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PRIKAZ SLUČAJA
CASE REPORT

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Fragment zuba u gornjoj usni nakon dentalne traume: opis neobičnoga kliničkog slučaja

Tooth Fragment Lodged in the Upper Lip after Traumatic Dental Injury: an Unusual Case Report

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Sažetak
Zubne traume uobičajene su komplikacije u slučaju ozljeda usne šupljine. Kod pacijenata s laceracijskom ranom gornje usne i dentalnom traumom prednjih zuba trebalo bi odmah pregledati preostale fragmente zuba. Desetogodišnji dječak bio je primljen na Odjel dječje stomatologije Stomatološkog fakulteta Sveučilišta Marmara u Istambulu. Imao je otečenu usnu, lokaliziranu oteklinu okolnog područja i traumatski oštećen gornji lijevi središnji sjekutić. Temeljitim intraoralnim pregledom otkrivana je nekomplicirana fraktura trajnoga lijevog gornjeg središnjeg sjekutića koja je uključivala caklinu i dentin bez eksponiranja zubne pulpe, a palpacija tkiva gornje usne upućivala je na strano tijelo. To je potvrđeno panoramskim radiogramom na kojem se vidjelo radiopakno tijelo slično koronarnom fragmentu središnjeg sjekutića koji je nedostajao. Taj je dio uklonjen kirurški, a slomljeni zub privremeno je restauriran. Nakon dva tjedna restauriran je adhezivnom tehnikom s pomoću sačuvanog fragmenta. Temeljiti klinički pregled i radiogrami mekih tkiva mogli bi omogućiti rano postavljanje dijagnoze i pravodobno kirurško uklanjanje.

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Ključne riječi
zub, ozljeda; usna;zub, frakture; restoracija

Uvod

Sve više djece i adolescenata sudjeluje u različitim nesrećama i nezgodama, pa su mnogima oštećeni zubni lukovi i/ili potporne strukture i meka tkiva (1). Većina ošteti zube u prva dva desetljeća života, posebice između 2. i 3. te 8. i 12. godine, a prevalencija je veća kod dječaka negoli kod djevojčica (2). Ozljede zuba česte su komplikacije u slučaju trauma usne šupljine. Učinkoviti dijagnostički i terapijski postupci važni su dijelovi kliničke dentalne medicine. Ozljede gornje usne i maksilarnih sjekutića uglavnom su povezane s dobi, spolom, pregrizom i kompetentnošću usana.

U ovom članku opisana je trauma središnjega maksilarnog sjekutića sa zubnim fragmentom u gornjoj usni. U ovom su se slučaju radiogrami mekih tkiva pokazali kao vrlo važni u otkrivanju i identifikaciji djelića zuba koji su nedostajali te u odabiru i planiranju terapije. Kako bi se održale i sačuvale kompromitirane strukture liječnik mora i dalje pratiti te kontrolirati stanje oštećenog zuba (4).

Dentoalveolarne ozljede česte su i uobičajene, a uzrokuju ih mnogobrojni čimbenici, najčešće padovi. Zubne traume zahtijevaju posebnu pozornost ako su uključene i razderotine mekih tkiva. Naime, zubni fragmenti povremeno ulaze u meka tkiva i mogu izazvati teške komplikacije. Temeljiti kli-

Introduction

A significant number of children and adolescents are increasingly involved in different types of accidents, many of which affect the dental arches and/or supporting structures and soft tissues (1). Most dental injuries occur during the first two decades of life, especially between 2 and 3 years and between 8 and 12 years of age; they occur more often in boys than in girls (2).

Dental fractures are common trauma complications in the oral cavity. The efficient diagnosis and treatment of dental injury are important elements in clinical dentistry. Age, gender, overjet and lip competence showed significant association with injuries to the upper lip and maxillary incisors (3).

This article describes a case study of trauma in central maxillary incisors with tooth fragments lodged in the upper lip. Radiographs of the soft structures proved to be an important tool in the detection and identification of occult tooth fragments, and play an important role in the establishment of the treatment to be adopted. Also, case follow-up is of fundamental significance in the preservation and maintenance of compromised structures (4).

