Advances in Plastic & Reconstructive Surgery

Applis Publishers

Case Study ISSN: 2572-6684

Comparison of Hospital versus office-based Buccal Fat Pad Partial Lipectomy using the Bichectomia Technique

Denis Souto Valente[1*], Sibelie Souto Valente[2], Alexandre Vontobel Padoin[3]

[1]Plastic Surgeon, Graduate Program in Medicine and Health Sciences School of Medicine, Pontifical University Catholic of Rio Grande do Sul (PUCRS), Porto Alegre, Brazil.

[2]Graduate Program in Medicine and Health Sciences School of Medicine, PUCRS, Porto Alegre, Brazil.

[3]Assistant Professor, School of Medicine PUCRS, Porto Alegre, Brazil.

Abstract

It is common knowledge that the Buccal fat pad plays a major role in facial aesthetics with the popularization of cosmetic surgery, as well as facial volumization with dermal fillers, the Buccal fat pad became a source of renewed interest.

Bichectomia is a delicate Buccal fat pad partial lipectomy procedure. The aim of this research was to compare clinical characteristics and outcomes of bichectomia in a hospital facility with an office-based approach 236 individuals were analysed where 76 did the procedure in hospital facility, while in 148 patients the intervention was performed at the office-based setting. Similar characteristics were seen in both groups. The satisfaction and complication rates were similar in both groups. 1 case of seroma requiring drainage was observed in the hospital group, whereas 2 cases of temporary numbness at the nasogenian area and 1 case of excessive resection needing postoperative fat graft along the cheeks were seen in the office-based group.

The single most striking observation to emerge from the data comparison was that patients undergoing hospital or office-based bichectomia presents similar clinical characteristics and outcomes.

Keywords: *Buccal Fat Pad; Surgery; Plastic; Fat; Facial Analysis; Rejuvenation*

Introduction

In the history of surgical facial rejuvenation, the focus has always been in skin resection [1]. Recent findings about the facial fat compartments have led to the development of surgical techniques aimed to treat the aging effects on the fat of the face [2]. It is common knowledge that the Buccal fat pad (BFP) plays a major role in facial aesthetics [3]. With the popularization of cosmetic surgery, as well as facial volumization with dermal fillers, the BFP became a source of renewed interest [4].

Bichectomia is a delicate BFP partial lipectomy procedure that can be performed in a hospital as well as in an office-based setting [5]. When this procedure is carried out on the right patient it can produce significant improvement in facial contour [6]. Since its description in 1989, there has been a rapid rise in the use of this technique [7, 8]. One of the main issues in our knowledge of bichectomia is a lack of comparisons between hospital versus office-based procedures.

The aim of this research was to compare clinical characteristics and outcomes of BFP partial lipectomy in a hospital facility with an office-based approach.

***Address for Correspondence:** Dr. Denis Souto Valente, Plastic Surgeon, Graduate Program in Medicine and Health Sciences School of Medicine, Pontifical University Catholic of Rio Grande do Sul (PUCRS), Porto Alegre, Antônio C Berta 475 - 7th Floor, Porto Alegre, RS, Brazil Brazil. Tel: 555130612484; Fax: 555121032886; E-Mail: denisvalentedr@gmail.com*

Received: February 09, 2018; **Date Accepted:** March 27, 2018; **Date published:** March 29, 2018.

Materials and Methods

From November 2013 to February 2017, a longitudinal prospective study was conducted on 272 patients undergoing bichectomia where 89 prospectively undergoing this procedure in hospital facility were compared to 183 patients in the office-based setting. All patients went into a private consultation with the senior author. The adopted method to perform the surgery was due to patient's preference (they could choose hospital or office-based setting). All procedures were performed for cosmetic reasons.

This study did not change anything in terms of the care provided to the patients. Regardless of their consent to participate in the study or not, their follow-up was the same and did not undergo any changes due to this decision. All procedures were performed in accordance with the guidelines and standards governing medical research, as well as the international ethical guidelines for biomedical research involving human subjects [9]. All subjects in this study read, agreed and signed the informed consent form.

The hospital bichectomia was performed under general anaesthesia. The buccal mucosal membrane was incised 1 cm medially and anteriorly the opening of the parotid duct. Two tagging sutures were placed at the margin of the mucoperiosteal flap to gain wider surgical fields. The buccinator and zygomaticus major muscles were incised, and blunt dissection was carefully performed using surgical forceps. The buccal process capsule of the BFP was ruptured and a certain volume of fat tissue was resected as shown in Figure 1. Absorbable sutures were placed in mucosal incision, and the patient was discharged after his anaesthesia recovery.

