

Surgical Considerations and Complications in Aesthetic Bichat's Fat Pad Removal: A Literature Review

Leon Carrion^{1*}, Alejandro León¹, Igor Mariotto Beneti¹, Katty Rios²

¹Department of Surgery, North Paulista University Center, Sao Paulo, Brazil

²Department of Surgery, Scientific University of the South, Lima, Peru

Review Article

Received: 09-Feb-2024, Manuscript No. JMAHS-24-127002; **Editor assigned:** 12-Feb-2024, Pre QC No. JMAHS-24-127002 (PQ); **Reviewed:** 26-Feb-2024, QC No. JMAHS-24-127002; **Revised:** 04-Mar-2024, Manuscript No. JMAHS-24-127002 (R); **Published:** 11-Mar-2024, DOI: 10.4172/2319-9865.12.4.001.

***For Correspondence:** Leon Carrion, Department of Surgery, North Paulista University Center, Sao Paulo, Brazil
E-mail: ideme.educacion@gmail.com

Citation: Carrion L, et al. Complications Associated with the Aesthetic Removal of the Bichat's Fat Pad: A Literature Review. RRJ Med Health Sci. 2024;14:001

Copyright: © 2024 Carrion L, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

ABSTRACT

The Bichat's Fat Pad (BFP) is a well-defined multilobed structure; closely related to nervous and vascular structures and positioned bilaterally in the facial region. Its removal is one of the most requested aesthetic procedures today, due to its influence on facial aesthetics; which constitutes a clinical challenge that requires special attention; so that the surgical intervention is minimally invasive and without complications. The aim of this review was to collect and evaluate studies reporting complications associated with BFP removal for cosmetic reasons. The search was carried out in international databases; these being: PubMed, Scopus, Google Scholar and Scielo; and articles from the last 5 years were evaluated using the terms "Bichat's fat pad", "Buccal Adipose Body", "Bichat's fat pad", "Bichectomy", "Lipectomy", "Complications" Y "Facial Aesthetics". From this search, the articles that best fit the theme were selected, through critical analysis. Therefore, it can be concluded that some of the complications of BFP removal can be serious; Therefore, it is essential that professionals have in-depth knowledge even when considering a safe surgical technique.

Keywords: Complications; Facial aesthetics; Bichat's Fat Pad (BFP)

INTRODUCTION

Grafts in Bichat's Fat Pad or cheek adipose body (BFP) is an anatomical structure of adipose tissue, has the same histological characteristics as fats located in other regions of the body; However, it is characterized by having a fibrous capsule that prevents metabolization [1]. It's in the masticatory space close to the parotid duct; Furthermore, it extends along the anterior border of the masseter, between the buccinator muscle medially and the lateral side of the mandible, descending to the retromolar region with an average volumetric variation of 7.8 milliliters to 11.2 milliliters for men and 7.2 ml to 10.8 ml for women with an average thickness of 6 millimeters [2,3].

The BFP is limited by the muscles of facial expression, the deep cervical fascia and the masticatory space; furthermore, it is attached by ligaments to the upper jaw, posterior zygoma, temporal tendon, buccinator membrane, and edge of the infraorbital fissure. The ligaments function as passages through which various vessels enter that provide an abundant blood supply to the different lobes of buccal fat. The anterior, intermediate, and posterior lobes of the buccal fat are encapsulated by independent membranes each has specific locations [3].

The anterior lobe is triangular and is located under the zygomatic bone, in the oral or genial cavity. Its front end reaches the buccinator muscle and the orbicularis oris muscle, the upper part reaches the infraorbital foramen, where it surrounds the infraorbital vessels, and its frontal area borders the facial artery, the parotid duct and the facial vein. In turn, the intermediate lobe is located close to the maxilla, between the anterior and posterior lobes. And the posterior lobe, known as the body, is the largest and extends into the masticatory cavity, with four different extensions: Buccal, pterygoid, pterygopalatine and temporal, which form half the volume of the BFP [4].

In recent years, clinical research has validated the effectiveness and versatility of BFP in the oral reconstruction of small and medium-sized defects. It involves the partial elimination of buccal fat, reducing the volumetric part of the lower face, defining contours and angles, improving aesthetics. It is applied to closed defects after removal of tumors, leukoplakia, cleft palate, bone the jaws and elevation of the maxillary sinus. Also in temporomandibular joint arthroplasty, palate lengthening and vocal cord augmentation. However, these procedures cause postoperative complications due to the surgical technique used [2-5].

