CASE REPORT

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TRAUMATIC EXTRATION OF UPPER CENTRAL INCISORS

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SUMMARY

Introduction Tooth and other oral tissue damage can occur at any time of life. Traumatic extraction is a complex traumatic injury characterized by complete dislodgement of the tooth from its alveolus. The diagnosis of traumatically injured teeth includes X-rays and a detailed clinical examination.

Case report A twelve-year-old boy reported at the dental clinic of the Faculty of Medicine due to the injury in the anterior maxillary region. It was a sport injury. The time elapsed since the accident was 2 hours and 20 minutes. According to the clinical examination and X-rays the diagnosis was: The teeth 11 and 21 – Complete traumatic dental avulsion and fracture; 22- Hypodontia and chin contusion and laceration. The teeth were brought in physiological solution.

After applying local anesthetic, soft tissue was cleaned, the teeth positioned back in their alveoli and an immobilizing splint of fiberglass fibers placed. The patient was administered antibiotics and recommended tetanus prophylaxis.

Seven days after the injury, teeth were treated endodontically. After one month, the immobilizing splint was removed. The tooth 21 was definitely obturated and composite buildups were done on both teeth. Calcium hydroxide dressing was left in the canal of the tooth 11. One month and 3 weeks after the injury, a fistula appeared above the tooth 11, and the treatment was finally completed after seven months.

Conclusion Traumatic tooth injuries, of any kind, require urgent treatment as time loss usually reduces chances for successful treatment. One year after the injury, the patient had no symptoms and the result was functional and aesthetically acceptable.

Keywords: avulsion; trauma; teeth extraction; immobilization splint

INTRODUCTION

Traumatic injuries of teeth and other oral tissues can occur at any time of life. They happen usually between 1-3 years in primary and 8-11 years in permanent dentition [1, 2]. The most commonly affected teeth are upper central and lateral maxillary incisors that are more exposed to injuries due to anterior position [3]. Injuries of anterior teeth can lead to phonetic, functional, aesthetic problems as well as disorders in occlusion [1]. Preliminary studies suggest that boys are more prone to trauma [4–8].

Traumatic tooth extraction (Avulsio completa, Extrusio completa, Luxatio completa dentis, Exarticulatio completa) is a complete loss of a tooth from the alveolus and it is one of the most serious tooth injuries. Although clinically visible alveolus is easily detected, the diagnosis of traumatic tooth injuries is only established after the X-ray examination. Differential diagnostic considerations are tooth intrusion (Intrusio dentis) and root fracture with the loss of crown (Fractura radicis dentis). The main cause of traumatic extraction in primary dentition is fall, while in permanent dentition it is direct (frontal) stroke of the tooth. The frequency of these injuries in primary dentition is 7%, while in permanent dentition it is lower and about 0.9% of all tooth injuries [9].

Traumatic tooth injuries of any kind require immediate treatment as any loss of time reduces the chances of successful treatment. In the case of tooth avulsion, the success of tooth replantation, posttraumatic period, as well as the possibility and the rate of complications, depends on numerous factors [10]. The most important are: the time between the injury and the time of tooth replantation, the way tooth is kept during this time period, the stage of development of the root, the condition of alveolar bone, the preliminary condition of the crown of the tooth, pulp and periodontal ligament, the existence of possible orthodontic irregularities as well as the replantation procedure itself [11]. Although long-term prognosis for retaining tooth in the jaw is not certain, due to the importance of preserving the height of alveolar ridge, function, phonetics and esthetics, it is always important to try replantation if there are adequate conditions for it.

The aim of this paper was to show the procedure, the treatment and complications after the tooth avulsion.

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CASE REPORT

A 12-year-old boy visited nearest dental clinic in Visegrad due to a tooth injury in the upper jaw after falling during sport activity. Patient gave a history of the fall and he did not show any signs or symptoms of neurological damage. Due to the lack of material for the immobilization splint, the boy was sent to a dental clinic at the Faculty of Medicine in Foca. After obtaining accident history and performed clinical examination (Figure 1) and X-ray (Figure 2), the following diagnosis was made: The teeth 11 and 21 – Complete traumatic dental avulsion; 22- Hypodontia; 11 – Traumatic tooth fracture class I; 21 - Traumatic tooth fracture class II as well as chin contusion and laceration.