Dentoalveolar injuries are common and are caused by many factors with falls accounting for the most frequent one.

nički pregled s pomoću radiograma mekih tkiva omogućuje ranu dijagnozu i pravodobno kirurško uklanjanje (5). Ozljede mogu nastati i tijekom konvulzivnih napada potaknutih lijekovima, zatim zbog epilepsije te endotrahealne intubacije laringoskopom u općoj anesteziji (6,7).

Različiti su razlozi za nastanak i učestalost dentoalveolarnih ozljeda, a uglavnom su povezani s dobi i spolom pacijenta, vrstom etiološkog mehanizma, mjestom nastanka, smjerom i energijom udarca te parodontnim zdravljem pogođenih zuba. I etiološki čimbenik i vrsta dentofacijalne ozljede povezani su s dobi i spolom. Avulzije (istrgnuća) i luksacije (iščašenja) češće su u mliječnoj denticiji, a u trajnoj je to incidencija frakture krune te krune i korijena (8).

Točna dijagnoza i odgovarajući tretman važni su u zbrinjavanju ozljeda zuba, što je posebice istaknuto ako su kod djece pogođeni prednji maksilarni zubi jer to utječe na emocionalno i fizičko stanje i djece i roditelja. Od svih dentalnih trauma, u literaturi su frakture sjekutića zastupljene između 10 i 20 posto, a najčešće nastaju u dobi između 7 i 10 godina (9). Slomljeni sjekutić, uz koji je i edem mekog tkiva, a pojavila se i laceracija usnice nakon dentalne traume, trebao bi upozoriti liječnika da su se možda neki njegovi djelići pomaknuli u meka tkiva. U ovom članku opisan je dijagnostički pristup pacijentu s orofacijalnom ozljedom i slomljenim sjekutićem te razderotinom donje usnice.

Prikaz slučaja

Desetogodišnji dječak s abrazijom i razderotinom gornje usne koja je bila i otečena te s nepotpunom frakturom krune gornjega lijevog sjekutića upućen je na Odjel dječje stomatologije Stomatološkog fakulteta istambulskog Sveučilišta Marmara. Bila je to posljedica pada kada je licem udario o tlo. Primljen je 20 minuta nakon nezgode. Nije bilo drugih ozljeda, ni simptoma ozljede glave.

Ekstraoralno je imao ozljede mekih tkiva lica, uključujući abraziju i laceraciju gornje usne koja je bila otečena. Lice nije bilo asimetrično (slika 1.). Intraoralno je uočena nekomplicirana fraktura gornjega lijevog središnjeg sjekutića. Palpacijom je pronađen čvorić u gornjoj usni. Radiološkim snimanjem potvrđen je u njoj djelić zuba (slike 2. i 3.). Nije bilo znakova frakture korijena ni ostalih periapikalnih patoloških promjena. Fragment je pohranjen u fiziološku otopinu (otopina natrijeva klorida). Pacijentu je rečeno da nabavi Cleocin phosphate (8 ampula po 300 mg) kako bi se izliječilo i zacijelilo inficirano i oštećeno tkivo. Fragment zuba je u lokalnoj anesteziji izvađen iz gornje usne, a pritom je aplicirano 2 ml Maxicaina (V≡M, Istambul, Turska) u 4-postotnu otopinu s 1:200.000 mg epinephrina. Kako bi se izbjegla dehidraci-

Dental trauma requires a special consideration when dental fractures accompany soft-tissue lacerations. Dental fragments occasionally penetrate into soft tissues and may cause severe complications. A thorough clinical examination with soft-tissue radiographs could provide an early diagnosis and indicate surgical removal (5).

These injuries may also occur during convulsive seizures in drug misuse, epilepsy, and can also be caused by a laryngoscope during endotracheal intubation for general anesthesia (6, 7). Among these incidents, falls account for the most common etiologic factor. The pattern and the frequency of dentoalveolar injuries are variable and are highly dependent on the age and gender of the patient at the time of trauma, type of etiologic mechanism, location of the incidence, direction and the energy of impact, and the periodontal health of involved teeth. In addition to the etiologic factors, the type of dentofacial injury is also related with the age and gender. The exarticulations and luxations are more common in deciduous dentition while the incidences of crown and crown-root fractures are more common in permanent dentition (8).

