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Facial contouring with the S.H.A.P.E. technique: A case series on buccal fat reduction

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ABSTRACT

Objectives: Buccal fat pad (BFP) modification enhances facial contours, reducing fullness and creating a sculpted appearance. This study presents a safe and straightforward technique for buccal fat reduction.

Material and Methods: A retrospective analysis was conducted on 62 patients who underwent BFP reduction using the Supraductal incision, Hydrodissection, Angle, Pressure, Excision (S.H.A.P.E). technique from October 2022 to September 2024. The S.H.A.P.E. technique involves five steps: Site of incision, hydrodissection, angle, pressure, and excision. Patient satisfaction was assessed using a 5-point Likert scale.

Results: The cohort included 28 males (45.2%) and 34 females (54.8%), with an average age of 32 years. Standalone BFP removal was performed in 21 cases (33.9%), while the majority underwent combined procedures. A significant proportion of patients reported being "Highly Satisfied" (48.4%) or "Satisfied" (41.9%) with the results. Mild swelling was the most common post-operative observation, with no significant complications reported.

Conclusion: The S.H.A.P.E. technique provides a structured approach to BFP reduction, minimizing risks and ensuring predictable outcomes. It helps avoid complications and ensures better outcomes. The technique simplifies buccal fat reduction into five key steps, ensuring that the procedure is both safe and effective, and easily reproducible, particularly for beginners.

Keywords: Buccal fat pad, Cheek reduction, Facial nerve injury, Facial sculpting, Patient satisfaction

INTRODUCTION

Facial esthetic procedures have seen a significant increase in recent years, driven by professional demands, the desire to enhance physical appearance, align with ideal body images, and boost self-confidence. The ubiquitous influence of social media, the internet, television, and mass media has fostered a specific perception of beauty, with the perception that a leaner face is considered more beautiful.

The buccal fat pad (BFP) is called Bichat's fat pad or corpus adiposum buccae. It is a well-circumscribed adipose tissue mass located bilaterally in the maxillofacial region.[1] Although it was initially considered non-functional, the BFP enhances inter-muscular motion and is similar to orbital fat in appearance and function.[2]

Due to the specific position, mobility, and vascularity, BFP has been used as a pedicled flap for intraoral reconstruction, especially for oroantral fistulas. However, that domain is beyond the scope of our discussion. In facial esthetics, BFP modification plays a crucial role in enhancing facial contours. Intraoral reduction effectively diminishes facial fullness, enhances the midface contours, and produces a sculpted appearance. Patients with pronounced buccal extension of the fat pad often complain about facial roundness, excessive cheek volume, or a "baby-like" appearance of their face. For these individuals, partial buccal lipectomy is an effective solution, which provides a more refined midface definition and a more chiseled facial profile.[3,4]

This study presents a safe and straightforward technique for buccal fat reduction. Our S.H.A.P.E. technique is described as easy, with simple and reproducible steps.

MATERIAL AND METHODS

All patients who underwent BFP reduction at our esthetic center from October 2022 to September 2024 were included in this study. The procedure was performed either as a stand-alone treatment or combined with other facial or body contouring interventions.

Pre-operative assessment and planning

- Pre-operative planning is individualized based on facial structure, buccal fullness, and the patient's goals.
- Intraoperative fat removal is guided by contour improvement and symmetry.

The S.H.A.P.E technique

The S.H.A.P.E. technique simplifies buccal fat reduction into five key steps, ensuring that the procedure is safe, effective, and easily reproducible, particularly for beginners. Each step is elaborated below:

- S - Supraductal incision
- H - Hydrodissection (or infiltration)
- A - Angle (direction or angle of artery toward the ipsilateral ear lobe)
- P - Pressure (counter pressure)
- E - Excision (conservative excision).

These steps form the foundation of a streamlined and reproducible technique, making it particularly suitable for practitioners with less experience in buccal fat reduction.

The cheeks are assessed in both open and closed mouth positions, taking into account the ideal anatomical norms for this region. A pre-operative oral wash with 7.5% betadine is performed to ensure asepsis. The incision site and the location of the Stensen's duct is marked [Figure 1]. The BFP is accessed intraorally using gentle cheek retraction with retractors. Subsequently, 5 mL of 2% xylocaine combined with 1:2,000,000 adrenaline is injected into each upper buccal sulcus to facilitate hydrodissection [Figure 2]. Sufficient time is allowed for vasoconstriction and the full effect of the local anesthesia to take place.

