Summary

Purpose: Cleft lip and palate (CLP) results from developmental variations that occur during the embryonic and the very early fetal period (1). The reported frequency of CLP is 0.95 per 1000 live births in Turkish population (2). The etiology of clefts is complex and multifactorial (3). Patients with CLP experience social, functional and psychological problems in their further lives. Multidisciplinary management of patients with clefts of the lip and palate has been well recognized and considered to be the standard for cleft care (3,4). This report presents multidisciplinary treatment of a case with unilateral CLP.

Case Report
An 18 year old girl with unilateral CLP referred to our department because of the unaesthetic appearance of her anterior teeth. An alveolar cleft was present between maxillary left central incisor and maxillary left deciduous canine. Secondary bone grafting was applied for treatment of the alveolar cleft. Following operation, patient was referred to Orthodontics Department. Metal brackets with 0.018"0.022" slots were bonded to maxillary and mandibular teeth. Orthodontic leveling and finishing stages were performed in 16 months period. After fixed appliance therapy, fixed prosthodontic restorations were applied to achieve ideal aesthetic appearance, function and stability.

Conclusion: This case report demonstrated the need for multidisciplinary treatment in patients with CLP.

Key Words: Cleft lip, cleft palate, multidisciplinary treatment, secondary bone grafting

Turkiye Klinikleri J Dental Sci 2005, 11:64-68

Özet


Sonuç: Bu olgu sunumu dudak damak yarık hastalarında multidisipliner tedavi gerekliliğini ortaya koymaktadır.

Anahtar Kelimeler: Yank dudak, yark damak, multidisipliner tedavi, ikinci kemik greffleme

Hakan TÜRKKAHRAMAN*, Mehmet SARIOĞLU**, M. Özgür SAYIN*, Timuçin BAYKUL***, M. Asım AYDIN****, Serdar NASIR****, Erdal EROĞLU*****
In another hospital, her lip was surgically closed at the age of 1 month and her plate at the age of 3 months. After, she did not receive any routine dental or medical treatment.

Extraoral examination revealed distortion of the base of the nostril and depression of the alar base on the cleft side (Figure 1). An alveolar cleft was present between maxillary left central incisor and maxillary left deciduous canine (Figure 2).

Secondary bone grafting was applied for treatment of the alveolar cleft. Bony margins of the cleft were exposed with the incisions performed at the mesial and distal sides of the cleft. Nasal mucosal tissues were dissected, approximated and sutured to form the floor of the nose. Mucosal tissues of the palatal area were also approximated and sutured. Spongyous bone was harvested from the medial surface of the anterior iliac crest through a cortical window and alveolar bone grafting was performed (Figure 2). The cortical bone part that was opened was than placed at the base of asymmetrical alar cartilage. Nasoplastastic operation was also performed at the same session. Following the nasal surgery “nostril retainer” was applied to insure symmetry and stability (Figure 3).

![Figure 1](image1.jpg) Extraoral front view of the patient before surgery.

Following operation, patient was referred to Orthodontics Department. Extraoral and intraoral examination revealed a normofacial pattern, rotated position of maxillary left central incisor, absence of the maxillary left lateral incisor and mandibular left 2nd premolar. Maxillary left central incisor was narrower than the right central. Maxillary left deciduous canine and mandibular left 2nd deciduous molar were retained. Maxillary midline was shifted 1 mm to the left. No impacted tooth was determined in the radiographic examination. Cephalometric evaluation indicated that she had a skeletal Class II Malocclusion with a decreased mandibular plane angle (Figure 4). The positions of upper incisors were retrusive and lower incisors were protrusive (Table 1). Metal brackets with 0.018*0.022” slots were bonded to maxillary and mandibular teeth. The rotation of the maxillary left central incisor was corrected with the help of force couple obtained by elastic rondels attached to the cleat and bracket. Orthodontic leveling and finishing stages were performed in 16 months period. Space for maxillary left lateral incisor was preserved. Maxillary left deciduous canine was extracted during treatment. But, retained mandibular left 2nd deciduous molar was

![Figure 2](image2.jpg) Preoperative and postoperative occlusal radiographs of the patient.

![Figure 3](image3.jpg) Preoperative and postoperative views after rhinoplasty. Alar base was supported during alveolar grafting.
After fixed appliance therapy, fixed prosthodontic restorations were planned to achieve ideal aesthetic appearance, function and stability. For this aim, upper incisors and canines were prepared and metal supported veneer ceramic crowns were applied (Figure 6).