The teeth were transported in a glass bottle with physiological solution (Figure 3). The available treatment options were explained to the parents. After 2 hours and 20 minutes, the replantation procedure was performed as per recommendation of The International Association of Dental Traumatology – IADT [12]. Local anesthesia was administered. In order to remove impurities and blood clots, injured region was cleaned with sterile gauze soaked with saline. Removal of soft deposits from adjacent teeth on which the splint was to be placed was performed. 37% orthophosphoric acid was applied for 30 seconds (Figure 4). After rinsing and drying (Figure 5), an adhesive was placed. During this time, the avulsed teeth were removed from the transport medium, carefully rinsed with saline and on the vestibular surface of the crown the same procedure of etching with the acid (Figure 6) and adhesive was performed. The alveoli were rinsed with saline and avulsed teeth were slowly replanted using digital pressure only. An immobilizing splint was installed (Figure 7). The time elapsed from the moment of injuries to the completion of replantation was 2 hours and 45 minutes. Tetanus prophylaxis was recommended, tetracycline antibiotics prescribed for 5 days and analgesics as needed. Patient was advised to take soft diet and maintain good oral hygiene. The postop checkup was scheduled 7 days after.

At the first checkup, the replanted teeth were mostly firm and stable on mild palpation. After clinical and radiographical evaluation root canal was performed on both teeth 11 and 21 according to the standard procedure. After copious irrigation with physiological solution and drying the canal with paper points, the teeth were filled with calcium hydroxide (Calcipulpe®Septodont, Cedex, France) and patient was scheduled for the next checkup in 7 days. At the second checkup, 15 days after the injury, the re-

Figure 1. Traumatic dental avulsion of teeth 11, 21
Slika 1. Avulsio completa dentes traumatic zuba 11, 21

Figure 2. X ray of the teeth 11, 21
Slika 2. RTG snimak zuba 11, 21

Figure 3. Glass jar with a physiological solution in which the teeth 11 and 21 were transported
Slika 3. Staklena teglica sa fiziološkim rastvorom u kojoj su done-seni zubi 11, 21

Figure 4. Orthophosphoric acid application on adjacent teeth
Slika 4. Postavljanje ortofosforne kiseline na susedne zube
planted teeth were not completely firm to palpation, while on the mild vertical and horizontal percussion they were sensitive, especially the tooth 11. Taking into account the size of the injured area, hypodontia of the tooth 22, the time that elapsed from the moment of injury to teeth re-plantation, the immobilizing splint was kept in place for another two weeks. One month after the injury, calcium hydroxide dressing was removed, canals irrigated with 2% sodium hypochlorite solution and physiological solution. The X ray examination was done. Due to the satisfactory clinical and radiological findings the tooth 21 was finally obturated while calcium hydroxide was placed back in the canal of the tooth 11. In the same visit, the immobilization splint was removed. Then after, the teeth that were in the splint were treated with Fluorogal®Forte Gel, Galenika A.D. Belgrade. The patient was scheduled for another visit in three days. After 1 month and 3 days, composite buildups were done on both teeth, 11 and 21. The tooth 21 was definitely obturated (Gutaperka points and pastes for definitive obturation) while on the tooth 11 root canal treatment continued until all symptoms of chronic infection were gone. After 1 month and 3 weeks, a fistula appeared above the root of the tooth 11. Calcium hydroxide was replenished every month, and seven months after the injury, the tooth 11 was definitely obturated. One year after the injury, the patient did not have any subjective symptoms, and the result achieved was functionally and aesthetically acceptable (Figure 8). However, X ray showed the initial signs of internal resorption of the tooth 21 (Figure 9). The patient has been monitoring on regular checkups scheduled every six months patient for up to 5 years.

**DISCUSSION**

It has been recommended in some studies that every avulsed tooth should be replanted regardless of the time between the accident and replantation [9]. Considering
the age of the patient, the size of injured area, the way the teeth were kept in saline, and hypodontia of the tooth 22, replantation was also chosen in our case. The parents were presented with options and minimal chances for successful treatment of teeth replantation. Also they understood posttraumatic period and possible complications.

