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# Major aesthetic considerations of bichectomy: a systematic review

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## Abstract

According to the Brazilian Society of Plastic Surgery, Brazil is one of the world leaders in plastic surgery, with approximately 2 million procedures performed annually, according to 2023 estimates, and about 0.5% of the total are represented by aesthetic surgeries such as bichectomy. Bilateral cheek symmetry is necessary, with the upper part limited by the infraorbital sulcus and zygomatic arch, and the lower part by the inferior border of the mandible. In this context, bichectomy is based on the partial removal of the adipose body (Bichat's Fat Pad) located in the cheek area. The main indication for this procedure is for patients with a marked linea alba or trauma to the buccal mucosa; however, this technique is increasingly sought for aesthetic purposes. Thus, BF removal has become increasingly popular among dental surgeons. The removal of the buccal fat allows safe results in the volumetric reduction of the lower facial third and definition of the contours and aesthetically pleasing angulations of this region. However, the main risks of bichectomy are listed as infection, bleeding, hematoma (due to some clot in some vessel or lack of external compression in the postoperative period), nerve damage, and injury to the duct of the parotid gland, which is the saliva channel. In addition, the patient may have excessive cavities in the cheek region and early facial aging.

**Keywords:** Facial aesthetics. Bichat's Fat Pad. Bichectomy. Complications. Treatments.

## Introduction

According to the Brazilian Society of Plastic Surgery, Brazil is one of the world leaders in plastic surgery, with approximately 2 million procedures performed annually, as estimated in 2023, and about 0.5% of these are represented by aesthetic surgeries, such as bichectomy [1]. For the correction of facial imbalances, bichectomy (BC) is one of the most sought-after solutions, consisting of a set of surgical techniques aimed at the physical and psychological well-being of people, improving facial aesthetics, so that they can act in conjunction with other surgical practices, such as rhinoplasty, blepharoplasty and malarplasty for the improvement of BC [1-3].

Since the cheek is bilateral, it requires the pursuit of symmetry between them, being limited in its upper part by the infraorbital sulcus and zygomatic arch and in the lower part by the lower border of the mandible. The midline is limited by the nasolabial and labiomental sulcus, while laterally it is represented by the preauricular region [3,4].

In this context, BC is based on the partial removal of the buccal fat pad (Bichat's fat pad), located in the cheek area. The primary eligibility criteria for this practice are patients with an accentuated linea alba or trauma to the buccal mucosa; however, this technique is also increasingly sought for aesthetic purposes. The buccal fat pad, first described by Marie François Bichat in 1802, is a spherical mass of encapsulated fat located between the buccinator and masseter muscles [5].

The mechanical function of these serves as a cushion to facilitate muscular movements of sucking and chewing. Bichat's fat pad has six extensions spread across the masseteric, superficial temporal, deep temporal, pterygomandibular, sphenopalatine, and inferior orbital areas. It resembles other fat deposits in the body and is not consumed by metabolism. Because Bichat's fat pad gives a rounded face appearance in some people, it can lead to an imbalance in facial contour [3-5].

In this context, in an attempt to achieve facial harmonization, Bichat's fat pad surgery is relatively

simple and based on a few well-defined steps. Initially, a small incision is made in the soft tissue to gain access to Bichat's fat pad [6]. A non-cutting dissection is achieved with fine or hemostatic scissors in the fat pocket located under the zygomatic arch, extending to the most anterior aspect of the cheek. The fat portions are gently compressed and pulled until the entire fat pad is removed. A simple suture is performed to close the incision, and the surgery is completed [6,7].

In this sense, Bichat's fat pad has attracted the attention of anatomists and facial surgeons. Its peculiar anatomy and the possibility of using this structure for aesthetic or reconstructive purposes have already been studied by several authors. Satisfactory aesthetic results can be obtained through the manipulation of buccal fat, either through its transposition as a graft or flap for filling or through its resection, called bichectomy [6,7].

