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Correction of displaced impacted teeth in dentigerous cyst with orthodontic treatment (Two cases report)

Dentijeröz kistli olgularda gömülü dişlerin ortodontik tedaviyle düzeltilmesi (İki olgu raporu)

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Özet: *Bu çalışmanın amacı dentijeröz kist nedeniyle mandibular arkın anterior ve posteriorunda gömülü olan dişleri ortodontik tedavi ile dental arka kazandırmaktır.*

Olgularımızdan birincisi, 15 yaşında bir kız hasta olup mandibular sol lateral ve kanin dişleri dentijeröz kist içerisinde gömülüdür. İkinci olgumuz 14 yaşında erkek hasta olup sağ mandibular birinci molar yarım retansiyonlu olup mesialinde dentijeröz kist yer almaktadır.

Teşhis kayıtlarının değerlendirilmesinde geniş radiolüsent lezyondan kaynaklanan gömülü ve displase dişler görülmüştür. Birinci olguda dekompresyondan sonra gömülü dişlerin kendiliğinden sürmesine izin vermek için lezyon marsüpralize edildi. İkinci olguda dekompresyon için lezyon enükle edildi Kistin dekompresyonundan sonra gömülü dişler açığa çıkarıldı ve ortodontik olarak uygun pozisyona getirildi. 20 ay sonra tekrar çağırıldı, geri dönüş görülmedi.

Anahtar Kelimeler: *Gömülü dişler, dentijeröz kist*

Summary: *The aim of the present study is to replace the teeth by orthodontic treatment which are impacted in anterior and posterior area of the mandibular dental arch because of dentigerous cysts.*

One of the cases 15 years old female patient who has impacted left lateral and canine teeth located in the dentigerous cyst. The other case is 14 years old male patient who has semi-impacted mandibular first molar a dentigerous cysts located premolar and first molar.

Diagnostic records revealed impacted and displaced teeth resulting from a large radiolucent lesion. In the first case, marsupialization of the lesion would be performed to allow for decompression after which possible spontaneous descent of the impacted teeth might follow. In the second case enucleazation of the lesion for decompression. After decompression of the cysts the impacted teeth were exposed and orthodontically brought in to their proper position. At 20 months recall, relapse was not observed.

Key words: Impacted teeth, Dentigerous cyst

Introduction

The teeth which are not found in their normal position such as impaction or semi-retention are the main complaint of the patients having this situation1. The etiology for semi-retention or impaction can be summarized as follows; the missing place in dental arch, the hyperplasia of gingival, supernumerary teeth or odontoma, the incorrect direction or direction of eruption of teeth and the pathos's such as tumor or cyst2,3.

A dentigerous cyst aries from the outer enamel epithelium of the developing tooth, after crown development has been completed, and the crown of the tooth is located within the cyst. The line of treatment that is usually offered is referred to as marsupialization. This involves opening the cyst into the oral cavity at its most superficial point, and maintaining the patiency of this orifice over a long period of time. The cut linings of the cyst and the oral mucosa fuse to become continuous with one another. In time, the lined cavity becomes smaller and smaller as bony regeneration occurs to fill in from the bottom up. As it does so, the tooth generally progresses in the vanguard of the regeneration.

Resim 1: Pretreatment phase intraoral view of the Case I.

Spontaneous resolution of the impaction may be expected to occur to a significant degree when the cyst is marsupialized, and several truly remarkable cases have been reported in the literature4,5.

In the present article, two cases having impact teeth because of dentigerouse cyst and placed one in the anterior region and the other in posterior region of

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Resim 2: *Pretreatment phase ıntraoral view of the Case I.*

Resim 3: *Pretreatment phase ıntraoral view of the Case I.*

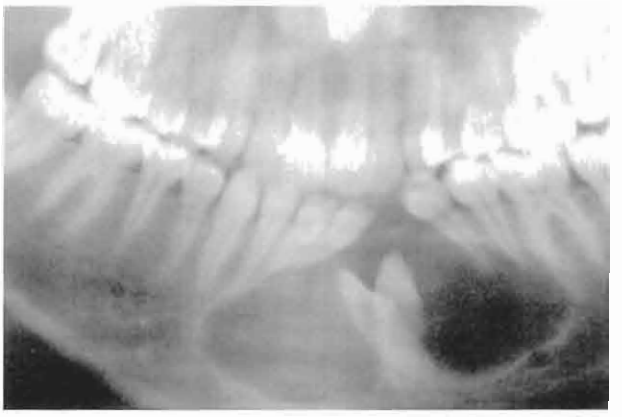
Resim 4: *Pretreatment phase extraoral view of the Case I.*

Resim 5: *Pretreatment phase extraoral view of the Case I.*

mandible are aimed to gain into the dental arches by orthodontic treatment.

