

# Buccal Fat Pad Lifting: An Alternative Open Technique for Malar Augmentation

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**Purpose:** The purpose of the study was to introduce a novel technique for malar augmentation using buccal fat pad pedicle flaps and to evaluate the long-term results and complications of the technique.

**Materials and Methods:** The investigators designed and conducted a prospective clinical trial. Patients underwent unilateral malar augmentation surgery using buccal fat pad pedicle flaps from June 2011 through June 2012. Patients underwent surgery for esthetic reasons or for trauma with severely comminuted or old zygomaticomaxillary complex fractures that could not be reduced precisely. The primary predictor variable was the buccal fat pad pedicle flap technique. The primary outcome variables included the amount of augmentation and resorption (which was estimated by comparing pre- with postsurgical photographic views), pain, edema, bruising, and nerve and parotid duct injuries.

**Results:** Thirteen patients (8 men and 5 women) underwent malar augmentation in the cheekbone area using the buccal fat pad pedicle flap technique. One year after surgery, the average amount of resorption was 0.376 mm. Other major complications, such as prolonged bruising, massive hematoma, intense pain, asymmetry, and parotid duct injury, were not observed.

**Conclusion:** These results indicate that this new open-access technique should be considered an alternative method for the management of mild to moderate malar depression in patients undergoing esthetic and post-trauma surgery.

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The use of autogenous free fat grafts is a well-known method to fill in superficial depressions resulting from traumatic or congenital defects. The major donor fat for this procedure is subcutaneous fat from the abdomen or buttocks. The buccal fat pad (BFP) as an anatomic element was first mentioned by Heister<sup>1</sup> in 1732 and was described by Bichat<sup>2</sup> in 1802. Scammon<sup>3</sup> was the first to describe the anatomy of the BFP. In 1977, Egyedi<sup>4</sup> was the first to report the use of the BFP as a pedicle graft; subsequently, Tideman et al<sup>5</sup>

studied its anatomic characteristics and blood supply, described the surgical technique, and presented the clinical results of 12 cases of surgical defect reconstructions of the oral cavity.

Anatomically, the BFP is an encapsulated, rounded, and biconvex, mainly adipose structure with an excellent blood supply from the maxillary, superficial temporal, and facial arteries (Fig 1).<sup>5-7</sup> This triple irrigation system allows the use of this tissue without significant risk of necrosis. The fat pad is delimited

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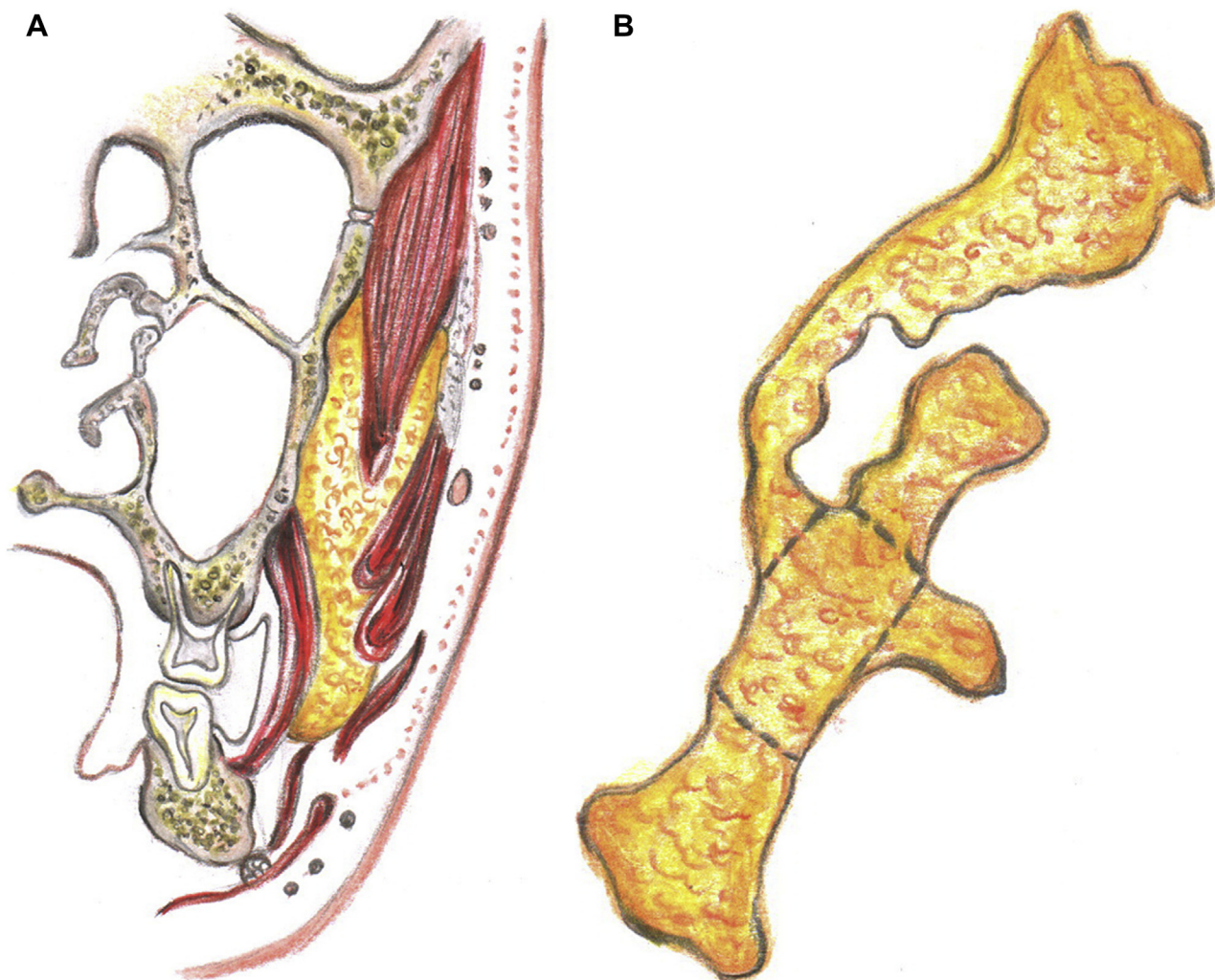
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**FIGURE 1.** A to F, Schematic views of the relevant anatomy of the buccal fat pad. (Fig 1 continued on next page.)

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by the buccinator muscle, the masseter muscle, and the ascending mandibular ramus and zygomatic arch.

The BFP flap is an axial flap and can be used to fill in small- to medium-sized soft tissue and bony defects. It is often encountered as it bulges into the surgical field during surgery in the pterygomandibular region. Use of the BFP for facial esthetic surgery was first described by Chung et al<sup>8</sup> and Ramirez.<sup>9</sup> However, the literature lacks data about the technique, indications, complications, and long-term results.

The purpose of this study was to introduce a novel technique for malar augmentation using BFP pedicle flaps. The authors hypothesized that it would be effective because of its reported advantages, such as a preservation of the vascular pedicle, accessibility, and volume and that the technique should be considered an alternative technique. The specific aim of the study

was to evaluate the long-term results and complications of the technique.

## Materials and Methods

The authors designed and conducted a prospective clinical trial. Patients underwent malar augmentation surgery using BFP pedicle flaps. The study population was composed entirely of patients who were voluntarily referred to the authors' department for the evaluation and management of malar contouring from June 2011 through June 2012. These patients had recent trauma-related comminuted or old zygomaticomaxillary complex fractures that could not be reduced precisely. To be included in the study sample, the main complaint had to be an esthetic problem, and the patients had to

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