Figure 1: Transoperative view during BFP removal at the hospital.

The office-based bichectomia was performed under local anaesthesia without sedation. The surgical technique is the same as the hospital group, and a certain volume of fat tissue was resected as shown in Figure 2. Absorbable sutures were placed in mucosal incision, and the patient was discharged immediately.

Figure 2: Transoperative view during BFP removal at an office-based facility.

Patient demographics were collected. All patients had postoperative visit at 3 months to determine satisfaction rates in a 10 cm visual scale ranging from 0 (complete dissatisfaction) to 10 (complete satisfaction). Measured data included postoperative complications.

Statistical analyses were conducted using Epi Info ver. 6 (CDC, Atlanta, GA, USA) using chi-square and t-tests. Observations with missing data on the response variable were list wise deleted from the analysis to avoid bias of unknown size and direction. The categorical variables were described as percentages and frequencies. Whereas, the quantitative variables were described by the mean and the standard deviation. A 5% significance level was considered statistically significant, reflected by a p-value less than 0.05.

Results

There was 36 lost to follow up among the subjects participating in this research. 224 individuals were analysed where 76 did the procedure in hospital facility, while in148 patients the intervention was performed at the office-based setting. Similar characteristics were seen in both groups, [Table 1]. [Figures 3 and 4] exhibits some bichectomia results.

The satisfaction and complication rates are displayed in [Table 2]. 1 case of seroma requiring drainage was observed in the hospital group, whereas 2 cases of temporary numbness at the nasogenian area and 1 case of excessive resection needing postoperative fat graft along the cheeks were seen in the office-based group. There were no cases of infection, motor nerve injury or hematoma.

Table 1. Patient characteristics

Characteristic	Hospital	Office-based	p-value
Patients lost to follow up	13	35	0,08
Number of analyzed patients	76	148	
Female (%)	89	87	0,1
Age (y)	34.1±13.2	31.8±10.7	0,92
Body mass index (kg/m^2)	24.7±3.9	27.5±4.3	0,09

Values are presented as mean± tandard deviation unless otherwise indicated.

Figure 3 a

Figure 3b:

Figure 3c

Figure 3a, b, c: Postoperative comparison of a 24 years old patient with bichectomia performed at the hospital. A (before the procedure) and B (after the procedure).

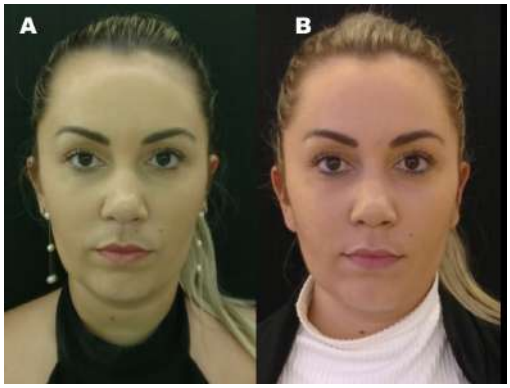

Figure 4a

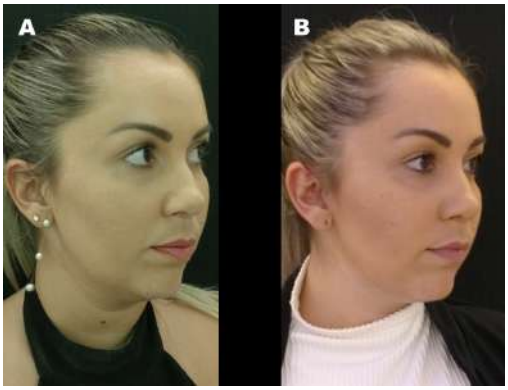

Figure 4b

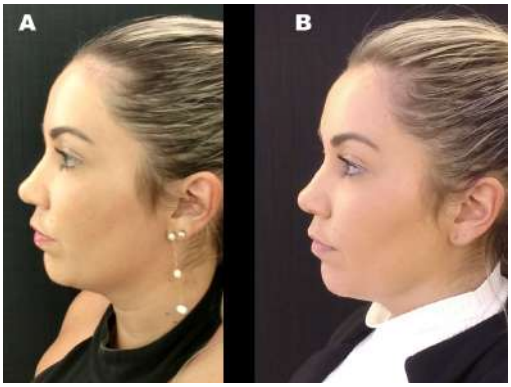

Figure 4c

Figure 4a, b, c: Postoperative comparison of a 26 years old patient with bichectomia performed at the office-based facility. A (before the procedu-re) and B (after the procedure).