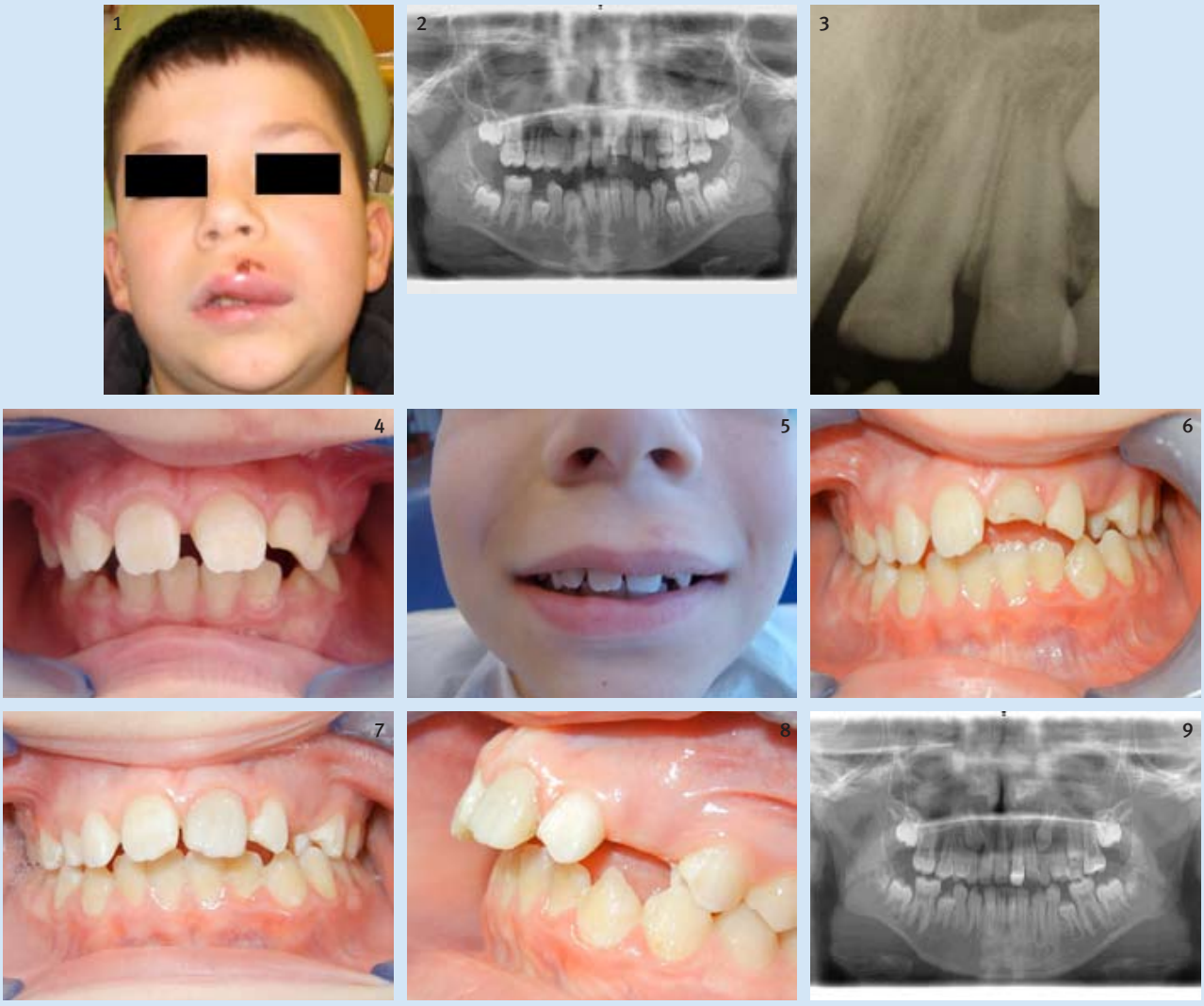
An accurate diagnosis and efficient management is of importance in dental injuries. This is particularly true when maxillary anterior dentition is involved in pediatric population because of its detrimental effects on child's and parents' emotional and physical status. The incidence of incisor fractures has been reported between 10% and 20% of all dental traumas and mostly occurs in children between 7 and 10 years of age (9). A fractured incisor accompanying the soft-tissue edema and a laceration especially involving the lip subsequent to a dentofacial trauma should alert the physician to a possible displacement of the tooth fragments to the soft tissues. This paper describes an immediate diagnostic approach in a patient presenting with a fractured incisor and a lower lip laceration following an orofacial injury.