In this sense, the objective of this article is to carry out a review of the literature on the complications associated with the aesthetic removal of the Bichat's fat pad.

LITERATURE REVIEW

This literature review was carried out with a qualitative approach; through bibliographic research in accordance with ABNT standards. The following descriptors will be used "Bichat's fat pad", "Buccal Adipose Body", "Bichat's fat pad", "Bichectomy", "Lipectomy", "Complications" and "Facial Aesthetics"; in databases: PubMed, Scopus, Google Scholar and Scielo. The search process was refined through analysis focused on articles published over a period of up to 5 years. In accordance with the demands of this work, an investigation was carried out throughout the complete reading of these articles, and citations were found that led us to new articles related to the chosen topic and that fit our objectives and, finally, they were selected. 19 more articles to build the review.

The Bichat's Fat Pad (BFP), derived from the name of the French anatomist Marie-François Xavier Bichat (1771-1802), who first described it in the early 19th century, is defined as an accumulation of adipose tissue in a tubular that occupies a prominent position in the middle part of the face [6]. Furthermore, it is an important anatomical structure that contributes to facial aesthetics and promotes the mobility of facial muscles. In this sense, it can be used as an autogenous graft with vascular connection for the repair of oral fistulas in procedures to repair oral defects and traumas [3].

The buccal adipose body or buccal fat pad (of Bichat), refers to a mass or pad composed mainly of fat that is in the deep facial region, just below the buccinators muscle [7]. It has a prominent structure in newborns, as the child grows and begins to chew, the buccal fat facilitates the sliding function between the chewing muscles; studies have found that it grows significantly between 10 years and 20 years, increasing from 4,000 cubic millimeters to 8,000 cubic millimeters and then decreasing in size over the next 30 years to an average volume of 7,000 cubic millimeters [3].

The oral fat body is composed of a central nucleus that is divided into 3 distinct lobes: an anterior lobe, which is anterior to the masseter muscle; an intermediate lobe between the masseter and buccinator muscles; and 4 extensions: the buccal, the sublevator, the melolabial and the pterygoid [6]. Furthermore, it is related to the parotid duct and the branches of the facial nerve, as they cross its anterior and lateral surfaces; where, in 42% of cases it passes through the buccal process, in 26% of cases through the buccal process and in 32% of cases above the buccal process of the BFP [8].

Initially, buccal fat was known as an anatomical structure without a specific function; it was considered a surgical nuisance. However, in recent decades, it has been used as a tool in surgeries for the reconstruction of small to medium-sized acquired or congenital bone and soft tissue defects in the oral cavity [9]. In this sense, when focused on aesthetic purposes, buccal fat in facial aesthetic surgery has proven attractive, as it offers a thinner lower part of the face and a more defined jaw, which is why its removal has been resorted [10].

The use of Bichat fat pad may vary in its application. For example, it has been used to improve the contour of the peri-implant mucosa to treat defects. In this context, its versatility is reflected in functional applications (coverage of adjacent defects, scar revision surgery, treatment of fibrosis, coverage of tooth roots, etc.); aesthetic (facial oval contouring and oral aesthetic procedures) and reconstructive (oro-antral fistulas, coverage of bone defects, coverage of oronasal fistulas, surgeries related to clefts, palatal/maxillary defects after tumor treatment, peri-implant treatment and peri-implantitis, others) [1-11].

There are several clinical indications for accessing the buccal fat pad. In this context, buccal fat removal is not suitable for all patients; therefore, its elimination will not be necessary or desirable in thin or emaciated faces [11]. The ideal cosmetic surgery candidate has prominent or zygomatic cheekbones masked due to pronounced cheekbones with no angular appearance to the face; therefore, the removal of buccal fat in these patients will result in a stylized appearance, highlighting the angles of the jaw, highlighting the cheekbone region, and reducing volume in the lower part of the face [3-12].

Furthermore, the surgeon must assess the amount of fat needed and then, as needed, manipulate the area and remove various CAB processes; However, they should avoid excessive and unnecessary manipulation of the surgical site to locate it [8]. In this sense, the removal of buccal fat in these patients will result in a sunken appearance in the cheeks. For this reason, it is important to understand that removing buccal fat does not replace cheekbone enlargement [7-11].

