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CASE REPORT  
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## POTPUNA REHABILITACIJA USNE ŠUPLJINE POSLE LEČENJA KARIJESA U RANOM DETINJSTVU:PRIKAZ SLUČAJA

### COMPLETE REHABILITATION OF MOUTH CAVITY AFTER EARLY CHILDHOOD CARIES TREATMENT: A CASE REPORT

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#### Sažetak

**Uvod:** Karijes ranog detinjstva je jako ozbiljan zdravstveni problem, kako u zemljama u razvoju tako i u razvijenim zemljama. Ovde je predstavljen klinički slučaj potpunog oporavka od karijesa u ranom detinjstvu.

**Prikaz slučaja:** Petoipogodišnji pacijent muškog pola koga je dovela majka prijavljen je na Odeljenje dečje stomatologije zbog karioznih zuba. Ispitivanje usne duplje utvrdilo je mešovito nicanje zuba sa karijesom: 51, 52, 54, 55, 61, 62, 63, 64, 71, 72, 73, 81, 82, 84, 85 i zubi sa privremenim punjenjem na 74 i 75. Urađena je korekcija glas jonomer cementom na zubima 71, 72, 81, 82, 83. Pulpotomija je rađena na zubima 51, 52, 61, 62, 63, 74 i 75. Umeci od polietilenskih vlakana (Ribond) su stavljeni na zube 51, 52, 61, 62 i 63. Finalna korekcija sa celuloidnim strip krunicama urađena je na zubima 51, 52, 61 i 62, a kompozitno popravljjanje na zubu 63. Krunice od nerđajućeg čelika su postavljene na zubima 74, 75, 84 i 85.

**Zaključak:** Potpuni oporavak usta deteta nakon karijesa u ranom detinjstvu je izazov za dečjeg stomatologa. Pored koristi za oralno zdravlje, oralna rehabilitacija takođe doprinosi poboljšanju opšteg i psihološkog stanja deteta.

**Ključne reči:** karijes, rano detinjstvo, potpuna rehabilitacija usta, krunice od nerđajućeg čelika

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#### Abstract

**Introduction:** Early childhood caries (ECC) is a very serious public health problem in both developing and developed countries. We presented here a case of early childhood caries with full mouth rehabilitation.

**Case report:** A five-and-a-half-year-old male patient accompanied by his mother reported to the department of pediatric dentistry with a chief complaint of severely decayed teeth. Intraoral examination revealed a set of mixed dentition with caries in relation to teeth 51, 52, 54, 55, 61, 62, 63, 64, 71, 72, 73, 81, 82, 84, 85 with some temporary dressing in teeth 74 and 75. Restoration with glass ionomeric cement on 71, 72, 81, 82, 83 tooth were done. Pulpotomy was done in relation to teeth 51, 52, 61, 62, 63, 74 and 75. Polyethylene fiber post ((Ribbond) was placed in relation to teeth 51, 52, 61, 62 and 63. Final restoration with celluloid strip crowns in relation to teeth 51, 52, 61 and 62 were placed and composite restoration was done with tooth 63. Stainless steel crowns were placed on teeth 74, 75, 84 and 85.

**Conclusion:** Full mouth rehabilitation of a child with early childhood caries is challenging for pediatric dentist. Oral rehabilitation also contributes to the improvement of general and psychological wellbeing of the child.

**Key words:** caries, early childhood, full mouth rehabilitation, stainless steel crowns

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## Uvod

Karijes ranog detinjstva (KRD) je ozbiljan stomatološki problem koji utiče na decu koja su tek prohodala i onu malo stariju. KRD se može definisati kao prisutnost jednog ili više pokvarenih zuba, onih koji nedostaju ili ispunjenih površina na bilo kom mlečnom zubu deteta od 71 meseca ili mlađeg. Oko 40% dece dobije dentalni karijes do pete godine, a 8% dvogodišnjaka ima neki oblik propadanja zuba ili već saniranih karijesnih lezija. Termin KRD je uveden 1990-tih, kao pokušaj da se pažnja skrene na višestruke faktore, poput socioekonomskih, psiho-socijalnih i bihevioralnih problema, koji doprinose karijesu u ranim godinama, umesto da se kao jednim uzrocima pripišu neodgovarajuće metode hranjenja, kao što su korišćenje flašice i produženo dojenje<sup>4</sup>.

Potpuna rehabilitacija usta, uključujući i estetsku restauraciju ozbiljno oštećenih mlečnih zuba, oduvek je bio izazov za stomatologa, ne samo zbog ograničenosti u dostupnim materijalima i tehnikama, već i zbog toga što su deca koja zahtevaju ovakva popravljavanja obično najmlađi pacijenti i samim tim oni sa kojima je najteže saradivati. I pored toga, uz saradnju pedodontista sa decom, kao i uz dostupnost novijih materijala, poput strip krunica (3M ESPE) i umetaka od polietilenskih vlakana, model lečenja se improvizuje po predstavljenom scenariju. Ovaj klinički slučaj opisuje potpunu rehabilitaciju usta emocionalno nezrelog pacijenta koji pati od KRD-a, vidljivog kroz višestruko uništene zube.