The Stenson duct opening is identified, and a mucosal incision is made approximately 10 mm superior and posterior to the duct, in the maxillary vestibule near the upper second molar. This incision provides access to the buccal extension of the posterior lobe of the BFP. Using artery forceps directed toward the ipsilateral earlobe [Figure 3], careful blunt dissection and gentle teasing are done to extract the buccal fat. Simultaneously, counter pressure is applied with the non-dominant hand to facilitate the delivery of the buccal fat [Figure 4].

Figure 1: Marking of the incision and Stenson's Duct (encircled).

Figure 2: Infiltration of local anesthetic.

Figure 3: Dissection using artery forceps directed toward the ipsilateral earlobe.

Care is taken to avoid overexcising the BFP. The isolated portion is secured with hemostats and excised using bipolar cautery. Only the portion of fat that protrudes when gently pressed is excised [Figure 5], typically amounting to 3–5 cc of fat. This avoids overexcision and ensures that unnecessary tension is not applied to the BFP.

To ensure symmetry, the excised fat from each side is measured using 10 mL syringes. The plunger of the syringe is temporarily removed to introduce the fat into the syringe, then reinserted to expel any air by pushing the fat toward the needle end, allowing precise volume measurement in milliliters [Figure 6]. The use of a plunger-less syringe provides real-time visual quantification, helps maintain symmetry, and minimizes the risk of over-resection. If asymmetry is detected either by volume measurement or visual assessment of facial contour, additional fat is removed to achieve symmetrical results. After confirming symmetry and ensuring complete hemostasis, the incision is closed using 4–0 absorbable sutures. The procedure, when performed as an isolated case, was done under local anesthesia.

Postoperatively, patients were advised to maintain a soft or liquid diet for 1 day and use an antiseptic mouth rinse for 1 week. Follow-up visits were scheduled at 1 week, 1 month, 3 months, 6 months, and 1 year postoperatively to monitor healing and outcomes. Patient satisfaction was assessed using a 5-point Likert scale [Figures 7-10].

RESULTS

A total of 62 patients underwent BFP reduction utilizing the S.H.A.P.E. technique between October 2022 and September 2024. The cohort comprised 28 males (45.2%) and 34 females (54.8%), with an average age of 32 years (range: 22–45 years).

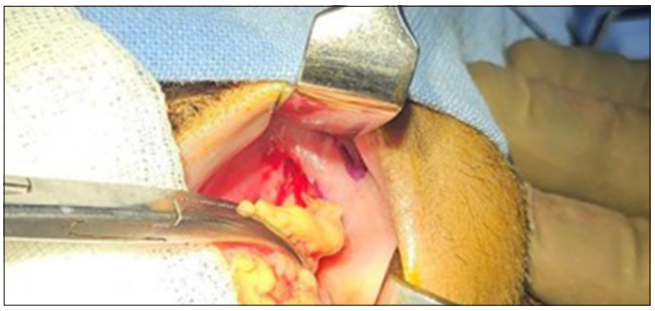

Figure 4: Applying counter pressure.

Figure 5: Conservative excision.

Figure 6: Measurement of excised fat.

Among the procedures performed, BFP removal as an isolated procedure was performed in 21 cases (33.9%). The majority of patients underwent combined procedures, with 27 cases (43.5%) involving concomitant esthetic interventions

Figure 7: 26-year-old female (pre-operative and 6 months post-operative).

Figure 8: 28-year-old male (pre-operative and 6 months post-operative).

Figure 9: 30-year-old female (front view) buccal fat removal with chin augmentation (pre-operative and 6 months post-operative).

Figure 10: 30-year-old female (lateral view). Buccal fat removal with chin augmentation (pre-operative and 6 months post-operative).

of the face and neck (e.g., facelift and neck liposuction), and 14 cases (22.6%) involving body contouring procedures unrelated to the face and neck [Table 1].

Patient satisfaction was assessed using a 5-point Likert scale. A significant proportion of patients reported being "Highly Satisfied" (48.4%) or "Satisfied" (41.9%, n = 26) with the results of the S.H.A.P.E. technique. A smaller number of patients expressed a "Neutral" opinion (8.1%), while only 1 patient (1.6%) reported being dissatisfied [Table 2].

The most common post-operative complications were mild swelling at the surgical site, which typically subsided within 7 days. Notably, no significant complications were reported.