Finally, aesthetic treatments are highly sought after, especially among dentistry professionals. This has led to an increase in requests for short courses or training with experts to learn techniques. However, sometimes these courses do not provide the anatomical knowledge necessary to safely intervene in the area, which can result in risks of damaging important anatomical structures such as the parotid duct, vessels, and facial nerves, leading to temporary or permanent consequences, due to its close association with oral fat [3-13].

The CAB removal technique, especially for surgical access, begins with attention to the location of the parotid gland duct. To do this, the patient must be in the supine position with the head elevated, preferably at 45 degrees, which causes the Bichat ball to “fall” further down, getting closer to the incision. The surgeon starts on the right side of the patient's head to approach the left cheek, changing sides as he approaches the right cheek, the incision is made just below the canal and slightly posterior to it, measuring approximately 1.5 cm at its largest extension, involving only the oral mucosa [12-14].

Once the bright yellow and encapsulated Bichat fat is identified, its anterior end must be immediately clamped with Allis or Halsted forceps, with light traction, the structure is pulled and "swept" externally-the dissection around the capsule, preferably without breaking it, it which makes this maneuver very safe and without bleeding. Finally, approximately 90% of the fat is eliminated, preserving its most posterior portion, more adherent to the deep structures. The procedure must be performed under general anesthesia. It provides greater safety and better control of the respiratory tract [14].

DISCUSSION

BFP extraction is an important topic of discussion in the literature. Studies have reported improvements in facial aesthetics because of this technique. However, given its proximity to vital structures such as the facial nerve, parotid duct and blood vessels, complications may arise. In this context, injuries related to these structures may occur during the surgical procedure, both during and after surgery [15].

Complications associated with the removal of the BFP during interventions to access the BFP from inside the mouth. They may be related to the trauma of a posterior-inferior buccinatrix branch of the facial artery, which slides superficially to the buccinator muscle and is responsible for supplying nutrition to the posterior lobe of the cheek fat pad [13]. Complications during the procedure include injury to the Steno's duct leading to sialoceles or salivary fistulas, temporary paralysis, as well as bruising, irregular facial appearance, and infections after surgery [12]. On the other hand, complications that may arise after BFP removal are closely linked to damage to nearby important structures, which can lead to hematoma, infection, limitation of mouth opening, prolonged swelling, facial nerve injury, parotid duct involvement, as well as irregularities and imbalances in the shape of the face [13]. And the effects can be effectively observed after a period of four to six months, when the soft tissue inflammation has been completely reabsorbed [12]. Furthermore, considering that bichectomy is a method of contouring the cheeks and refining the midface in cosmetic surgery, it is important to keep in mind that the long-term results of the more conservative and widely recognized bichectomy techniques have some limitations and do not always guarantee satisfactory results [16]. Thus, the significant increase in cosmetic surgery, especially the reduction of buccal fat, has led to a corresponding increase in injuries and postoperative sequelae of this surgical procedure [17].

Other sources mention that buccal fat reduction is generally a safe and relatively simple procedure and that its complications are rare, but are clinically significant when they occur, because the BFP is located close to multiple vessels, the facial nerve and the parotid duct and its extraction may cause damage to these structures due to the surgical technique. Complication rates are between 8.45% and 18% [3-5]. However, there is research that seeks to understand the true effectiveness of this surgery. In this regard, in a one-week postoperative observation study, he showed a moderate hematoma mass (83%) in the pocket space created after BFP excision in almost all patients tested. Furthermore, there were no cases of infection. These were middle-aged and had abundant faces [18]. On the other hand, in another study where no complications were found, patient satisfaction was evaluated, where 84.6% stated that their facial contours were much better and 15.4% stated that the appearance of their cheeks after the spinoff surgery of the BFP was better [19].

However, it should be noted that cases of complications with the application of this surgical technique are more prevalent in the research found, for example, a patient is described who presented hours after BFP extraction with intense facial pain and edema, where it was found that the patient had significant bruising in the infra and periorbital regions. The patient's clinical condition was due to active bleeding from the sphenopalatine artery and compression and attempts to localize and ligate the vessel were unsuccessful. He was urgently transferred to the operating room, where the interventional radiology team performed angiographic embolization [3].