Extraalveolar time can be short (less than 20 min), medium (20-60 min) and long (more than 60 min). Although for our patient extraalveolar time was long (2 hours and 20 minutes after the injury), avulsed central incisors were replanted and the immobilization splint was placed. It is believed that periodontal ligament maintains its vitality within the first 20 minutes of the injury [12, 13, 14]. The teeth replanted within that time frame have the best prognosis and the greatest possibility for healing of periodontal ligaments [12]. However, the literature presents cases of tooth restoration even after 36 hours of injury [15]. Ideally, avulsed tooth is to be returned to the alveolus immediately after the injury occurs. If this is not done, it is necessary to put the tooth in the transport medium and, as soon as possible, refer patient to the dentist. The type of media in which the tooth is stored determines the long-term prognosis of the replanted tooth. Ideal medium should preserve most of functional capabilities of periodontal ligament cells [14]. The tooth must not be dried or transported in dry, which occurs when wrapping in wipes and gauze or similar things. This leads to dehydration of still preserved cells on the surface of root that start to die in dry medium. There are various media for storing avulsed teeth that are widely available (water, saliva, saline, milk, ...) as well as specialized media. Water can protect the tooth from dehydration but if it is used for more than 20 minutes it leads to rapid deterioration of periodontal ligament cells [16].

Saliva is easily accessible and favorable storage medium if used for less than one hour. Research has shown that saliva as an environment for storing avulsed teeth can also be harmful to periodontal ligament cells if used for more than two hours because there are not enough essential nutrients such as magnesium, calcium and glucose, which are important for the metabolic needs of periodontal cells [17]. Modern research suggests that milk is an excellent storage medium for up to 6 hours because it does not have bacteria and has pH and osmolality compatible with those of the periodontal ligament cell and has nutrients such as amino acids, carbohydrates and vitamins [9, 18, 19]. There are several types of special media for transportation of avulsed teeth: Hank’s Balanced Saline Solution (HBSS), DentoSafe and ViaSpan media for tissue and organ transplantation [3, 19]. Today, DentoSafe (Dentosafe GmbH, Iselohn, Germany) is considered to be the most appropriate media for preserving and transporting avulsed tooth [16], and therefore DentoSafe vials should be available in all places at risk of dental trauma such as schools, daycares, children’s playgrounds and sport fields.

Endodontic treatment of injured teeth, in our patient, started after seven days. Some authors point out that, in order to prevent necrosis of the pulp of the avulsed tooth, it is necessary to start the root canal treatment for 7-10 days from avulsion [14], which is in accordance with our procedure. Any further delay greatly increases the risk of post-implantation necrosis and loss of teeth [16]. Post-dental trauma complications can occur in pulp, periodontal ligament, and surrounding structures. The most common are pulp necrosis [20] and root resorption [10, 21]. One month and 3 weeks after the injury a fistula appeared above one replanted tooth (11) in our case. There was also palpation and percussion sensitivity on the same tooth. Some authors suggest that optimal length of having the immobilization splint, for regeneration of periodontal ligament is two weeks [12, 16]. Due to the size of traumatic field and hypodontia of the tooth 22 our patient wore a splint longer than recommended time. In our case the patient had two avulsed teeth even though the most common is just one affected tooth [3].

Trauma has serious aesthetical, functional, psychological and economic consequences for patients and their parents [16, 22]. Our patient and his parents were unaware that teeth can be replanted back to their place until dentist suggested such an intervention. Other studies conducted on this topic have also shown that parents’ knowledge of tooth injuries and possible treatment is inadequate [22, 23]. Everyone involved in childcare should be properly educated in prevention and treatment of all kinds of dental trauma. Replantation of avulsed tooth in children is not important only from functional point, but it also has great psychological, emotional and social significance both for the child and parents.

**CONCLUSION**

Early tooth loss has a negative impact on child's psychosocial development. It is therefore important to educate parents and all childcare personnel (educators, teaching staff, trainers) about injury prevention, urgent treatment, possibilities of replantation of avulsed teeth, as well as the procedure and possible way of transporting avulsed teeth. Transporting mediums for avulsed teeth should be available in all daycares, schools and sports clubs. In addition children involved in sport activities should be wearing sport guards.