Table 2. Surgical outcomes

Variable	Hospital	Office-based	p-value
Satisfaction (cm)	8.1±1.2	7.7±2.3	0,087
Complication rates (%)	1.3	2.3	0,068

Values are presented as mean±standard deviation unless otherwise indicated.

Discussion

Within the cheek, wedged between buccinator and masseter, is a biconvex pad of fatty tissue, the BFP (or corpus adiposum buccae, or Bichat fat pad) has intrigued surgeons and anatomists for a long time. The BFP appears 3 months in utero and continuously grows until birth, and there is little change in its volume during aging. It protrudes at the anterior border of the masseter muscle and extends to the parotid duct, where it rests on the bucco pharyngeal fascia and is composed of lobes and highly mobile structures being wrapped within a thin fascial envelope. It consists of a central body with four extensions: buccal, deep temporal, pterygopalatine, and pterygoid. The main body is surrounded by the zygomatic arch, masseter muscle, and buccinator muscle. [10, 11] Knowledge of the anatomy of the BFP is crucial to perform the surgery, and we believe that this is the main cause of the lower rates of complications in our research.

This anatomical structure is accessible from the oral cavity and its total estimated volume is 10 ml with, its average weight is 9.3 g, and its lower thickness is around 6 mm. The body and the buccal extension make up more than 50% of the BFP. The BFP has abundant blood supplies from the maxillary artery and the superficial and deep temporal artery. There are rich capillary networks within the capsules that cover it. Arterioles enter the capsule from several directions and break up into capillary plexuses. Most of the blood from the BFP drains into the facial vein. The Parotid duct is an adjacent anatomic structure, so it is easily encountered when extracting the buccal fat pad [10, 12]. Thus, surgeons should take care not to damage this apparatus. In our study we did not found any signs of ducts laceration, because in the seroma patient clinical analysis the search for amylase in the fluid was negative.

BFP reduction is a great procedure in the properly selected patient. Fullness in the lower cheeks can be treated this way. Liposuction or skin tightening technologies will not be the right choice when buccal fullness is apparent. The buccal fat pad sits deeper in the cheek under muscle, and this is different from skin fat that can be removed with liposuction. Proper diagnosis is important. The resection must leave some fat behind so that the cheeks do not look gaunt as the person ages. BFP removal, in the right person, can really slim down the face. The results of the procedure are not completely predictable. It must be performed on suitable individuals or it can produce irreversible hollowing of the cheeks [13, 14]. In our research one patient became really dissatisfied with the obtained results, so we need to make a liposuction on his arms, and graft the fat into his face. This patient was from the office-based group, and the reparative procedures were also performed at the same setting.

Bichectomia took a long time to become a popular plastic surgery procedure. The main issue is that as plastic surgeons we are always combating fat loss and fat descent in the face. So why then would we ever remove fat? Some people have a full and proportionately prominent BFP and this disproportionate area of fat makes the other areas of the face aged even more. This statement explains why this technique has been presented as a hot topic in the plastic surgery meetings worldwide [5, 15]. This procedure is indicated for patients with round, chubby lower cheeks that would like a more defined, slimmer or non-chubby facial appearance.

This procedure is not free of risks. Although rare, some complications (such as numbness, infection, bleeding, pain, motor nerve injury, seroma and salivary duct lesion) can occur. Fortunately, in our research the most common complication was numbness on the nasogenian area with spontaneous regression after 5 weeks.

The technical challenges of buccal fat pad removal are to be non-disruptive to the surrounding structures [16]. The senior author prefers to remove the BFP in the office under local anaesthesia with a minimal intraoral incision for the following reasons: Quicker recovery than general anaesthesia, patients can see the fat removed and a personal feeling of less intraoperative swelling. However, when performed in Hospital the patient did not experience pain, and it is less stressing for the surgeon when the BFP is not reached immediately.

During removal of the BFP, it is important to turn off the oxygen that the patient is receiving and to lower the current on the electrocautery unit in order to remove potential factors that could initiate a fire [17]. In the office-based patients we did not administrate oxygen, so it is a safe point of this technique.

The patients in this research preferred to be submitted to this procedure mainly in the office-based setting. To explain this finding, we think that procedures´ financial costs (increased almost three-fold when performed at a hospital) plays a major role in patients´ choice. Surgeons´ remuneration is similar despite the settings, so we do not believe that surgeon preference could produce a bias in our study.