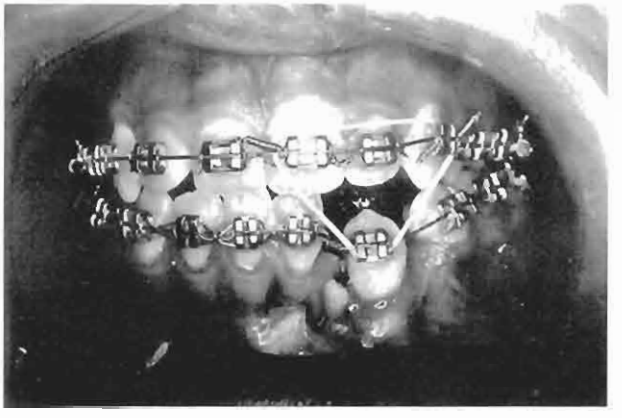
Case I

The patient is a 13 years and 9 months old girl whose chief complaint is the delayed eruption of mandibular canine and wants to have orthodontically brought her impacted teeth into its proper position. In her medical history she has no contraindication for orthodontic treatment. The clinical intraoral examination reveals permanent dentition, with the distalization of mandibular right and left central incisor and a mesially inclined first premolar and a mandibular midline shift to left of 2 mm. and a insufficient overbite and overjet relationship (Fig.1,2,3). No clear crowding is seen in maxillary arch. The extraoral examination revealed a healthy and well-adjusted facial appearance (Fig.4,5). The assessment of the cephalometric findings related to



Resim 6: Pretreatment phase orthopantomogram of the Case I.

Resim 7: Treatment phase intraoral view of the Case I.



Resim 8: Treatment phase intraoral view of the Case I.

Resim 9: Treatment phase intraoral view of the Case I.

the initial phases of treatment showed a skeletal Class I relationship (ANB: 2.50) with labially displaced incisors and an acceptable value of vertical facial angle (SN/GoGN: 35°).

The panoramic and cephalometric radiogram reveals a fairly well-circumscribed radiolucent lesion which occupies %80 of smphysis. The lesion get caused the migration of the mandibular right and left central incisors and left first premolar. The left lateral incisor and canine are located in the center of the lesion (Fig 6).

Treatment Objectives

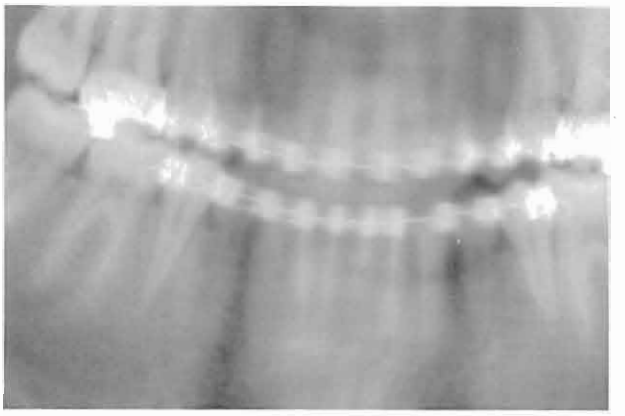
The following treatment objectives are established:
1. Resolution of the radiolucent lesion,
2. Observation for spontaneous eruption of the impacted left lateral incisor and canine after the elimination of lesion,
3. Institute an acceptable overjet and overbite relationship and formation of maximum intercuspidation by orthodontic treatment.

Treatment Progress

A needle aspiration biopsy was performed on the initial visit with the oral surgeon to establish if the lesion was solid or cystic. The oral surgeon performed marsupialization alone was to cause spontaneous descent of the left mandibular lateral and canine teeth making it amenable to orthodontic repositioning. Marsupialization of the cyst was performed as an out-patient procedure under local anesthetic. The initial incision was made in the depth of the mandibular left anterior vestibule down to the periosteum.

A hole measuring approximately 1.5 cm was made into the anterior mandibular wall in the region of the cyst. A specimen was submitted for histopathologic examination. The mucosal edges of the incision were sutured to the cut edges of the cyst. A latex drain was inserted in the opening. The pathology report confirmed our tentative diagnosis of a dentigerous cyst.

Two days after surgery, the latex drain was removed, and a new drain was inserted; a topical anesthetic was used. The lesion was easily irrigated and was found to have additional straw-colored fluid. Irrigation and a drain change were performed again on the fourth postoperative day. On the seventh postoperative day, significant purulent-looking material was obtained on irrigation. The penrose drain was removed. The patient's mother was instructed to irrigate the lesion twice daily. The patient was followed on a monthly basis, and home irrigation was continued. Approximately every other month the irrigating port would close down to the point that rewidening of the port was necessary. The



Resim 10: Posttreatment phase orthopantomogram and of the Case I.

Resim 11: Posttreatment phase intraural view of the Case I.