DISCUSSION

BFP is present in the mid-face, as a round biconvex structure with a thin capsule, and it has been described as having a main body and four extensions, with extensions named according to location as buccal, pterygoid, pterygopalatine, and temporal. The gross anatomy of the buccal fat pad (BFP) has been described by Arce *et al.*[5], and the lobar extensions were detailed by Loukas *et al.*[6] [Figure 11]. It is also described as having three lobes:

a. Anterior lobe: Anterior to the masseter muscle
b. Intermediate lobe: Extends between the masseter and buccinator muscles

Table 1: Procedures performed with buccal fat removal.

Procedure	Number of patients	Percentage
Isolated buccal fat removal	21	33.9
Buccal fat removal with abdominoplasty, breast reduction, face and neck liposuction	7	11.3
Buccal fat removal with facelift	6	9.7
Buccal fat removal with cheek deformity correction	6	9.7
Buccal fat removal with neck liposuction	5	8.1
Buccal fat removal with abdominoplasty, breast implant, liposuction thighs	3	4.8
Buccal fat removal with face and neck tightening	3	4.8
Buccal fat removal with liposuction of arm and back	3	4.8
Buccal fat removal with chin implant	2	3.2
Buccal fat removal with upper blepharoplasty and face fat transfer	2	3.2
Buccal fat removal with liposuction for gynecomastia	2	3.2
Buccal fat removal with rhinoplasty and face tightening	1	1.6
Buccal fat removal with hairline advancement, brow lift, and neck liposuction	1	1.6

Table 2: Patient satisfaction with buccal fat removal using the S.H.A.P.E. Technique (*n*=62).

Satisfaction level (*n*=62)	Number of patients	Percentage
Highly satisfied	30	48.4
Satisfied	26	41.9
Neutral	5	8.1
Dissatisfied	1	1.6
Highly dissatisfied	0	0

c. Posterior lobe: Extends between the temporal masticatory spaces.

It is thus intimately associated with the masticatory system, the facial nerve, and the parotid duct.[4]

The body and the buccal extensions are superficial to the buccinators and deep to the parotid-masseteric fascia. The facial nerve (buccal and zygomatic branches) and the parotid duct are located just lateral to the buccal extension.[5,6] The parotid duct pierces the buccinator muscle at the anterior border of the body of the BFP. The BFP is located deeper

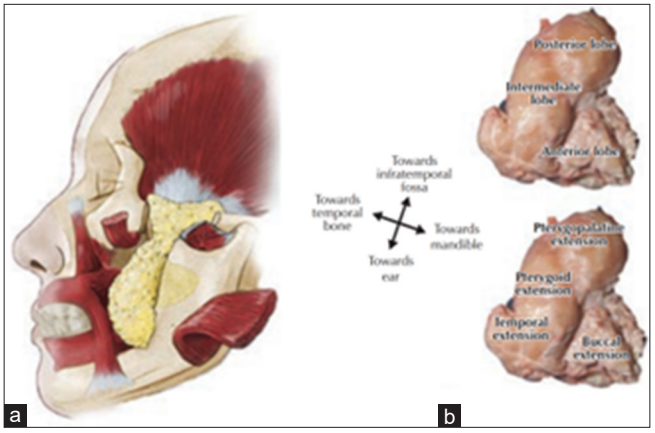

Figure 11: (a) Anatomy of the buccal fat pad (BFP) and (b) lobes and extensions of the BFP.

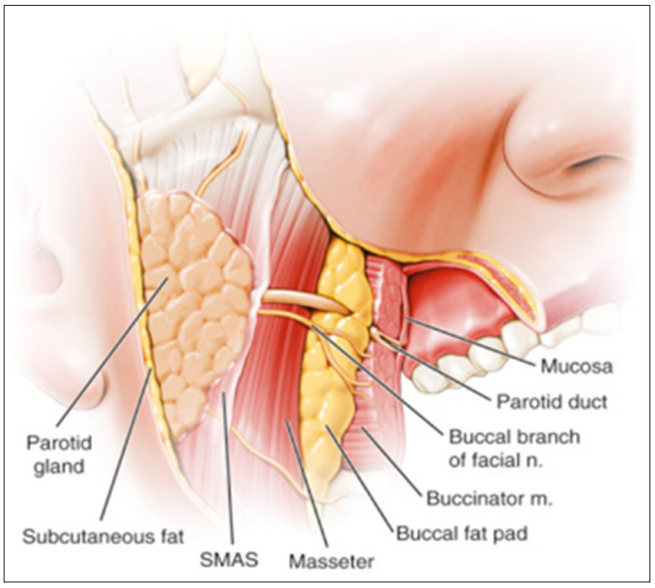

Figure 12: Cross-sectional graphic view of the buccal fat pad and adjacent structures.

