nerve and the close relationship with the parotid gland and the buccal fat pad to avoid injuring these structures<sup>5</sup>.

Many defects and injuries can occur in the maxillary region, and the buccal fat pad flap is a simple procedure and described in the literature as a reliable treatment for most of these defects, as its rich blood supply, accessible location, and minimal morbidity have high rates of success around 90% which include the closure of oroantral fistulas, correction of congenital defects, treatment of bone necrosis of the jaw, reconstruction of tumor defects<sup>8</sup>, repair loss of alveolar or palatal substance from the mandible<sup>5</sup>.

The pyogenic granuloma is considered a non-neoplastic reactional proliferative process, most commonly affecting the gingiva and reaching other regions, often presenting as a nodular, lobulated, pedunculated lesion, and sometimes with an ulcerated surface, red and easily bleeding<sup>9</sup>. Classically, the treatment of pyogenic granuloma involves surgical excision without the need for additional procedures such as flaps for closure. We performed this surgical option in the case described due to its size and recurrent characteristic.

Epithelialization of the buccal fat pad occurs in the first week, completed around 40 days<sup>10</sup>. Some studies suggest that healing takes place in around 3 to 4 weeks. The fat tissue layer is replaced by granulation tissue and covered by the epithelium that migrates to the neighbouring regions of the flap<sup>11</sup>. In this study, the patient healed after 4 weeks.

## CONCLUSION

The reported case emphasizes the importance of maintaining the buccal fat pad as a resource for performing a regional advancement flap in cases of large lesions requiring the closure of the surgical defect.

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## REFERENCES

1. Egyedi P. Utilization of the buccal fat pad for closure of oro-antral and/or oro-nasal communications. *J Maxillofac Surg.* 1977 Nov;5(4):241-4.
2. Benjamin M, Reish RG. 2018. Buccal fat pad excision: Proceed with caution. *Plast Reconstr Surg Glob Open.* 2018 Oct;6(10):e1970.
3. Colella G, Tartaro GP, Giudice A. The buccal fat pad in oral reconstruction. *Br J Plast Surg.* 2004 Jun;57(4):326-9.
4. Traboulsi-Garet B, Camps-Font O, Traboulsi-Garet M, Gay-Escoda C. Buccal fat pad excision for cheek refinement: a systematic review. *Med Oral Patol Oral Cir Bucal.* 2021 Jul;26(4):e474-e8.
5. Yousuf S, Tubbs RS, Wartmann CT, Kapos T, Cohen-Gadol AA, Loukas M. A review of the gross anatomy, functions, pathology, and clinical uses of the buccal fat pad. *Surg Radiol Anat.* 2010 Jun;32(5):427-36.
6. Tideman H, Bosanquet A, Scott J. Use of the buccal fat pad as a pedicled graft. *J Oral Maxillofac Surg.* 1986 Jun;44(6):435-40.
7. Kahn JL, Wolfram-Gabel R, Bourjat P. Anatomy and imaging of the deep fat of the face. *Clin Anat.* 2000;13(5):373-82.
8. Kim MK, Han W, Kim SG. The use of the buccal fat pad flap for oral reconstruction. *Maxillofac Plast Reconstr Surg.* 2017 Feb;39(1):5.
9. Jafarzadeh H, Sanatkhan M, Mohtasham N. Oral pyogenic granuloma: a review. *J Oral Sci.* 2006 Dec;48(4):167-75.
10. Martín-Granizo R, Naval L, Costas A, Goizueta C, Rodriguez F, Monge F, et al. Use of buccal fat pad to repair intraoral defects: review of 30 cases. *Br J Oral Maxillofac Surg.* 1997 Apr;35(2):81-4.
11. Rapidis AD, Alexandridis CA, Eleftheriadis E, Angelopoulos AP. The use of the buccal fat pad for reconstruction of oral defects: Review of the literature and report of 15 cases. *J Oral Maxillofac Surg.* 2000 Feb;58(2):158-63.