The Use of Buccal Fat Pad for Oro-Antral-Communication Closure

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Introduction: This report compares the use of a buccal fat pad (BFP) to Oro-Antral-Fistula (OAF) closure.

Materials & Methods: BFP was used as a pedicle graft to OAF closure in 13 patients. Five of the patients underwent primary closure with BFP and 8 patients were treated with BFP after an unsuccessful closure with a buccal advancement flap. The BFP was left uncovered to epithelialize in all patients.

Results: The BFP healed without complication within 3 to 4 weeks in all patients. The surface of the fat converted to normal mucosa.

Conclusion: The findings support the idea that BFP is a useful, safe, and easy method to close OAF, especially recurrent OAF.

Key words: Buccal fat pad, Oro-Antral-Fistula, sinus.

Journal of Mashhad Dental School, Mashhad University of Medical Sciences, 2007; 31(Special Issue): 9-11.

The buccal fat pad (BFP) as an anatomic element was first mentioned by Heister in 1732 and was described by Bichat in 1802. Scammon was the first to describe the anatomy of BFP. Anatomically the buccal fat pad consists of a central body and four processes: buccal, pterygoid, superficial, and temporal extensions.

The use of the BFP to cover intraoral defects was first described by Egyedi in 1977. He used it in the form of a pedicled graft for closure of postsurgical maxillary defects in 4 cases.

During the last 8 years, an increasing number of clinical studies on a large number of patients can be found in the literature. These studies reported encouraging results and influenced our use of this technique.

This report describes our results in a series of patients in whom the buccal fat pad was used for OAF.

Materials & Methods

Between 2002 and 2004 in the Mashhad Dental School (Mums), the buccal fat pad was used to close the oro-antral communication in 13 patients ranging in age from 19-79 years. There were 9 men and 4 women with oro-antral communication, 5 of them underwent primary closure with the BFP and the other 8 patients were treated with BFP after an unsuccessful closure with the buccal advancement flap (3 patients experienced two unsuccessful procedures and patients experienced three unsuccessful procedures) (Table 1).

<table>
<thead>
<tr>
<th>Indication</th>
<th>No of Patients</th>
<th>Average Age of the patients (yr)</th>
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</thead>
<tbody>
<tr>
<td>Primary closure of OAF</td>
<td>5</td>
<td>42.1</td>
</tr>
<tr>
<td>Secondary closure of unsuccessful procedures for OAF</td>
<td>8</td>
<td>47.5</td>
</tr>
</tbody>
</table>

In all patients, the BFP was left uncovered to heal spontaneously. All patients underwent prophylactic antibiotic therapy and ate a soft diet for at least 7 weeks after surgery.

Surgical technique

The procedure was performed with the patient being under local anesthesia (Fig 1). A circular incision with a 3 mm margin was made around the defect (Fig 2), the epithelial tract with any inflammatory tissue was completely excised, and two divergent incisions were extended into the vestibule. The trapezoidal buccal mucoperiosteal flap was reflected from the alveolus and the lateral wall of the maxilla. The buccal fat pad was exposed through a 1 cm vertical incision through the periosteum posterior to the zygomatic buttnets. The fat pad was gently advanced over the bong defect (Fig 3), and secured with sutures (Fig 4). Finally, the mucoperiosteal flap was replaced in its original position with sutures inserted between the buccal fat pad and the buccal flap. The fat was left exposed in the mouth without any coverage.

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The epithelialization process completed after 3 to 4 weeks (Fig 5). After healing was completed, there were no differences in the level or color of the local mucosa.

**Discussion**

The use of the buccal fat pad in the closure of OAF was first reported by Egyedi. Since then, it has been referred to in the literature by different names. Scammon was the first to describe the anatomy of the BFP, followed by Goughran. Anatomically the buccal fat pad is described consisting of a central body and 4 extensions. The blood supply of the buccal fat pad comes from 3 sources: the maxillary artery (buccal and deep temporal branches), the superficial temporal artery (transverse facial branch), and the facial artery. The rich blood supply may explain the high success rate. It also may be one reason for the quick epithelialization of the fat.

Fujimura, et al, showed that BFP started to epithelialize in a week and completed its epithelialization within 6 weeks, and was comparable to our findings.

Most authors agreed on the surgical technique to expose the BFP, similar to the one we performed.

Stajcis advocated the use of the buccal fat pad for OAF closure without any complications, and we found that BFP was very useful for OAF closure without any disturbance and scaring in the vestibule of OAF closure such as buccal advancement flap.

**Conclusion**

The easy mobilization of the buccal fat pad and its excellent blood supply and minimal donor site morbidity make it an ideal flap for OAF closure. We believe that the BFP should be used more often for this clinical application.

**References**

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