After multidisciplinary treatment patient had an acceptable facial appearance and occlusion with ensuring good stability.

**Discussion**

CLP is the most common congenital craniofacial malformation. The child with CLP undergoes several surgical procedures to create an esthetically pleasing lip and nose, an intact palate and an intact alveolar ridge (1). Generally, the surgical closure of the lip is performed with in the first few months of life (1). On the other hand there has been a controversy about the application of primary bone grafting. Some authors reported that primary bone grafting was a reliable method that provides intact anterior palate and better tooth position (5-7). On the other hand several authors advocated that this procedure interferes with normal maxillary growth (8,9). Secondary bone grafting performed between 9 and 11 years when the adjacent unerupted canine root is one-forth to two-thirds complete is the most favorable timing in most centers (10). However, it is not always possible to meet the patients in secondary grafting period, so as in this case, late grafting can be performed in order to stabilize the maxillary arch and to achieve a firm anatomic base to aid orthodontic and prosthodontic management as well as to support the alar base for improving the aesthetics of the face.

Calvarial bone, mandibular symphyseal bone and iliac crest bone were tried for closure of alveolar clefts and iliac crest bone was reported as the most favorable graft for closure of residual alveolar clefts (3,11-14). Nasoplastic operation performed at the same session also contributed to a more esthetic facial appearance. Supporting the alar base during alveolar cleft reconstruction not only provides a better growth but also helps to reach better results after rhinoplasty. In the present 

**Table 1.** Cephalometric measurements before and after treatment.

<table>
<thead>
<tr>
<th></th>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNA (°)</td>
<td>90.0</td>
<td>90.0</td>
</tr>
<tr>
<td>SNB (°)</td>
<td>82.5</td>
<td>82.0</td>
</tr>
<tr>
<td>ANB (°)</td>
<td>7.5</td>
<td>8.0</td>
</tr>
<tr>
<td>SND (°)</td>
<td>79.0</td>
<td>79.0</td>
</tr>
<tr>
<td>Upper Incisor-NA (°)</td>
<td>10.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Upper Incisor-NA (mm)</td>
<td>-1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>Lower Incisor-NB (°)</td>
<td>35.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Lower Incisor-NB (mm)</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Po-NB (mm)</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Interincisor angle (°)</td>
<td>127.0</td>
<td>131.0</td>
</tr>
<tr>
<td>Occusal Plane-SN (°)</td>
<td>17.0</td>
<td>15.0</td>
</tr>
<tr>
<td>GoGn-SN (°)</td>
<td>26.0</td>
<td>27.0</td>
</tr>
</tbody>
</table>

kept in mouth and a good occlusion was achieved (Figure 5). Cephalometric values before and after treatment were presented at Table 1.

---

**Figure 4.** Extraoral, intraoral photographs and radiographs before orthodontic treatment.
case, alar base was supported and the result of the rhinoplasty was satisfactory as alar wings became symmetrical (Figure 3).

Cephalometric evaluation of the patient revealed Class II Malocclusion and dentoalveolar compensation with retrusive maxillary incisors and protrusive mandibular incisors. This is an extreme situation as the maxilla often falls behind in growth and development in all three dimensions of space in many CLP cases. In this case, maxilla was normal in vertical and transversal dimension and hyperplastic in sagittal dimension. This may be due to hereditary growth pattern and incomplete cleft of the palate.

By fixed orthodontic treatment maxillary and mandibular teeth were successfully aligned and ideal occlusal relationship was achieved. Vargervik (15,16) pointed out that in addition to missing lateral incisors, the central incisors are often narrower than normal. This was also true for this case as maxillary left central incisor was narrower than normal size. In addition to replace lateral incisor, restoration of the central incisor was also indicated.

In adult CLP patients, once alveolar bone grafting and all orthodontic treatment phases have been completed, missing teeth are replaced in a more permanent fashion, either with a fixed bridge or through the use of osseointegrated implants (1). In the present case an intercanine fixed bridge was preferred so as to ensure stability, aesthetics and function.

**Conclusion**

This case report demonstrated the need for multidisciplinary treatment in patients with CLP.
REFERENCES


Received: 04.02.2005

Correspondence: Hakan TÜRKKAHRAMAN, MD
University of Süleyman Demirel,
Faculty of Dentistry,
Department of Orthodontics
ISPARTA

*This case report was presented in 9th International Congress of the Turkish Orthodontic Society.