Case report

A 10- year old boy was referred to the Department of Pediatric Dentistry, Dental School, Marmara University, Istanbul with upper lip abrasions and a laceration to his upper lip, which was swollen and an uncomplicated crown fracture of the upper left central incisor. He fell and hit his face on the ground. He was treated 20 hours after the accident. There was no history of other injuries and no symptoms of head injury.

Extraorally, he sustained soft tissue injuries to his face including upper lip abrasions and a laceration to his upper lip, which was swollen. There was no abnormal facial asymmetry (Figure 1). Intraorally, an uncomplicated crown fracture of the upper left central 21 was noted. A nodule was evident upon palpation of the upper lip. The incisal tip of 21 was seen to be embedded in a laceration on the left side of the upper lip. Radiographic examination confirmed the presence of the tooth fragment in the upper lip (Figure 2 and 3). There were no signs of root fractures or other periapical pathologies.

The fragment was stored in physiological saline (sodium chloride solution). The patient was offered to use cleocin



Slika 1. Ekstraoralni izgled pacijenta s laceracijom gornje usne i abrazijama lica
Figure 1 Extraoral view of the patient with upper lip lacerations and facial abrasion.
Slika 2. Panoramski radiogram kojim je otkriven radiopaktni zubni fragment u gornjoj usni
Figure 2 The panoramic radiograph revealing radiopaque tooth fragments embedded in the upper lip.
Slika 3. Periapikalni radiogram koji prikazuje laminu duru, površinu korijena i zubne fragmente
Figure 3 The periapical radiograph revealing lamina dura, root surface and tooth fragments.
Slika 4. Fragment je reponiran adhezivnom tehnikom
Figure 4 The fragment was reattached using adhesive technique.
Slika 5. Postoperativni izgled nakon jednog tjedna pokazuje uobičajeno cijeljenje laceracije gornje usne
Figure 5 Postoperative view after 1 week showing uneventful healing of upper lip lacerations.
Slika 6. Nakon dva mjeseca zubni je fragment izgubljen zbog sekundarne traumatske ozljede
Figure 6 After 2 months, tooth fragment was lost because of second traumatic injury.
Slika 7. Nakon druge restauracije
Figure 7 After second restoration.
Slika 8. Lateralni pogled na sekundarnu restauraciju
Figure 8 Lateral view of the second restoration.
Slika 9. Panoramski radiogram nakon restauracije kompozitnim materijalom
Figure 9 The panoramic radiograph after composite restoration.
Slika 10. Ekstraoralni izgled nakon 12 mjeseci
Figure 10 The extraoral view after 12 months.

ja tijekom kliničke i radiološke procjene, fragment je očišćen mekom četkicom te uronjen u fiziološku otopinu i tamo čuvan sve do reponiranja na gornji lijevi središnji sjekutić tehnikom adhezivnog jetkanja.

Za postupak indirektnog prekrivanja pulpe sjekutića područje je naizmjence ispirano fiziološkom otopinom i otopinom klorheksidina (Consepsis; Ultradent Products, St

phosphate (300 mg, 8 ampoules) for healing of the infectious and damaged tissues. The tooth fragment was extracted from the upper lip under local anesthesia following administration of 2ml Maxicaine (V≡M, Istanbul, Turkey) in 4% solution with 1:200.000 mg epinephrine. To avoid dehydration during clinical and radiographic evaluation, the fragment was cleaned with a soft toothbrush and was immersed in saline