In this sense, complications associated with the aesthetic removal of Bichat's fat body may occur due to its vital structures. Therefore, it is important that professionals have extensive knowledge in the area, as well as having adequate informed consent, even when a sound surgical technique is proven.

CONCLUSION

The Bichat's Fat Pad (BFP) is an anatomical structure of fat, differentiated by being encapsulated, limiting its metabolism. It's in the chewing region and is surrounded by muscles and ligaments that supply blood supply. Its use in oral reconstruction procedures has shown aesthetic improvements, but it also and postoperative risks due to the surgical technique.

The uses of Bichat's Fat Pad (BFP) cover functional and aesthetic aspects, which implies its application in correcting defects, creating facial contours, and solving various medical issues. However, it should be noted that this intervention is not suitable for all patients. Its benefit is especially seen in individuals with facial features such as pronounced cheekbones or zygomatics who wish to achieve a more slender and defined appearance on their face.

Although some research suggests that oral fat reduction surgery is relatively safe, other sources highlight complication rates ranging between 8.45% and 18%. These complications can be serious, such as active bleeding from the sphenopalatine artery, which requires urgent intervention. It is crucial that practitioners have in-depth knowledge even when considering a sound surgical technique.

REFERENCES

1. Nelke K, et al. Anatomical and surgical implications of the usage of bichat fat pad in oroantral communication, maxillary, palatal, and related surgeries-narrative review. *J Clin Med.* 2023;12:49-59.
2. Mannelli G, et al. Cases of oral defect reconstruction. *J Otorhinolaryngol Relat Spec.* 2018;81:24-35.
3. Davis B, et al. Buccal fat pad reduction. USA. 2023.
4. Smith R, et al. Complicaciones asociadas a la remoción estética del cuerpo adiposo de la boca (de bichat) - revisión narrativa. *Int J Odontostomatol.* 2023;17:130-135.
5. Alcântara MT, et al. Complications associated with bichectomy surgery: a literature review. *Minerva Dent Oral Sci.* agosto de 2021;70:155-160.
6. MD edge. Buccal fat pad reduction with intraoperative fat transfer to the temple. 2023.
7. Lisiecki JL, et al. Finesse buccal fat pad excision. *Plast reconstr surg.* 2023;152:83-90.
8. Hassani A, et al. Applications of the buccal fat pad in oral and maxillofacial surgery. 2023;3:20-30.
9. Katre MI, et al. Buccal fat pad a forgotten option of reconstruction in oral cancer. *Indian J Otolaryngol.* 2019;71:248-252.

10. Rohrich RJ, et al. The role of the buccal fat pad in facial aesthetic surgery. *Plast Reconstr Surg.* 2021;148:334-338.
11. Nascimento RD, et al. Use of buccal fat pad in the treatment of peri-implant mucosal defect: a case report. *J Oral Implantol.* 2020;46:128-132.
12. Faria CAD, et al. Bichectomy and its contribution to facial harmony. *Rev Bras Cir Plastic.* 2023;33:446-452.
13. Hernández O, et al. Relaciones anatómicas del cuerpo adiposo de la mejilla asociadas a complicaciones de bichectomía. *Rev Bras Cir Plastic.* 2021;39:123-133.
14. Alvarez GS, et al. Bichectomia: sistematização técnica aplicada a 27 casos consecutivos. *Rev Bras Cir Plástica.* 2023;33:74-81.
15. Pimentel T, et al. Management of complications related to removal of the buccal fat pad. *J Craniofac Surg.* 2021;33:238-240.
16. Pokrowiecki R. Extended buccal lipectomy (bichectomy) for extreme cheek contouring. *Int J Oral Maxillofac Surg.* 2022;51:929-932.
17. Vieira GM, et al. Lesions of the parotid gland and buccal artery after buccal fat pad reduction. *J Craniofac Surg.* 2019;30:790-792.
18. Kubo T. Aesthetic values of the buccal fat pad excision in middle-aged patients. *Aesthetic Surg J Open Forum.* 2022;4:015.
19. Sezgin B, et al. The excision of the buccal fat pad for cheek refinement: volumetric considerations. *Aesthet Surg J.* 2019;39:585-592.