**REFERENCES**

1. Sari ME, Ozmen B, Koyuturk AE, Tokay U, Kasap P, Guler D. A retrospective evaluation of traumatic dental injury in children who applied to the dental hospital, Turkey. Niger J Clin Pract. 2014; 17(5):644–8. [DOI: 10.4103/1119-3077.141438] [PMID: 25244279]
2. Bücher K, Neumann C, Hickel R, Kühnisch J. Traumatic dental injuries at a German university clinic 2004-2008. Dent Traumatol. 2013; 29(2):127–33. [DOI: 10.1111/j.1600-9657.2012.01149.x] [PMID: 22613081]
3. Karayilmaz H, Kirzioglu Z, Erken Gungor O. Aetiologic, treatment patterns and long-term outcomes of tooth avulsion in children and adolescents. Pak J Med Sci. 2013; 29(2):464–8. [PMID: 24353557]
4. Hasan AA, Qudeimat MA, Andersson L. Prevalence of traumatic dental injuries in preschool children in Kuwait-a screening study. Dent Traumatol. 2010; 26(4):346–50. [DOI: 10.1111/j.1600-9657.2010.00891.x] [PMID: 20662888]
5. Zaleckiene V, Peciuliene V, Brukiene V, Drukteinis S. Traumatic dental injuries: etiology, prevalence and possible outcomes. Stomatologija. 2014; 16(1):7–14. [PMID: 24984660]  
6. Schuch HS, Goettems ML, Correa MB, Torrini DD, Demarco FF. Prevalence and treatment demand after traumatic dental injury in South Brazilian schoolchildren. Dent Traumatol. 2013; 29(4):297–302. [DOI: 10.1111/edt.12003] [PMID: 23067235]  
7. Abukabbos H, Al Sineedi F, Guelmann M. Management of complications after traumatic injuries to immature permanent maxillary incisors: a five years follow up case report. Oral Health Dent Manag. 2014; 13(2):429–34 [PMID: 24984660]  
8. Lam R. Epidemiology and outcomes of traumatic dental injuries: a review of the literature. Aust Dent J. 2016; 61:15–20. [DOI: 10.1111/adj.12395] [PMID: 26923445]  
9. Šurdilović D, Apostolović M, Igić M, Kostadinović Lj, Tričković Janjic O. Therapy of the patient having traumatic extraction of permanent upper central incisors. Acta Stomatologica Naissi 2008; 24:833–40.  
10. Niikuni N, Seki N, Saot K, Nasu D, Shirakawa T. Traumatic injury to permanent tooth resulting in complete root resorption: a case report. J Oral Sci. 2007; 49(4):341–4. [DOI: 18195520] [PMID: 18195520]  
11. Beloica D, Vulović M, Duggal M, Dimitrijević B. Povrede zuba. Stomatološki fakultet, Univerzitet u Beogradu. 2007.  
12. Flores MT, Andersson L, Andreasen JO, Bakland LK, Malmgren B, Barnett F, et al. Guidelines for the management of traumatic dental injuries. II. Avulsion of permanent teeth. Dent Traumatol. 2007; 23(3):130–6. [DOI: 10.1111/j.1600-9657.2007.00605.x] [PMID: 17511833]  
13. Panzarini SR, Trevisan CL, Brandini DA, Poi WR, Sonoda CK, Luviutto ER, et al. Intracanal dressing and root canal filling materials in tooth replantation: a literature review. Dent Traumatol. 2012; 28(1):42–8. [DOI: 10.1111/j.1600-9657.2011.01023.x] [PMID: 22230725]  
14. Andreasen JO, Borum MK, Jacobsen HL, Andreasen FM. Replantation of 400 avulsed permanent incisors. 4. Factors related to periodontal ligament healing. Endod Dent Traumatol. 1995; 11(2):76–89. [PMID: 7641522]  
15. Adil NF, Ahmed SS, Jindal MK, Arshad SH. Delayed replantation of avulsed teeth. J Indian Soc Pedod Prev Dent. 2007; 25:17–9. [PMID: 17921635]  
16. Škrinjarčič I, Škrinjarčič T, Goršeta K, Čuković-Bagić I, Verzak Ž. Hitni i prevenotv postupci kod zuba u djeci. Paediatr Croat. 2010; 54(Supl 1):154–62.  
17. Pohl Y, Tekin U, Boll M, Filippi A, Kirschner H. Investigations on a cell culture medium for storage and transportation of avulsed teeth. Aust Endod J. 1999; 25(2):70–5. [PMID: 11411083]  
18. Blomlof L. Milk and saliva as possible storage media for traumatically exarticulated teeth prior to replantation. Swed Dent J. 1981; (Supl 8):1–26. [PMID: 6942523]  
19. Trope M, Friedman S. Periodontal healing of replanted dog teeth stored in ViaSpan, milk, Hanks balanced salt solution. Endodon Dent Traumatol. 1992; 8(5):183–8. [PMID: 1302677]  
20. Wang SH, Chung MP, Su WS, Cheng JC, Shieh YS. Continued root formation after replantation and root canal treatment in an avulsed immature permanent tooth: a case report. Dent Traumatol. 2010; 26(2):182–5. [DOI: 10.1111/j.1600-9657.2010.00864.x] [PMID: 2048694]  
21. Donaldson M, Kinisons MJ. Factors affecting the time of onset of resorption in avulsed and replanted incisor teeth in children. Dent Traumatol. 2001; 17(5):205–9. [PMID: 11678538]  
22. Ozer S, Yılmaz El, Bayrak S, Tunc ES. Parental Knowledge and attitudes regarding the emergency treatment of avulsed permanent teeth. Eur J Dent. 2012; 6(4):370–5. [PMID: 23077415]  
23. Fujita Y, Shiono Y, Maki K. Knowledge of emergency management of avulsed tooth among Japanese dental students. BMC Oral Health. 2014; 14:34. [DOI: 10.1186/1472-6831-14-34] [PMID: 24712491]
Traumatska ekstrakcija gornjih centralnih sekutića

