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MULTIDISCIPLINARY TREATMENT IN NON-SYNDROMIC CLEFT LIP AND PALATE PATIENTS: 2 CASE REPORTS

Non-Sendromik Dudak Damak Yarığı Hastalarında Multidisipliner Tedavi: 2 Vaka Raporu

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ABSTRACT

Objective: It is intended in this case report to explain the multidisciplinary treatment of 2 non-syndromic cleft lip and palate patients with different approaches, the treatment phases of prosthetic rehabilitation and the results obtained.

Case Reports:15-year-old unilateral cleft lip and palate patient and 25-year-old bilateral cleft lip and palate patient was admitted to our clinic with the functional and aesthetic complaints. Orthodontic, surgical and prosthetic treatments were applied

Results: With multidisciplinary treatments aesthetic and functional solutions were provided. Aesthetic and functional results were obtained for both cases with fixed restorations. The treatments protocols had no complications. The outcomes were of high quality and brought satisfaction to the patients.

Conclusion: Multidisciplinary treatment should be considered in cleft lip and palate patients in order to be able to fully ensure speech and hearing, continuation of occlusion and maxillofacial growth in the normal course and the improvement of physical appearance and psychological state. However, different treatment plans should be considered in its different timing for each case.

Keywords: multidisciplinary treatment, non-syndromic cleft, dental prosthetics,

ÖZ

Amaç: Bu vaka raporunda 2 non-sendromik dudak damak yarıklı vakanın farklı yaklaşımlarla protetik tedavisinin anlatılması ve sonuçlarının değerlendirilmesi amaçlanmaktadır.

Vaka Raporu: 15 yaşında tek taraflı dudak damak yarıklı erkek hasta ve 25 yaşında çift taraflı dudak damak yarıklı kadın hastalarımız kliniğimize estetik ve fonksiyon kaybından dolayı başvurmuşlardır. Ortodontik, cerrahi ve prostodontik yaklaşımlarla hastalara multidisipliner tedavi protokolleri uygulanmıştır. Her iki vakada da sabit protetik restorasyonlar uygulanmıştır. Farklı tedavi protokolleri uygulanan hastalarımızda herhangi bir komplikasyon gözlemlenmemiştir. Tedaviler yüksek hayat kalitesi ve memnuniyet sağlamıştır.

Sonuçlar: Dudak damak yarıklı hastalarda; konuşma, duyma, okluzyonun devamlılığı, maxillofacial büyümenin normal seyrinde devamı, fiziksel görünüşün arttırılması ve psikolojik durumun düzeltilmesi için multidisipliner yaklaşım gereklidir. Farklı tedavi planlamaları ve zamanlamaları her bir vakaya göre değerlendirilmelidir.

Anahtar Kelimeler: Multidisipliner tedavi, non-sendromik dudak damak yarıkları, dental protezler,

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INTRODUCTION

Cleft lip and palate (CLP) is a frequently encountered congenital anomaly occurring due to a failure fusion of maxillofacial processes in the embryonic period. Clefts can be classified as syndromic (combined with other malformations) and non-syndromic (isolated) cleft lip and palate. There are many etiological factors of non-syndromic cleft lip and palate.[1] Many genetic and environmental factors such as malnutrition, exposure to radiation during pregnancy, stress, teratogenic agents, infectious agents such as viruses and genetic transmission are one of these factors.[2]

In all cleft lip and palate patients; similar complex occlusal, aesthetic, functional and speech problems increasing with the severity of cleft are observed. Facial profile abnormalities are observed due to incompatibility between the upper and lower jaw in CLP patients. These disorders are often observed as Angle Class 3 anomalies with the formation of maxillary narrowing as a result of a scar resulting from the surgical closure of cleft region; and sometimes with the addition of increased mandibular development.[3] Some malformations are common in these patients in terms of tooth alignment. Sometimes impacted teeth resulting from the lack of sufficient space in the arc due to skeletal narrowness of the upper jaw and sometimes teeth which do not occur congenitally in the region of cleft are seen frequently. Although the absence of lateral incisors are observed mostly, the absence of central incisors and canines may be seen. This can be unilateral or bilateral. Even if these teeth are seen particularly in the cleft region, they can be malformed and malpositioned. The bone supports of adjacent teeth are diminished.[4]