The removal of Bichat's fat pad has become increasingly sought after in dental practice. The demand is for reducing cheek volume, leading to a slimmer face with enhancement of the zygomatic bone. Therefore, the removal of buccal fat allows for safe results in volumetric reduction of the lower third of the face and definition of aesthetically pleasing contours and angles in this region [8-11].

Even when properly indicated, it is still a controversial procedure, since it does not have a surgical technique that is adequately systematized in the current literature, aiming to make it safe and reproducible, given the intricate and challenging anatomy of the region. In addition, the removal of Bichat's fat pad can greatly impair repairs and make the region more vulnerable [12-15].

Therefore, this systematic review study aimed to investigate the main aesthetic considerations of bichectomy, as well as discuss its safe management to avoid and treat problems.

## Methods

### Study Design

This study followed the international systematic review model, following the PRISMA (preferred reporting items for systematic reviews and meta-analysis) rules. Available at: http://www.prisma-statement.org/?AspxAutoDetectCookieSupport=1. Accessed on: 09/18/2025. The AMSTAR 2 (Assessing the methodological quality of systematic reviews) methodological quality standards were also followed. Available at: https://amstar.ca/. Accessed on: 09/18/2025.

### Search Strategy and Search Sources

The literature search process was carried out from August to September 2025 and developed based on Web of Science, Scopus, Embase, PubMed, Lilacs, Ebsco, Scielo, and Google Scholar, covering scientific articles from various periods to the present day. The following descriptors were used in health sciences (DeCS/MeSH): *"Facial aesthetics. Bichat's Fat Pad. Bichectomy. Complications. Treatments"*, and the Boolean "and" was used between the MeSH terms and "or" between the historical findings.

### Study Quality and Risk of Bias

Quality was classified as high, moderate, low, or very low regarding the risk of bias, clarity of comparisons, precision, and consistency of analyses. The most evident emphasis was on systematic review articles or meta-analyses of randomized clinical trials, followed by randomized clinical trials. Low quality of evidence was attributed to case reports, editorials, and brief communications, according to the GRADE instrument. The risk of bias was analyzed according to the Cochrane instrument by analyzing the Funnel Plot graph (Sample size versus Effect size), using Cohen's test (d).

### Summary of Findings

A total of 121 articles were found and submitted to eligibility analysis, with 14 final studies selected to compose the results of this systematic review. The listed studies were of medium to high quality (Figure 1), considering the level of scientific evidence of studies such as meta-analysis, consensus, randomized clinical, prospective, and observational. Biases did not compromise the scientific basis of the studies. According to the GRADE instrument, most studies presented homogeneity in their results, with $X^2$=79.5%>50%. Considering the Cochrane tool for risk of bias, the overall assessment resulted in 23 studies with a high risk of bias and 30 studies that did not meet GRADE and AMSTAR-2.

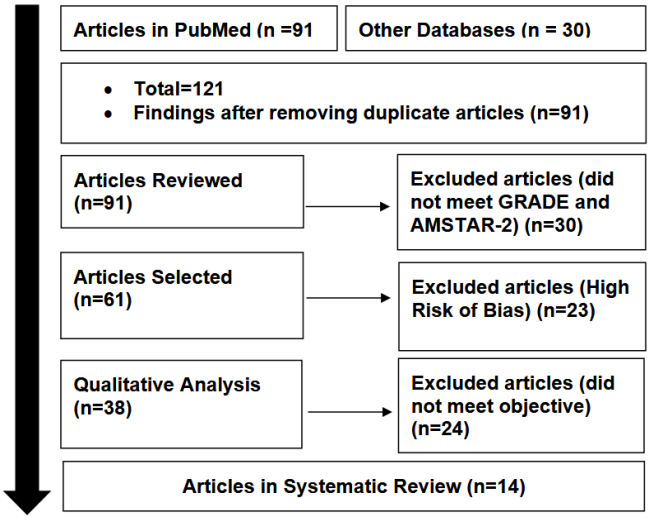


Figure 1. Flowchart showing the article selection process. . Source: Own Authorship.