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KRATAK SADRŽAJ
Uvod: Povrede zuba i drugih oralnih tkiva mogu nastati u bilo kom periodu života. Traumatska ekstrakcija zuba je potpuno izbijanje zuba iz alveole. Dijagnoza traumatski izbijenih zuba postavlja se tek posle analize rendgen snimka, kao i detaljnog kliničkog pregleda. Prikaz slučaja: Pacijent uzrasta 12 godina javio se na Stomatološku kliniku Medicinskog fakulteta u Foči zbog povrede u frontalnoj regiji maksile. Uzrok povrede je pad u toku sportskih aktivnosti. Vreme proteklo od povrede je dva sata i 20 minuta. Kliničkim pregledom i rendgen snimkom dijagnostikovano je: 11 i 21 – Avulsio completa dentis traumatica et Fractura dentis traumatica; 22 – Hypodontia dentis i Vulnus laceratio contusus mentae. Zubi su doneseni u fiziološkom rastvoru. Posle obrade rane i date anestezije zubi su vraćeni u alveolu i postavljen je imobilizacioni splint od fiberglas vlakana. Pacijentu su prepisani antibiotici i preporučena antitetanus zaštita. Sedam dana od povrede zubi su endodontski tretirani. Mesec dana od povrede uklonjen je splint, zub 21 je definitivno napunjen i na oba zuba urađene su kompozitne nadogradnje. U zubu 11 ostavljeno je punjenje kalcijum-hidroksidom. Mesec dana i tri sedmice od povrede pojavila se fistula iznad zuba 11. Endodontsko lečenje ovog zuba je završeno posle sedam meseci. Zaključak: Traumatska ekstrakcija zuba, bilo koje vrste, zahtevaju hitan tretman. Svaki gubitak vremena umanjuje verovatnoću da će lečenje biti uspešno. Zbog nedostatka materijala za postavljanje imobilizacionog splinta, po preporukama Internacionalne asocijacije denatalne traumatologije – IADT, razmotrjeno je reimplantovanje. Mesec dana pacijent nije pokazivao znake i simptome neurološkog oštećenja. Cilj ovoga rada bio je da prikaže postupak, terapiju i komplikacije posle avulzije zuba. Ključne reči: avulzija; trauma; ekstrakcija zuba; imobilizacioni splint

UVOD
Traumatske povrede zuba i drugih oralnih tkiva mogu nastati u bilo kom periodu života. Najčešće su postojanje eventualne ortodontske nepravilnosti, kao i postupak replantacije, način čuvanja zuba od trenutka izbijanja do replantacije, po preporukama Internacionalne asocijacije denatalne traumatologije – IADT [12]. Aplikovana je lokalna anestezija. Zubi su transportovani u staklenoj bočici sa fiziološkim rastvorom. Posle uzete anamneze, urađenog kliničkog pregleda (Slika 1) i RTG snimka (Slika 2) postavljena je sledeća dijagnoza: 11 i 21 – Avulsio completa dentis traumatica; 22 – Hypodontia dentis. Takođe je dijagnostikovano: 11 – Fractura dentis traumatica i klase i klase; 21 – Fractura dentis traumatica II klase i Vulnus laceratio contusus mentae.