Resim 12: Posttreatment phase intraural view of the Case I.

rewidening was performed under local anesthetic. This process continued for approximately 1 year.

At this point left canine had erupted. In order to bring the left lateral incisor and canine teeth into its proper position fixed orthodontic appliance have been used. Orthodontic treatment was initiated by bracketing the mandibular teeth and on the most appropriate vestibular surface of the semi-impacted teeth with 0.018" slot edgewise brackets and then a proper space was opened between left lateral incisors and canine 6. Once the space is gained the left canine is brought to its proper position by using the light loads with the help of maxillary anchorage7. Then a button has been bonded and tied with a ligature wire on the left lateral incisor and getting more tightened in each monthly periodic control. The reason for the increasing tighten strength was to prevent the formation of great extractive loads. For the rest of the treatment 0.14", 0.16", 0.16x0.22" arch wires were used respectively in order to reach the aimed occlusion (Fig.7,8,9). During the whole treatment fairly light loads are applied on the left lateral incisor and canine and a retention treatment is made for 17 months (Fig.10,11,12).

Case II

The patient was a 13 years and 2 months old boy who was applied to solve the retention and inclined axis problem of mandibular right first molar. In his medical history he has no contraindication for orthodontic treatment. The clinical intraoral examination revealed permanent dentition and Class II relationship with an increased overbite and a polydiastema among the whole manbibular teeth, and a semi-retentional mandibular right first molar with an inclined axis towards mesially (Fig.13,14,15). The extraoral examination revealed Class II facial appearance (Fig.16,17,).

The result of the assessment of the cephalometric findings related to the initial phases of treatment was skeletal Class I relationship (ANB: 3^0) with bimaxillar retrusion, and a decreased value of vertical facial angle (SN/GoGN: 27^0) .

The panoramic radiograms revealed a radiolucent lesion which was located on the mesial side of the mandibular right first molar (Fig. 18) . While the crown of the right mandibular first molar was semi-retentioned mesially, the root was semi-retentioned distally. The right mandibular second premolar was inclined distally.

Treatment Objectives

The following treatment objectives are established:
1. Resolution of the radiolucent lesion
2.The elimination of diastema, the correction of right mandibular first molars retention and axis by using fixed appliance without extraction.

Treatment Progress

In this case right mandibular first molar was effected by cystic lesion. We enucleated the cystic lesion under local anesthetic. The pathology report was dentigerous cyst.

Orthodontic treatment was initiated by bracketing the mandibulary teeth with 0.018" slot edgewise brackets and continued with the closure of diastema by using 0.14", 0.16", 0.16x0.22" NiTi arch wires respectively.

Resim 13: *Pretreatment phase intraoral view of the Case II.*

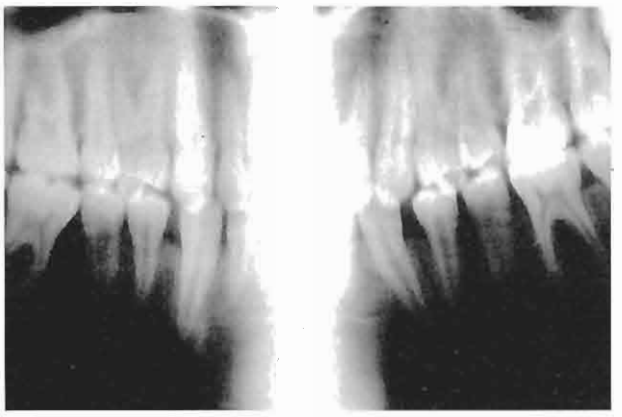
Resim 14: *Pretreatment phase intraoral view of the Case II.*

Resim 15: *Pretreatment phase intraoral view of the Case II.*

Resim 16: *Pretreatment phase extraoral view of the Case II.*

Resim 17: *Pretreatment phase extraoral view of the Case II.*

Resim 18: *Pretreatment phase extraoral view of the Case II.*



Resim 19: *Posttreatment phase orthopantomogram of the Case 2.*

Resim 20: *Posttreatment phase intraoral view of the Case 2.*

While the closure of diastema, a proper space is made for the eruption of right mandibular first molar by using NiTi open coil springs between the second premolar and second molar. The correction of the axis of the right mandibular first molar is achieved by NiTi arch wires which is applied during the treatment procedure (Fig. 19,20). Because of our patients fathers job (a noncommissioned officer) and assignation to another city we could not achieve the aimed Class I relationship.

Discussion and result

In the cases with dentigerous cysts, teeth related to the cyst are removed during the enucleation of dentigerous cyst and the spaces are usually closed by prosthodontic restorations after the orthodontic correction of arches. In present cases, our aim is to gain the permanent teeth into the arches instead of loosing them and this is achieved by the surgical and orthodontic procedures and the cysts are eliminated and in both cases the teeth are brought into their proper position in dental arches.

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