Figure 2 presents the results of the risk of bias of the studies using the Funnel Plot, showing the calculation of the Effect Size (Magnitude of the difference) using Cohen's Test (d). Precision (sample size) was determined indirectly by the inverse of the standard error (1/Standard Error). This graph had a symmetrical behavior, not suggesting a significant risk of bias, both among studies with small sample sizes (lower precision) that are shown at the base of the graph and in studies with large sample sizes that are presented at the top.

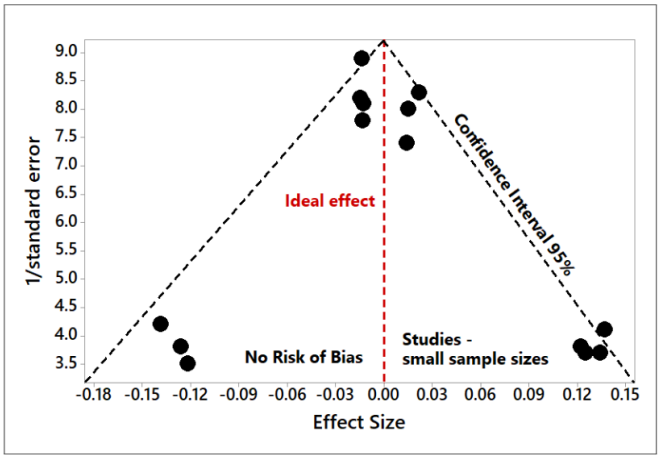


Figure 2. The symmetrical funnel plot suggests no risk of bias among the studies with small sample sizes that are shown at the bottom of the graph. High confidence and high recommendation studies are shown above the graph (n= 14 studies).

## Major Considerations and Clinical Findings

The number of people seeking bichectomy (BC) to achieve a more youthful-looking face with a harmonious pattern has increased significantly. However, studies on tissue behavior during postoperative patient follow-up are scarce [1-5]. In this sense, in the literature, studies describing the management of Bichat's fat pad for facial harmonization are limited to case reports or case series.

Although there are reports of late postoperative follow-up and evaluation, none of the studies statistically assess tissue behavior [7,8]. However, several studies have highlighted the importance of using Bichat's fat pad as an oral layer in fistula closure and also to cover bone grafts in implant dentistry, as well as for the reconstruction of extensive defects caused by tumors in the maxillofacial region, suggesting that its removal should be avoided [16-18].

Within facial surgeries, bichectomy is a surgical procedure with an aesthetic-functional purpose that removes the structure known as the buccal fat pad, which in some cases causes the patient to appear overweight and lacking harmony in facial shape/contour on the lateral axis, as well as helping to reduce the successive trauma caused by dental occlusion on the oral mucosa in the cheek area [3-5].

At an aesthetic level, performing bichectomy thins the middle third of the face, outlining and enhancing the bony angles of the zygomatic region, contributing to a more pleasing facial aesthetic. However, there are few studies clearly describing the intraoral bichectomy technique, the main one being the study published by Matarasso in 2006 [18].

The most complete anatomical study carried out suggests that deficient development of facial ligaments, ligamentous laxity secondary to facial aging and/or rupture of the fat pad could cause prolapse or descent of Bichat's fat pad into the mouth or subcutaneous tissue [19-22]. There is still no assessment of the degree of satisfaction obtained through satisfaction questionnaires after facial procedures. Therefore, objective studies are needed in order to quantify and qualify the degree of satisfaction obtained after BC. In addition, most patients who undergo BC also associate other complementary procedures, which may influence the final quality of the result and the degree of patient satisfaction [2-4].

This fact can be evidenced by the application of Botox in the cheek muscles (masseter muscle), hyaluronic acid fillers in lip augmentation, in the malar region (zygomatic or cheekbones) and in the filling of the jawline, application of PRP (Platelet-Rich Plasma), and placement of lifting threads [4,5].

In this sense, some authors have described that the removal of the buccal fat pad for aesthetic purposes highlights the superiority of results with associated procedures [3-5,12]. According to Jackson et al. (2003) [12], the results of removing the buccal fat pad in isolation can produce practically imperceptible results when not indicated correctly. Therefore, more studies are needed to evaluate the results of isolated buccal fat pad removal.