Multidisciplinary treatment should be considered in cleft lip and palate patients in order to be able to fully ensure speech and hearing, continuation of occlusion and maxillofacial growth in the normal course and the improvement of physical appearance and psychological state. However, different treatment plans should be considered in its different timing for each case.[2]

Prosthetic treatment has an important role in the rehabilitation of cleft lip and palate patients. Prosthetic rehabilitation is effective in the treatment protocol in terms of ensuring functional and aesthetic improvement and phonation especially in anterior region due to the frequent occurrence of congenital lack of teeth in the cleft region. [5] Different prosthetic treatment options can be considered for lip and palate patients such as fixed prostheses with different design, removable prosthesis and implant-supported prostheses. Usually if there is a sufficient number of teeth in lip and palate patients, fixed restorations can be applied including at least one of teeth adjacent to cleft region on both sides. If occlusion or profile arrangement is required; then implement of the multiple teeth or even the whole mouth restoration may be necessary.[6] Durable, aesthetic and functional restorations can be achieved with fixed prostheses.[7]

It is intended in this case report to explain the multidisciplinary treatment of 2 non-syndromic cleft lip and palate patients with different approaches, the treatment phases of prosthetic rehabilitation and the results obtained.

CASE REPORTS

Case 1;

15-year-old unilateral cleft lip and palate patient has admitted to our clinic due to discrepancy in maxilla and aesthetic, functional and phonational problems resulting from Class III malocclusion. It has been seen on the evaluation of the dental arch that the maxillary arch collapsed to the midline and cleft region followed shorter segment. Advanced misalignment and anterior cross closure were observed due to collapse of maxillary arc in the teeth. The bone support of the lateral and central

incisors located in the right cleft region diminished and microdontic appearance was observed morphologically (Figure 1).

Fig. 1. Initial photo of the patient

Extracting the central and lateral incisors in cleft, performing maxillary expansion with orthodontic treatment and resolving the misalignment in the maxillary arc and correction of Class III occlusion have been decided after the clinical, radiographic evaluation and model analysis. Even though maxillary expansion and correct alignment of teeth in maxillary arc were provied after 2 years of orthodontic treatment, the Class III profile was not be able to resolved. Orthognathic treatment is requied for the patient (Figure 2).

Fig. 2. View of the patient after the orthodontic treatment

Prosthetic treatment was decided for restoration of the lack of upper jaw teeth and rehabilitation of the anterior crossed bite as a result of the unwillingness of patient for the surgery. Metal ceramic fixed restorations are planned only between 14-24 teeth due to closure in the posterior region was provided prosthetically. Restoration of missing teeth in the cleft region and orthodontic retention were provided with this treatment plan. Soft tissue deficiencies in the cleft region was camouflaged by using pink porcelain in the restoration. Vertical size is increased 2 mm to resolve the anterior crossed bite of the patient (Figure 3).

Fig. 3. View of the final restorations

It is necessary in our patient for compensating the anterior crossed bite to raise the vertical dimension and open the vertical height. Adding crown was not performed for 16-17 and 25-26-27 teeth due to Class I closure was provided in molar teeth region and teeth did not require restoration. Occlusal spacing in the molar teeth region was closed with physiological eruption of the tooth as a result of the vertical dimension provided by metal-ceramic restorations. In the first size month follow-up, spacing in the molar teeth was closed and occlusal contact were formed (Figure 4).

Fig. 4. View of the patient before the treatment and distraction phase

Case 2;

25-year-old bilateral cleft lip and palate patient was admitted to our clinic with the functional and aesthetic complaints associated with shortness of the upper jaw. Maxillary arch

collapsed to the midline and severe Class III malocclusion occured accordingly. Due to early tooth extractions, premaxillary resorption was observed. The upper lip support of the patient diminished due to this resorption. Also aesthetic and phonational problems occurred (Figure 5).