Jordan,UT, SAD) i pažljivo posušeno sterilnim kuglicama vate. Na frakturnu površinu istodobno je nanesen s pomoću malog okruglog nabijača samostvrdnjujući premaz kalcijeva hidroksida (Dycal; Dentsply Caulk, Milford, ME, SAD). Nakon toga stavljen je sloj stakloionomernog cementa (Vitrebond; 3M Espe, St Paul, MN, SAD) i fotopolimeriziran 40 sekundi. Poslije dva tjedna slomljeni dio zuba vraćen je na mjesto s pomoću svjetlosno polimerizirajućeg tekućeg (Prime-Dent, SAD) i hibridnog (Quadrant Universal LC, CAVEX, Njemačka) kompozita te je svjetlosno polimeriziran (slika 4.). Postoperativni pregled razderotine gornje usne pokazao je uobičajeno cijeljenje (slika 5.). U dentinu fragmenta izvađenog iz usne izrađen je žlijeb dijamantnim svrdlom 009. Površine su 30 sekundi jetkane 37-postotnom fosfornom kiselinom (3M ESPE, Seefeld, Njemačka). Uporabljen je adhezivni sustav Adper Single Bond 2 (3M ESPE, Njemačka) i polimeriziran 15 sekundi. Žlijeb je napunjen svjetlosnopolimerizirajućim hibridnim kompozitom (Quadrant Universal LC, CAVEX, Njemačka) u nijansi zuba. Fragment je prilijepljen na zub pripremljen na isti način. Restauracija je polimerizirana 60 sekundi s labijalne i palatinalne strane. Pažljivo je naneseno malo kompozitnog materijala preko pukotine tako da se više nije vidjela kad se stvrdnuo. Usnica je zašivena crnom svilom i pacijent je dobio upute za održavanje oralne higijene. Nakon tjedan dana uklonjeni su šavovi. Dječak je redovito dolazio na kontrole. Nakon dva mjeseca ponovno je ozlijedio lice i izgubio fragment (slika 6.). Sjekutić je na sličan način nadograđen korištenjem svjetlosnopolimerizirajućeg hibridnog kompozita (slike 7. i 8.). Simptomi se nisu pojavili ni 12 mjeseci nakon traume te nije bio osjetljiv na perkusiju, niti je bio pomičan, a vitalno je odgovarao na testiranje vitaliteta pulpe. Nije bilo nikakvih periapikalnih patoloških promjena vidljivih na ekstraoralnim i intraoralnim snimkama (slika 9. i 10.).

Rasprava

Dentofacijalna trauma zahtijeva temeljitu multidisciplinarnu kliničku i radiografsku procjenu. Nužni postupci kod takvih slučajeva su osiguranje dišnih puteva, stabilizacija leđne moždine, kardiopulmonalno oživljavanje i procjena velikih organskih sustava. Pritom hitne okolnosti često mogu orodentalno stanje staviti u drugi plan, čak ga i zanemariti. Tako se događa da se ozljede zuba otkriju prekasno ili da se previde (1).

Čest nalaz su ozljede mekih tkiva prouzročene frakturiranim incizivima. U takvim se slučajevima moraju pronaći svi djelići zuba. Katkad se otkriju i u mekom tkivu. Pronalazak takvih fragmenata otežava mnogo čimbenika, poput razderotina, krvarenja i oteklina, a sve to može ih prikriti pri pregledu palpiranjem (1, 10).

solution until it was reattached to the upper left central incisor 21, using the acid-etch technique.

For indirect pulp capping of the central incisor, the area was carefully irrigated with alternate solutions of sterile saline and chlorhexidine (Consepsis; Ultradent Products, St Jordan, UT, USA) and dried gently with sterile cotton pellets. Immediately, self-hardening calcium hydroxide (Dycal; Dentsply Caulk, Milford, ME, USA) was placed over the fracture line with a round-head metallic applicator, followed by a layer of glass ionomer (Vitrebond; 3M Espe, St Paul, MN, USA), and photopolymerized for 40 s.

After two weeks, the fragment of the tooth was reattached using light cure composite flowable resin (Prime-Dent, USA) and light curing hybrid composite (Quadrant Universal LC, CAVEX, Germany) (Figure 4). The postoperative view of upper lip lacerations showed uneventful healing (Figure 5).

A groove was placed into the dentine of the fragment removed from the lip by a diamond round bur size 009. Acid etching with 37% phosphoric acid gel for 30 s (3M ESPE, Seefeld, Germany) followed. The adhesive (Adper Single Bond 2, 3M ESPE, Germany) was applied and light-cured for 15 s. The groove was filled with light curing hybrid composite (Quadrant Universal LC, CAVEX, Germany) matched to the tooth shade. The tooth lip fragment was attached to 21, which had also been treated in a similar manner. The restoration was then light-cured for 60 s from both labial and palatal surfaces. Care was taken to ensure that some composite was applied over the junction of the fracture so that the fracture site was not visible once the composite was cured. The lip was sutured with black silk, and oral hygiene instructions were given. 1 week later, the sutures in the upper lip were removed. The patient was examined on a regular basis. Two months after that, he sustained traumatic injuries to his face and the fragment was lost (Figure 6). The upper left central 21 was treated using light curing hybrid composite resin in a similar manner (Figure 7 and 8).