It is believed that performing the surgery under general anesthesia in a hospital setting, with adequate visualization of the dissection and control of blood pressure during surgery, further contributes to the safety of buccal fat pad removal [1,2]. To avoid complications, scissors or cutting instruments should not be used inside the "tunnel" [6]. The dissection should be performed bluntly and delicately, so that direct injury by transfixation of buccal branches or the parotid duct is very unlikely, as well as more significant bleeding due to injury to the transverse facial vein or artery. Thus, Bichat's fat pad removal should never be trivialised, and the delicate anatomical region in which it is performed, as well as its proper indication, should always be respected [6,19].

To corroborate this, Montero et al. (2018) [19] stated that knowledge of the anatomy surrounding

Bichat's fat pad, as well as its clinical applications, is essential to safely indicate and perform its removal. This surgery is indicated not only for aesthetic purposes, but also for functional reasons. When used properly, Bichat's fat pad is composed of stem cells that have a phenotype similar to adipose stem cells, useful in the treatment of pathologies and/or complications, such as perforation of the maxillary sinus membrane, oroantral/oronasal communications, peri-implantitis, ulcers, oral mucosal fibrosis, soft tissue reconstruction, among others.

In these terms, due to its location, it is prone to clinically significant pathologies, as well as constant trauma. Thus, to indicate and/or perform surgical procedures involving Bichat's fat pad, it is essential to know its anatomy and possible applications, not only for aesthetic purposes, but also for functional purposes. The application of Bichat's fat and its removal should be evaluated, being an alternative in patients who constantly suffer mucosal injury during masticatory function [19].

As an indication for the treatment of complications, superselective microcatheter angiography and embolisation have proven to be an effective modality for the immediate treatment of bleeding from facial injury and refractory epistaxis when local methods fail to achieve hemostasis, avoiding the need for further surgical exploration and providing accurate diagnosis and therapeutic modalities in a minimally invasive manner. Superselective angiography was used to study branches of the internal maxillary artery. Superselective embolisation using microspheres was then performed to control bleeding. In the case of refractory surgical measures, superselective microcatheter angiography and embolisation provide an alternative to locate and control severe small artery bleeding. This may be ideal in cases that would otherwise require extensive dissection and in regions of complex anatomy, which may compromise aesthetic results [7].

Finally, reports in the literature are scarce regarding the removal of the buccal fat pad from the face and its relationship with successive trauma events to the buccal mucosa [17]. In this sense, oral submucosal fibrosis is a serious, chronic and disabling condition, where the use of the buccal fat pad is part of the range of procedures that can be performed to treat this pathology. Several authors have sought to evaluate the use of various techniques in comparison with the removal of the buccal fat pad in order to minimize the main symptom of this condition [17,19,22].

## Conclusion

It was concluded that from an aesthetic standpoint, bichectomy refines the midface, defining and enhancing the bony angles of the zygomatic region, contributing to a more pleasing facial aesthetic. However, there are few studies clearly describing the intraoral bichectomy technique, emphasizing the minimization of complications and quantifying patient satisfaction at a statistical level. Nevertheless, several studies have highlighted the importance of using the Bichat fat pad as an oral layer in fistula closure and also to cover bone grafts in implant dentistry.

## CRediT

Author contributions: **Conceptualization**; **Formal Analysis**; **Investigation**; **Methodology**; **Project administration**; **Supervision**; **Writing - original draft and Writing-review & editing-** Ana Laura Melo, João Victor Garbo de Carvalho, and Andréia Borges Scriboni.

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## Ethical Approval

Not applicable.

## Informed Consent

Not applicable.

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## Data Sharing Statement

No additional data are available.

## Conflict of Interest

The authors declare no conflict of interest.

## Similarity Check

It was applied by Ithenticate®.

## Application of Artificial Intelligence (AI)

Not applicable.

## Peer Review Process

It was performed.

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