Prikaz slučaja
Dvanaestogodišnji dečak javio se u najbližu stomatološku ambulantu u Višegradu zbog povrede zuba u gornjoj vilici posle pada tokom treniranja fudbala. Anamnestički podaci ukazuju da pacijent nije pokazivao znake i simptome neurološkog oštećenja. Zbog nedostatka materijala za postavljanje imobilizacijosneg splinta, dečak je upućen na Stomatološku kliniku Medicinskog fakulteta u Foči. Posle uzete anamneze, urađenog kliničkog pregleda (Slika 1) i RTG snimka (Slika 2) postavljena je sledeća dijagnoza: 11 i 21 – Avulsio completa dentis traumatica; 22 – Hypodontia dentis. Takođe je dijagnostikovano: 11 – Fractura dentis traumatica I klase; 21 – Fractura dentis traumatica II klase i Vulnus laceratio contusus mentae.

Zubi su transportovani u staklenoj bočici sa fiziološkim rastvorom (Slika 3). Roditeljima su objašnjene dostupne terapijske mogućnosti. Posle dva sata i 20 minuta pristupilo se postupku replantacije, po preporukama Internacionalne asocijacije denatalne traumatologije – IADT [12]. Aplikovana je lokalna anestezija. Da bi se uklonile nečistoće i krivn ugruši, povredena regija je tretirana sterilnom gazu na nezdravom zubi. Uz cvrku izlivenog fiziološkog rastvora izvršeno je uklanjanje nezdravnih materiala sa zuba. Pacijent se preporučio za uspostavu 37% ortofosforne kiseliny u trajanju od 30 sekundi. Zubi su se ispirani i posušeni (Slika 5), postavljen je afheziv. Tokom...
ovog perioda izbijeni zubi su uklonjeni iz transportnog medi-
juma, pažljivo isprani fiziološkim rastvorom i na vestibularnim
površinama zuba ponovljena je ista procedura sa kiselinom (Sli-
ka 6) i adhezivom. Alveola je isprana sa fiziološkim rastvorom
i izbijeni zubi su lagano replanirani digitalnom kompresijom.
Postavljen je imobilizacioni splint (Slika 7). Vreme proteklo od
momenta povređivanja do završetka replantacije je dva sata i 45
minuta. Preporučena je antitetansna profilaksa, propisani su
tetracikline, antibiotici, analgetici, antiinfamatori.

Na prvoj kontroli replanirani zubi su bili u velikoj meri čvrti
st i stabilni na palpaciju. Postoje kliničke i radiološke procene
sproveđen je endodontski tretman na zubima 11 i 21 po stan-
dardnoj proceduri. Zubi su namijenjeni kalcijum-hidroksidom
(Calcipulpse®Septodont, Cedex, France) posle obline irrigacije fizi-
ološkim rastvorom i posušivanja papirnima. Naredna kontrola je
zakazana za sedam dana. Na drugoj kontroli, 15 dana od povrede,
replanirani zubi nisu bili potpuno čvrsti na palpaciju, dok su na blagu
vertikalnu i horizontalnu perkusiju bili osjetljivi, posebno zubi 11, 12,
13, 15 i 16. Na prvoj kontroli izbijeni zubi nisu bili potpuno čvrsti.

Kada je traumatska ekstrakcija zuba u pitanju, pojedine studije
pokazuju da je replantaciju zuba potrebno provesti bez obzira
na to kada se pacijent javi [9]. S obzirom na uzrast pacijenta,
veličinu povređenog polja, način na koji su zubi doneseni, kao i
urodeni nedostatak zuba 22, nije prethodno ništa drugo nego da
se pokuša sa replantacijom. Roditeljima je ukazano da postoji
šanse, mada minimalne, da se zubi sačuvaju. Takođe su upoznati
sa postrumaškim tokom i mogućim komplikacijama.

Razlikuje se kratko (manje od 20 min.), srednje (20–60 min.)
dugo (više od 60 min.) ekstraalveolarno vreme. Iako je ekstra-
alveolarno vreme kod našeg pacijenta dugo (prošlo je dva sata i
20 minuta od povrede), traumatski izbijeni centralni sekutici su
vraceni u alveolu i postavljen je imobilizacioni splint. Smatra se
da periodontalni ligament održava svoju vitalnost u prvih 20-ak
minuta od povrede [12, 13, 14]. Zubi koji su replanirani u okviru
tog vremena imaju najbolju prognozu i najveću mogućnost za
odzivljenje periodontalnog ligamenta [12]. Međutim, u literature
su opisani slučajevi vraca dana i nakon 36 sata od povrede [15].