He continued to have no symptoms; the teeth were neither tender to percussion nor mobile and were responsive to pulp testing. 12 months after the trauma, there was no periapical pathology visible on extraoral and radiographic examination (Figure 9 and 10).

Discussion

Dentofacial trauma requires a thorough clinical and radiographical evaluation in a multidisciplinary fashion. Airway control, cervical spine stabilization, cardiovascular resuscitation and evaluation of major organ systems comprise the initial treatment of multiply injured patient and these urgent circumstances may frequently lead to an insufficient orodental consideration. As a result, evaluation of the dental injury is delayed or may be overlooked (1).

Damage to soft tissues caused by fractured incisors is a common finding. In such cases, considerable care must be taken to find all tooth fragments resulting from the accident. It is not rare to find these fragments in the soft tissues. However, detection is hampered by a number of factors, such as

U takvim se slučajevima jasan rezultat može dobiti ako se koristimo jednostavnim radiogramom mekih tkiva (kao što je i bilo u opisanom slučaju) (11).

Fragmenti se mogu pomicati i zbog kontrakcija mišića *orbikularis oris* ako su u donjoj usni te se mogu pomaknuti u nepredvidivi položaj u odnosu prema mjestu ulaska (12).

Nepronađeni avulzirani ili frakturirani zub može prouzročiti velike komplikacije, uključujući i one bronhopulmonalne s aspiracijom, zatim opstrukciju, eroziju gastrointerstinalnog sustava nakon gutanja, arterijsku fistulu, mandibularnu infekciju te ozljede krvnih žila ili živaca (13, 14). Remsen i suradnici nabrojili su i mnoge moguće komplikacije, poput aortoezofagealne fistule, ozljede arterije karotis, medijastinitisa, supurativnog perikarditisa i parafarengealnog ili retrofaringealnog apscesa. Analizirali su 321 slučaj s prodorom stranih tijela u gornji dio dišnog i probavnog trakta kada je strano tijelo bilo progutano i zapelo je u faringsu ili ezofagusu te je na kraju erodiralo kroz stijenku u okolne strukture (15).

Again da Silva i njegovi kolege upozorili su u svojem članku, u kojem su opisali dva slučaja s kirurškim uklanjanjem zubnih fragmenata iz donje usne, na to koliko su važne točne fizičke i radiografske procjene dentalne traume. Ti djelići otežavaju diferencijalnu dijagnozu, posebice u odgođenim traumama zajedno sa spomenutim sekvelama (1).

Prijeko potreban pregled dentofacijalne ozljede često je otežan zbog edema mekih tkiva i krvarenja. Laceracije mekih tkiva povezane s dentalnim ozljedama trebale bi upozoriti liječnika na moguću inkluziju dentalnih fragmenata u okolna periferna tkiva. U isključivanju te mogućnosti pomaže jednostavan radiogram mekih tkiva, kao što je opisano u ovom prikazu. Ako se takvom radiografskom pretragom ne pronađu inkluzija, ingestija ili aspiracija fragmenata, trebalo bi predložiti daljnje dijagnostičke postupke. U ovom tekstu istaknuta je nužnost konzultacije sa specijalistom oralne kirurgije prije nego što se saniraju ozljede mekih tkiva kod svih orofacijalnih ozljeda.

Mnogobrojne prednosti navedene su za repoziciju zubnog fragmenta. To je postupak koji, ako ne uspije, omogućuje daljnje restaurativne zahvate (16). Zadovoljavajuća estetika može se mnogo bolje postići reponiranjem zubnog fragmenta negoli bilo kojim drugim oblikom restauracije. Nedostatak toga postupka je moguće odvajanje fragmenta zbog slabljenja adhezivne veze spoja (16). Trajnost takvih restauracija nije poznata, ali u nekoliko istraživanja istaknuto je da iznosi i do 7 godina (16, 17). Gubitak fragmenta obično je posljedica još jedne traume na oštećenom zubu, nefiziološkog korištenja zuba ili horizontalnog trenja kod odgrizanja tvrde ili žilave hrane (17).