Fig. 5. After distraction osteogenesis and orthodontic treatment

Surgical Lefort I osteotomy and 15 mm distraction osteogenesis with RED apparatus (Rijid External Distractor) have been applied in order to compensate the Class III malocclusion (Figure 6). The prosthetic treatment of maxillary anterior region with full ceramic fixed restoration was planned after orthodontic surgerical treatments. The support of the missing soft tissue and lip will be provided (Figure 7).

Fig. 6. View of final restorations

Figure 7. After distraction osteogenesis and orthodontic treatment

Dental implant was removed from the treatment options due to adequate bone was not available in the missing premaxilla. Full ceramic restoration applicaiton was decided between 15-25 teeth. Pink porcelain was applied in order to return the lost soft tissue. The narrowing of the gap area was solved by minor changes in the alignment of the teeth thus, further increase of the support of lip was provided (Figure 8).

Figure 8. View of final restorations

DISCUSSION

Increasing both the function and aesthetic with medical and dental interventions has a significant effect in improving the quality of life and psychological state of the patient with congenital defect.[5] Normal facial contour can be obtained and increased laugh line, arc relations and functions can be provided in juvenile and adult patients with defects with implant supported fixed or removable dentures,

overdentures or traditional fixed and removable prostheses.[8]

In the literature, it has been reported that the patients with congenital defects feel much more positive after prosthetic treatment. The patients with congenital defects have reluctance to oral hygiene due to the embarrassment they feel because of the physical appearance and oral situation. This situation leads to tissue destruction and tooth loss and worsen the current situation. Therefore, early treatment has a positive contribution to the patients' positive emotions.[5] Combination of dental and medical treatment with fixed prosthesis, implant supported dentures or removable dentures in maxillofacial defects is needed to increase the patient satisfaction by obtaining a more ideal result. The main goal of the treatment of individuals with congenital cleft lip and palate in the rehabilitation is to ensure the return the functions of the patients in social life.[9]

Early surgical correction and subsequent orthodontic treatment is one of the strong factors that determine the type and size of the required prosthetic treatment.[1] In the literature, the use of anterior maxillary segmental distraction (AMSD) has often been reported in case of maxillary collapse is severe. Rigid external devices (RED) provides that anterior maxillary segmental distraction is more stable with less velopharyngeal side effects and is performed with more comfortable orientation. Research shows that AMSD is a safe treatment option.[10]

The interdisciplinary treatment options applied for the 2 patients who have unilateral and bilateral cleft lip and palate were disclosed in these clinical cases. In the first case, collapse caused by maxillary scar tissue has been resolved with orthodontic treatment started at an early age and Class III profile in the anterior region has been resolved prosthetically. Severe maxillary collapse, crossed bite and increased horizontal overlap were seen in the second case. Maxillary retrution and dental crossed bite problems were solved with Lefort I osteotomy and distraction osteogenesis which are seen as the most appropriate treatment in term of the timing of the treatment. The missing premaxilla was compensated with pink porcelain support of the fixed prosthetic restoration by opening place to prosthetic restoration.

In cleft lip and palate patients; the fixed prosthetic restorations can have disadvantages such as the movement of the support teeth especially in the cleft region and difficulty in providing oral hygiene. Therefore, usually at least two supporting teeth are proposed to be used as support from both sides in the design of fixed prosthetic restorations. The negative horizontal overlap and reduced vertical dimensions of the patients can be arranged with the correction maxillary and mandibular arches with fixed prosthetic restorations. Fixed prosthesis is easier to get used to it and use it. But the patient must have the necessary notifications to make prosthetic cleaning care and should be followed by regular checks.

Aesthetic and functional results were obtained for both cases with fixed restorations. Especially the problems such as the lack of lip support, increased horizontal overlap and reduced vertical dimension resulting from cleft region were fixed with fixed dentures. The lip support of patients was achieved by using pink porcelain or changing the design of porcelain. Satisfactory results were obtained in terms of aesthetic and function. No complications or inflammation were observed in the routine checks of patients for 6 months. Oral hygiene motivation of the patients were reminded again. It was seen in the routine checks that satisfaction of patients continued and there were no functional and aesthetic problems.

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