Zub 21 je opturisan. Zbog zadovoljavajućeg kliničkog nalaza zub 21 je opturisan. Zbog zadovoljavajućeg kliničkog nalaza
namišten za očuvanje funkcionalne sposobnosti ćelija periodontalnog
ligamenta [14]. Međutim, u literature su opisani slučajevi vraca
zub 22, kao i zbog palpatornog kliničkog nalaza, nosio splint
za regeneraciju periodontalnog ligamenta petnaest dana [12, 16]. Naš
postoji najveća mogućnost za odzivljenje periodontalnog ligamenta [12].

Pljuvarčica je lako dostupan i povoljan medij za čuvanje ako se
koristi karija od sat vremena. Istraživanja su pokazala da je
fiziološki rastvor kao sredina za čuvanje izbijenog zuba štetan
za ćelije periodontalnog ligamenta ako se koristi duže od dva
sata jer nema dovoljno esencijalnih hranjivih materija kao što
su aminokiseline, ugljeni hidrati i vitamini. Postoje više vrsta
posebnih medijuma za prenos izbijenog zuba: Hanks izbalsirani
rastvor soli (Hanks’ Balanced Saline Solution), DentoSafe i Vi-
Sa® (DentoSafe GmbH, Iserlohn, Germany) najprikladniji medij
za očuvanje i transport izbijenih zuba [17].

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posebnih medijuma za prenos izbijenog zuba [9, 18, 19]. Postoje
tako i drugi mediji za očuvanje izbijenih zuba, uključujući
DentoSafe®Septodont (Calcipulpe®Septodont, Cedex, France) posle obline irigacije
pljuvarčcu, fiziološki rastvor, mleko...) i specijalizovani mediji.

Zbog zadovoljavajućeg kliničkog nalaza zubi 21 i 22 su
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Kada je traumatska ekstrakcija zuba u pitanju, pojedine studije
pokazuju da je replantaciju zuba potrebno provesti bez obzira
to kada se pacijent javi [9]. S obzirom na uzrast pacijenta,
veličinu povređenog polja, način na koji su zubi doneseni, kao i
urodeni nedostatak zuba 22, nije prethodno ništa drugo nego da
se pokuša sa replantacijom. Roditeljima je ukazano da postoji
šanse, mada minimalne, da se zubi sačuvaju. Takođe su upoznati
sa postrumaškim tokom i mogućim komplikacijama.

POSTUPAK

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duže od preporučenog vremena. U ovoj studiji pacijent je imao dva avulzirana zuba. Inače se obično dešava da je kod pacijenata traumatski ekstrahovan samo jedan zub [3].

Traume dentomaksilofacijalne regije imaju ozbiljne estetske, funkcionalne, psihološke i ekonomske posledice za pacijente i njihove roditelje [16, 22]. Naš pacijent i njegovi roditelji nisu bili upoznati sa tim da je moguće da se zubi vrate u vilicu dok im stomatolog nije predložio takvu intervenciju. Inače, i druge studije rađene na tu temu pokazuju da je znanje roditelja o povredama zuba kao i mogućem lečenju neadekvatno [22, 23]. Znanje o hitnom lečenju izbijenih zuba treba povećati pružanjem edukativnih i preventivnih informacija svima koji rade sa decom. Replantacija izbijenog zuba kod dece nije važna samo s funkcionalnog pogleda već ima veliki psihološki, emocionalni i socijalni značaj kako za dete tako i za roditelje. Rani gubitak zuba može da utiče negativno na psihosocijalni razvoj deteta. Zbog toga je važno edukovati sve osobe (roditelje, vaspitače, nastavno osoblje, sportske trenere) o prevenciji povreda, prvoj pomoći povređenih, mogućnosti replantacija avulziranih zuba kao i postupku i mogućem načinu transporta povređenih zuba. Medijumi za čuvanje izbijenog zuba trebalo bi da budu dostupni u svim vrtićima, školama i sportskim klubovima. U toku izvođenja sportskih aktivnosti, kako bi se sprečile ili ublažile povrede zuba, potrebno je da decu nose štitnike za zube.