Imedijatno reponiranje fragmenta omogućuje kratkotrajnu terapiju, trenutačno hermetično brtvljenje dentinskih tubulusa te vraćanje funkcije i estetike (18). Najbolja mogućnost za restauracije slomljenih prednjih zuba jest repozicija fragmenta jer se tako zadržavaju prirodan anatomski oblik, kontura, površinska tekstura, boja, okluzalno usklađenje, translucencija i funkcija. Moramo također istaknuti da repozicija omogućuje pozitivan fiziološki odgovor te da je razmjerno jednostavna (19, 20).

lacerations, hemorrhaging, and swelling, which can mask the fragments during the palpation examination (1,10).

In such cases, a simple radiograph of the soft tissues (as performed in the case reported here) offers conclusive results (11).

They are also subjected to continuous movement because of the contraction of the orbicularis oris muscle when they are embedded in the lower lip and might be displaced in an unpredictable direction beyond the point of entry (12). Unrecognized avulsed or fractured teeth may cause more severe complications including bronchopulmonary complications with aspiration, obstruction, or erosion of the gastrointestinal tract with swallowing, arterial fistulae, mandibular infections, vascular, or nerve injuries (13, 14). Remsen et al. also reported a number of serious complications such as aortoesophageal fistula, carotid artery injury, mediastinitis, suppurative pericarditis, and paraesophageal or retropharyngeal abscess. They reviewed 321 cases presenting with penetrating foreign bodies of the upper aerodigestive tract which was swallowed, became lodged in the pharynx, or esophagus, and eventually eroded through the wall of the viscus into surrounding structures (15).

Again, da Silva et al. indicated the importance of an accurate physical and radiographic evaluation of dental trauma in a recent paper in which they present surgical excision of tooth fragments displaced to the lower lip in two cases. These fragments were also considered to complicate the differential diagnosis especially in delayed traumas together with the aforementioned sequelae (1).

Even if an adequate clinical examination of dentofacial injury is often hindered by soft-tissue edema and bleeding, and is frequently performed under less-than-optimal circumstances, a soft-tissue laceration associated with a dental injury should always alert the physician to the presence of dental fragment inclusion to the peripheral tissues. In this respect, a plain soft-tissue radiograph frequently helps to rule out this possibility, as presented in this case report. Besides, further diagnostic surveys should be performed if the plain radiographs fail to identify the inclusion, ingestion, or aspiration of these fragments. Also, this paper emphasizes the significant role of the dental surgeon consultation before the soft-tissue repair in all orofacial injuries.

A number of advantages have been cited in favor of tooth fragment reattachment. It is a conservative restoration which does not preclude the use of other types of restorations later on should it fail (16). The aesthetics that can be achieved by tooth fragment reattachment are far more superior to those achieved by any other type of restoration. Disadvantage is the predictable eventual separation of the repair because of failure of the bonded junction (16). The longevity of this type of restoration is not known, but a few clinical studies have shown that these restorations can last up to 7 years (16, 17). Fragment loss is usually due to another traumatic injury to the treated tooth, non-physiologic use of the tooth or horizontal traction when biting into hard and chewy foods (17).

Immediate fragment reattachment provides short treatment time, an immediate hermetic seal of dentin tubules and

Otkako su u uporabi kompozitni materijali i adhezivni sustavi, repozicija zubnih fragmenata postala je češća od rastauracije. Naime, njome se postižu bolje kemijske i mehaničke veze vraćenog fragmenta na preostalu zubnu strukturu (21, 22).

Istraživanja su potvrdila da je vraćanje odlomljenog zubnog fragmenta alternativa restauriranju estetike i funkcije ozlijeđenih zuba. U uporabi su različite tehnike: cirkumferentno zakošenje cakline (23, 24), vanjski chamfer (25, 26), V-oblik caklinskog spoja (27), unutarnji žlijeb u dentinu (24, 28) i površinsko prekonturiranje zubne labijalne površine (26, 28). Drugu tehniku opisao je Simonsen, a riječ je o žljebastoj preparaciji kako bi se omogućila završna linija zuba i restauracije te pripremio rub caklinskih prizmi u idealnom tzv. „na kraj" odnosu za jetkanje i adhezivno vezivanje, bez daljnjih prekrivanja kompozitne smole na caklinsku površinu kako bi se poboljšala retencija. Ta je tehnika vrlo slična Jordanovoj tehnici „chamber shoulder" (29).

