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Buccal Fat Pad Augmentation for Facial Rejuvenation

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ABSTRACT

Background: The buccal space and its fat pad (BFP) is a valuable, overlooked target in facial rejuvenation procedures. We identified a specific group of patients who have normal or prominent malar projection in the presence of atrophy of the buccal fat pad, with or without prominent gonial angles.

Materials and Methods: Eight of 24 prospectively studied patients (BIOMED IRB), who had fat grafts and facelifts received an average of 2.7 ml of fat transferred into the buccal space. Immediate visual correction of the buccal depression was noted. No overcorrection was carried out.

Results: None of the 8 patients suffered an adverse event from trans-oral buccal space fat grafting. Persistent facial volume in this area has been noted up to 24 months after treatment.

Conclusions: In patients with buccal fat pad atrophy, fat grafting into the buccal space can be safely performed through an intraoral approach.

Buccal Fat Pad Augmentation for Facial Rejuvenation

The Buccal Fat Pad (BFP) is a valuable, overlooked target in facial rejuvenation procedures. Infrastructure collapse and volume loss in deep compartments of the face such as the BFP contribute to gaunt, sub-malar, facial contours.¹⁻³ To our knowledge, no article has addressed a specific technique and rationale for augmentation of the BFP.

Anatomy (Figures 1)

The BFP lies within the buccal space, a compartment bound by the buccinator muscle medially, the deep cervical fascia and mimetic muscles anterolaterally, and the parotid gland posteriorly.⁴ In addition to the BFP, the buccal space also contains the parotid duct, salivary glands, facial artery and vein, buccal artery, lymphatic channels, and branches of the facial and mandibular nerves (Fig. 1).⁴ Blood supply to this space is provided by branches of the anterior deep temporal, buccal, and posterior superior alveolar arteries.⁵

Researchers have conceptually divided the BFP in various ways, but all agree that the BFP contains a core body and multiple extensions.^{3,5,6}

In summary, the buccal fat pad functions as a gliding surface over which masticatory and mimetic muscles contract, a protective padding to avoid compression of neurovascular bundles during muscle contraction and external forces, and a filler of the deep tissue space.

METHODS

Patient Selection

We identified a specific group of patients who have normal or prominent malar projection in the presence of atrophy of the buccal fat pad, with or without prominent gonial angles, who would benefit from augmentation of the buccal space during facial volumization.

Procedure (Video)

With the patient under local or general anesthesia, fat is harvested from the abdomen or thigh. All patients are given intravenous Clindamycin 600 mg one hour prior to surgical incision and oral Clindamycin (300 mg TID) for three days after surgery.

Harvested fat is rinsed with Ringers lactate (RL) using a filtration device (Puregraft, Inc., San Diego, CA). The fat is further modified into a millifat graft (parcel size 2.4 mm or less) by emulsification, passing the fat back and forth 20-30 times through a 2.4 mm connector (Tulip Medical, Inc., San Diego, CA) between two syringes.

Following the facelift, the oral cavity is prepped with betadine solution. The mucosa is anesthetized with 0.25% Marcaine with 1:200,000 of epinephrine. An 18 gauge needle incision is made about a 1 to 1.5 cm above the first or second molar tooth in the non-attached gingiva of the upper buccal sulcus, well above Stensen's duct. With gentle pressure, the 18 gauge Tulip side port, disposable injection cannula (.098mm inner diameter, 7cm in length) is passed posterior, inferior and lateral into the buccal space. An average of 2.7 mL of fat was injected into the space (range 2-5 mL), resulting in immediate visual correction of the buccal depression (Video). No overcorrection is carried out. The intraoral needle holes are left open. A regular diet is permitted and patients are given Peridex mouthwash. A Medrol dose pack is prescribed as needed.

DISCUSSION

Deep fat injections are more effective than superficial fat injections in reversing particular age-associated volume loss. The commonly performed microfat injections into the superficial compartments of the face combat the effects of aging by re-inflating the dermis and reversing some of the architectural changes seen in elastin and collagen fibers.⁷ In contrast, deep injections to the midface are performed with larger diameter fat parcels, which provide structural support and volume repletion.⁸ The appropriateness of superficial versus deep fat injection should be determined on a case-by-case basis, depending on the particular age-associated changes observed in a given patient.⁹

Intraoral fat injection into the deep compartments of the face, specifically the BFP, offers a number of advantages over traditional percutaneous fat injection.¹⁰ To begin, the intraoral approach is more compatible with facelift surgery. (Figure 2 a, b, c)

When volume enhancement is not performed in conjunction with facelift, there are advantages to intraoral injections. The intraoral approach can reduce intraoperative swelling in the plane of injection, allowing the surgeon to more accurately determine the appropriate volume and distribution of added fat.¹⁰ The intraoral approach also spares trauma to the skin and other superficial structures, reducing postoperative bruising or scarring. While there had been speculative concern that intraoral injection would increase rates of infection when compared to percutaneous injection, a recent study by Copeland-Halperin et al did not find the rate of infection to be higher with intraoral fat injection into the deep midface.²

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FIGURES

Fig 1:

Schematic representation of the buccal fat pad with its temporal and buccal extensions, as well as its relationship with the parotid gland and parotid duct.

Fig 2A & 2B:

A 52 year old female with a prominent malar projection and pronounced gonial angle with buccal fat atrophy is shown preoperatively (A) and postoperatively at 7 months (B) after facelift with SMASectomy, bilateral upper blepharoplasty, and fat grafting to the face. 2.5 mL of fat was injected into each buccal compartment. Subtle changes in volume are apparent between the preoperative and 7 month postoperative photos.

Option 1: Front view

(Submitted file description: “Front PreOp” and “Front PostOp”)

Option 2: Lateral view

(Submitted file description: “Lateral PreOp” and “Lateral PostOp”)