## Klinički slučaj

Petoipogodišnji pacijent muškog pola koga je dovela majka prijavljen je na Odeljenje dečje stomatologije žaleći se na ozbiljno pokvarene zube. Dete je bilo stidljivo i bez dovoljno samopouzdanja. Njegova medicinska istorija nije pokazala nikakve sistemske, alergijske ili imuno kompromitujuće bolesti. Dete je rođeno prirodnim putem i u terminu. Utvrđeno je da pacijent ima istoriju hranjenja na flašicu i produženog dojenja.

Ispitivanje usne duplje utvrdilo je mešovito nicanje zuba sa karijesom: 51, 52, 54, 55, 61, 62, 63, 64, 71, 72, 73, 81, 82, 84, 85 (slika 1. – slika 4.) i privremeno punjenje na zubima 74 i 75 (slika 5).

## Introduction

Early childhood caries (ECC) is a serious dental problem that affects the infants and toddlers. ECC can be defined as the presence of one or more decayed, missing or filled tooth surfaces in any primary tooth in a child 71 months of age or younger<sup>1</sup>. Around 40% of children have dental caries by the age of five, and 8% of two-year-old children have some form of decay or previous restorations<sup>2,3</sup>. The term ECC was introduced in the 1990s in an attempt to focus attention on the multiple factors such as socioeconomic, psychosocial and behavioral problems that contribute to caries at an early age rather than describe sole causation of inappropriate feeding methods like bottle use and prolonged breastfeeding on demand<sup>4</sup>.

Full mouth rehabilitation including the esthetic restoration of severely mutilated primary teeth has always been a challenge for the dentist for a long time, not only because of the limitations of the available materials and techniques but also because the children who require such restorations are usually among the youngest and least manageable group of patients. However, with the pedodontist's handling the children and availability of newer materials like strip crowns and polyethylene fiber post the treatment modality is improvised in the present scenario. The presented case report describes the full mouth rehabilitation of an emotionally immature patient suffering from early childhood caries presenting with multiple mutilated teeth.

## Case Report

A five-and-a-half-year-old male patient accompanied by his mother reported to the department of pediatric dentistry with a chief complaint of severely decayed teeth. The child was a bit shy and less confident. His medical history revealed no systemic, allergic, or immunocompromising illness. The patient was a full-term child, born during a normal delivery. Diet history revealed that patient had a history of bottle feeding and breastfeeding on demand.

Intraoral examination revealed a set of mixed dentition with caries in relation to teeth 51, 52, 54, 55, 61, 62, 63, 64, 71, 72, 73, 81, 82, 84, 85 (Fig. 1- Fig. 4) with some temporary dressing in teeth 74 and 75 (Fig. 5).

Periapikalni radiograf usne duplje utvrdio je prisutnost pulpe kod zuba 51, 52, 61, 62, 63, 64, 74 i 75. Zaustavljeni karijes se video kod zuba 55 i 65. Maksilarni mlečni kutnjaci 54 i 64 su znatno oštećeni, uz periapikalno gnojenje i pokretnost.

Intraoral periapical radiographs revealed pulp involvement with teeth 51, 52, 61, 62, 63, 64, 74, 75. Arrested caries was seen in teeth 55 and 65. Maxillary first molars i.e. 54 and 64 were grossly destructed with periapical abscess and mobility.



**Slika 1:** Predoperativna slika koja pokazuje KRD sa prednje strane

**Fig. 1:** Preoperative photograph showing early childhood caries (front view)



**Slika 3:** Predoperativna slika iz levog ugla

**Fig. 3:** Preoperative photograph showing the left side



**Slika 2:** Predoperativna slika iz desnog ugla

**Fig. 2:** Preoperative photograph showing the right side



**Slika 4:** Maksilarni zatvoreni ugao

**Fig. 4:** Maxillary occlusal view

Inicijalni tretman uključio je odgovarajuće preventivne mere, poput oralne profilakse i jednostavnih popravki, u cilju detetovog privikavanja. Korekcija glas jonomer cementom rađena je na zubima 71, 72, 81, 82, 83. Pulpotomija je rađena na zubima 51, 52, 61, 62, 63, 74 i 75. Umeci od polietilenskih vlakana (Ribond) su stavljeni na zube 51, 52, 61, 62 i 63. Finalna korekcija sa celuloidnim strip krunicama urađena je na zubima 51, 52, 61 i 62, a kompozitno popravljane na zubu 63 (slika 6).