It is plausible that a number of limitations could have influenced the results obtained.36 patients were lost to follow up in our study. This is an important number of subjects, however the distribution of these losses was similar between the studied groups, thus reducing the bias that could be produced. When the study protocol was created, sample size calculation was not performed because it was not expected to find differences between groups. It is important to be aware of this because our results could not have adequate power to detect the hypothesized effect. The patients in our study had not reached the final results when their data were collected. Given that our findings are based on a limited number of variables, the external validity from such analyses should conseque-ntly be treated with the utmost caution.

Conclusion

The single most striking observation to emerge from the data comparison was that patients undergoing hospital or office-based bichectomia presents similar clinical characteristics and outcomes.

References

1. Rohrich RJ, Ghavami A, Constantine FC, Unger J and Mojallal A. Lift-and-fill face lift: integrating the fat compartments. Plast Reconstr Surg. 2014; 133:756e-767e. [Crossref]
2. Valente DS, da Silva JB, Lerias AG, Rossi DDS and Padoin AV. Validation of a Method for Estimation of Facial Age by Plastic Surgeons. JAMA Facial Plast Surg. 2017; 19:133-138. [Crossref]
3. Khiabani K, Keyhan SO, Varedi P, Hemmat S, Razmdideh R, Hoseini E, et al. Buccal fat pad lifting: an alternative open technique for malar augmentation. J Oral Maxillofac Surg. 2014; 72:403.e1-403.e15. [Crossref]
4. Kim JT, Ho SY, Hwang JH and Sung KY. Efficacy of the buccal fat pad graft in facial reconstruction and aesthetic augmentation. Plast Reconstr Surg. 2014; 133:83e-5e. [Crossref]
5. Hong Z and Chen Y. [Cosmetic surgery of cheek and anatomy buccal fat pad]. Zhonghua Zheng Xing Wai Ke Za Zhi. 2000; 16:180-182. [Crossref]
6. Carbonell A, Salavert A and Planas J. Resection of the buccal fat pad in the treatment of hypertrophy of the masseter muscle. Aesthetic Plast Surg. 1991;15:219-222. [Crossref]
7. Stuzin JM, Wagstrom L, Kawamoto HK, Baker TJ and Wolfe SA. The anatomy and clinical applications of the buccal fat pad. Plast Reconstr Surg. 1990; 85:29-37. [Crossref]
8. Dubin B, Jackson IT, Halim A, Triplett WW, Ferreira M, Stuzin James M, et al. Anatomy of the buccal fat pad and its clinical significance. Plast Reconstr Surg. 1989; 83:263-264. [Crossref]
9. Council for International Organizations of Medical Sciences (CIOMS), World Health Organization (WHO). International Ethical Guidelines for Health-related Research Involving Humans, Fourth Edition. Geneva. Council for International Organizations of Medical Sciences (CIOMS). 2016; 122. [Crossref]
10. Tostevin PM and Ellis H. The buccal pad of fat: a review. Clin Anat. 1995; 8:403-406. [Crossref]
11. Singh J, Prasad K, Lalitha RM and Ranganath K. Buccal pad of fat and its applications in oral and maxillofacial surgery: a review of published literature (February) 2004 to (July) 2009. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2010; 110:698-705. [Crossref]
12. Zhang HM, Yan YP, Qi KM, Wang JQ and Liu ZF. Anatomical structure of the buccal fat pad and its clinical adaptations. Plast Reconstr Surg. 2002; 109:2509-2518. [Crossref]
13. Matarasso A. Buccal fat pad excision: aesthetic improvement of the midface. Ann Plast Surg.1991; 26:413-418. [Crossref]
14. Kruglikov I, Trujillo O, Kristen Q, Isac K, Zorko J, Fam M, et al. The Facial Adipose Tissue: A Revision. Facial Plast Surg. 2016; 32:671-682. [Crossref]
15. Jackson IT. Buccal fat pad removal. Aesthet Surg J. 2003; 23:484-485. [Crossref]
16. Ye W, Song Y, Ying B, Hu J, Zhang C, Zhang Z, et al. Use of the buccal fat pad in the immediate reconstruction of palatal defects related to cancer surgery with postoperative radiation therapy. J Oral Maxillofac Surg. 2014; 72:2613-2620. [Crossref]
17. Choudhry AJ, Haddad NN, Khasawneh MA, Cullinane DC and Zielinski MD. Surgical Fires and Operative Burns: Lessons Learned From a 33-Year Review of Medical Litigation. Am J Surg. 2017; 213:558-564. [Crossref]