Gutierrez i suradnici procijenili su, nakon jedne zubne traume, uspješnost Simonsenove tehnike reponiranja zubnih fragmenata na prednje zube. Nakon 12 mjeseci zub je ostao vitalan i nije promijenio boju, a restauracija je izgledala prihvatljivo (30).

A. Naudi Busuttil i D. E. Fung istaknuli su da se repozicija zubnih fragmenata može iskoristiti i kod nekompliciranih fraktura zubne krune. Također su predložili nagrizne ploče i štitnike kako bi se zubi, posebice sjekutići, zaštitili od sekundarne ozljede nakon terapije (31).

Iako ne predstavlja konačnu terapiju, repozicijom fragmenta zuba zadovoljni su i pacijenti i kliničari zato što omogućuje povratak zuba u funkciju, vraća mu estetski izgled i potrebna je kraća terapija.

Zaključak

Dentofacijalne ozljede zahtijevaju temeljitu anamnezu, klinički pregled i radiološku procjenu s multidisciplinarnim pristupom. Traumatizirani zubi imaju dobru prognozu ako terapija počne što prije i pacijent redovito dolazi na kontrole.

immediate restoration of function and esthetics (18).

The best restorative option for treating fractured anterior teeth is reattachment of the tooth fragment because the tooth's original anatomic form, contour, surface texture, color, occlusal alignment, translucence, and function are maintained. Also, reattachment provides a positive psychological response, and it is a relatively simple procedure (19, 20).

Since the development of resin composites and bonding systems, reattachment of tooth fragments has become the preferred alternative to a restoration; it is a better way to achieve chemical and mechanical reattachment of the remaining dental structure (21, 22).

Studies have reported that tooth fragment reattachment is an alternative for restoring aesthetics and function of the injured teeth. Various techniques have been used for this purpose: (i) circumferential enamel bevel (23, 24), (ii) external chamfer (25, 26), (iii) V-shaped enamel notch (27), (iv) internal dentin groove (24, 28), and (v) superficial overcontouring (26, 28).

The other technique is Simonsen's technique described as a 'bevel' type of preparation to provide a finishing line for restoration in order to prepare the edge of enamel prisms into an ideal 'end on' relationship for etching and bonding, and no further overlap of resin onto the enamel surfaces to improve retention. This technique is very similar to the 'chamber shoulder' technique proposed by Jordan (29).

Gutierrez et al. assessed the success of modified Simonsen's technique for reattaching anterior tooth fragments after dental trauma. After 12 months, they reported that the teeth remained vital, there were no color changes, and the restorations had an acceptable appearance (30).

Busuttil Naudi A., Fung D. E. showed that tooth fragment reattachment can be satisfactorily used to treat uncomplicated crown fractures. Furthermore, they suggested the patient should use a soft mouth guard which was essential to protect the teeth, especially incisors from second injury after treatment (31).

The reattachment of tooth fragments offers a restorative option for patients and clinicians in spite of the fact that it is not a final treatment, since it provides tooth function, aesthetics and takes less time for treatment.

Conclusion

Dentofacial trauma requires a thorough patient history, clinical exam and radiographic evaluation of dental trauma patients in a multidisciplinary fashion. Traumatic teeth can have good prognosis through early treatment and long-term follow up.

Abstract
Dental fractures are common trauma complications in the oral cavity. When a patient has a laceration in the upper lip and dental trauma to the anterior dentition, an embedded tooth fragment should be suspected. A 10-year old boy was referred to the Department of Pediatric Dentistry, Dental School, Marmara University, Istanbul with a swollen lip, showing local edema and trauma to the maxillary left central incisor. A thorough intraoral examination revealed a fracture of the permanent left maxillary central incisor involving the enamel and dentin without pulp exposure while carefully palpating the tissues of the upper lip; the presence of a foreign body was felt. This was confirmed by a panoramic radiograph and it showed a radiopaque material, similar to the coronal fragment of the fractured incisor. The coronal fragment of the maxillary left central incisor was surgically removed. The fractured tooth was temporarily restored. After two weeks, the tooth was restored with the fragment using the adhesive technique. A thorough clinical examination with soft-tissue radiographs could provide an early diagnosis and indicate surgical removal.

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