than the pre-masseteric fat compartments and is suspended from the surrounding structures by a series of ligaments[7] [Figure 12], adapted from Niamtu.[8]

The BFP contributes to the contour of the cheeks. The partial removal of BFP aims to sculpt the lower face and reduce the appearance of a rounded face. The procedure is related to the concept of an inverted triangle of youth, which enhances beauty.[8,9] Usually, patients with round faces show fullness of cheeks despite the appropriate weight for their height. In these patients, the removal of BFP reduces the midface fullness and highlights the zygomatic prominence and mandibular body. BFP prominence may be encountered during the facial assessment, and in some cases, it may pseudo-herniate and result in a sagging mass within the cheek.[10]

BFP removal is an adjunct procedure in facial feminization surgery since the female face is usually triangular with a base of an inverted triangle in a line drawn between the maximum prominence of each zygoma and the apex of the chin.[11]

Several techniques have been described for the reduction or removal of BFP. Liposuction was described by Newman *et al*., as a "buc jowl" procedure.[12] It was opposed by Stuzin *et al*.,[13] who argued that this method risks causing a gaunt appearance due to excessive fat removal. Matarasso described the procedure to excise the BFP for the contouring of the face that highlights the angularity of the skeletal structures. He described the BFP excision intraorally through layers like blepharoplasty (skin mucosa, muscle investing septum, and fat). He uses a 2.5-cm mucosal incision made superior to the opening of the Stenson's duct while preserving a mucosal cuff for closure.[14]

Roman-Torres *et al*., describe an approach inferior to the parotid duct with an incision no more than 2 cm long into the soft tissue located in the lower portion of the zygomatic process.[15]

Stuzin *et al*., mentioned an approach posterior to the parotid duct using a 2 cm incision above the second molar.[16] It is made 5 mm above the attached gingiva of the second molar.

Another intraoral approach is the hydrodissection technique, which describes utilizing a 0.5 cm horizontal incision 1 cm posterior to Stensen's duct.[17]

A systematic review by Moura *et al*., describes two main approaches for BFP removal: Rhytidectomy (facial approach) and intraoral incision.[18] While the rhytidectomy approach was used in one study during facelift procedures, it carries risk of damaging facial nerve branches. The intraoral approach, considered safer, can be performed either at bite level or at the maxillary gingivobuccal sulcus, with the primary difference being the relationship to the parotid duct.

In our S.H.A.P.E. technique, we use hydrodissection with xylocaine and adrenaline to create a bloodless field and enhance the ease of dissection. Then, an intraoral mucosal incision is made approximately 1 cm superior and posterior to the Stenson duct opening in the maxillary vestibule near the upper second molar to access the buccal extension of the posterior lobe of the BFP.

The BFP volume usually remains fairly constant and does not fluctuate significantly during periods of weight gain or loss. As the patient ages and loses relative volume in the face, BFPs can thus cause a notable fullness in the cheeks. Matarasso,[14] stated that patients with capacious faces are good candidates for BFP removal. However, BFP removal is not suitable for every patient. BFP reduction may be less appropriate for individuals with naturally thin or "grunt" facial structures. In our study, we use a conservative approach, carefully extracting only the fat that comes out easily with gentle pressure.

The possible complications of the procedure include hematoma, trismus, and injury to the facial nerve or parotid duct, excess or unequal resection leading to facial asymmetry.[19] With our approach of hydrodissection, location of incision, and conservative excision, no significant complications were encountered during our study.

CONCLUSION

The BFP contributes to the fullness of the lower cheeks. Removal of the BFP can be an easy and safe procedure in the hands of a plastic surgeon. The procedure is performed without direct visualization of the entire fat pad, making anatomical familiarity and a structured approach essential to avoid complications. Over-excision can lead to undesirable esthetic outcomes, which the patient does not appreciate. To minimize these risks and to achieve optimal results, it is important to adopt a simple and structured, step-by-step approach, as described in our study. The S.H.A.P.E. technique helps avoid complications and ensures better, more predictable outcomes.

Authors' contributions: Priya Bansal: Conceptualization, study design, supervision, and manuscript drafting. Rajat Gupta: Surgical execution, data acquisition, and critical revision of the manuscript. Gautam Chaudhury: Methodology development, formal analysis, and manuscript review. Junaid Khurshid: Literature review, data curation, and figure preparation. Tanvi Rao: Manuscript editing, formatting, and reference management. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work.

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