Pulpotomija je sprovedena na zubima 84 i 85, jer im je bila neophodna krunica od

Initial treatment involved appropriate preventive measures like oral prophylaxis and simple restorations to desensitize the child. Glass ionomer cement restoration was done with teeth 71, 72, 81, 82, 83. Pulpotomy was done in relation to teeth 51, 52, 61, 62, 63, 74 and 75. Polyethylene fiber post ((Ribbond) was placed in relation to teeth 51, 52, 61, 62 and 63. Final restoration with celluloid strip crowns in relation to teeth 51, 52, 61 and 62 were placed and composite restoration was done with tooth 63 (Fig. 6). Pulpotomy was carried out in teeth 84 and 85 as they needed the stainless steel crown to increase the vertical height.

nerđajućeg čelika kako bi uvećali vertikalnu visinu. Krunice od nerđajućeg čelika su postavljene na zubima 74, 75, 84 i 85 (slika 7). Izvršeno je vađenje zuba 54 i 64 pod lokalnom anestezijom. Nance palatalni čuvar prostora sa nerđajućim čeličnim žicama stavljen je u maksilarni lučni prostor kod zuba 55 i 65 (slika 8). Pacijentu su savetovani redovni pregledi.



**Slika 5:** Mandibularni zatvoreni ugao

**Fig. 5:** Mandibular occlusal view



**Slika 7:** Rehabilitacija (mandibularni ugao)

**Fig. 7:** Rehabilitation (mandibular view)

### **Diskusija**

Iako se uvođenjem preventivnih mera, poput fluoroida, prevalencija karijesa značajno smanjila, još uvek ima prisutnih slučajeva dece sa dentalnim karijesom. Rana pojava karijesa i masovno uništavanje zuba vodi ka problemima kao što su gubitak sposobnosti efektivnog žvakanja, smanjena vertikalna dimenzija, kompromitovana estetika, razvijanje neprirodnih navika poput guranja jezika i psiholoških problema.

Stainless steel crowns were placed on teeth 74, 75, 84 and 85 (Fig. 7). Extraction of teeth 54 and 64 was done under the local anesthesia. Nance palatal arch space maintainer was given in the maxillary arch with stainless steel bands on teeth 55 and 65 (Fig. 8). The patient was advised for regular check-ups.



**Slika 6:** Postoperativna slika iz prednjeg ugla

**Fig. 6:** Postoperative photograph (front view)



**Slika 8:** Rehabilitacija (maksilarni ugao)

**Fig. 8:** Rehabilitation (maxillary view)

### **Discussion**

Though the caries prevalence has decreased substantially with the introduction of preventive measures like fluorides, children still continue to present with dental caries. The early carious involvement and gross destruction of the teeth leads to the problems like loss of masticatory efficiency, reduced vertical dimension, compromised esthetics, development of abnormal habits like tongue thrusting and psychological problems.

Potpuna rehabilitacija usne duplje od ovakvih zuba je veliki izazov za dečju stomatologiju. U popravljanju prednjih mlečnih zuba se koriste brojni materijali i tehnike. Stakleni jonomer cementi, amalgami, silikatni cementi, kompomeri, kompozitne smole, krunice od nerđajućeg čelika, otvorene krunice od nerđajućeg čelika i krunice od polikarbonata su danas u čestoj upotrebi. Amalgam i krunice od nerđajućeg čelika se ne preporučuju kada je prioritet estetika. U skorije vreme, cirkonske krunice postaju popularne zbog svoje estetske prihvatljivosti.

Silikatni cementi i smole se primenjuju kod manjih lezija i često nisu dobar izbor kada se koriste za sanaciju većih karioznih lezija. Polikarbonatskim krunicama se postiže visok nivo estetike, ali one iziskuju pažljive procese cementiranja kako bi se zadržale. Glavni problem kod polikarbonatskih krunica je neuspelo cementiranje, koje rezultira ranim lomljenjem i otpadanjem same krunice, čak , pre zamene saniranog zuba <sup>6</sup>. U ovom kliničkom slučaju korišćena je celuloidna premodifikovana krunica sa kompozitno smolastim materijalom u cilju dobijanja estetskog rezultata usled usklađenosti nijansi, funkcionalnosti i jer je dokazano ekonomična.

Kod dece sa kombinovanim nicanjem mlečnih zuba postavljanje krunica od nerđajućeg čelika je efektan način saniranja ozbiljno uništenih i mlečnih i stalnih molara. Kod mlečnih zuba, krunice od nerđajućeg čelika se indikuju kod pulpotomije i pulpektomije, a takođe su primenljive i kod zuba sa razvojnim deformitetima, kao i kod lezija karijesa koje pokrivaju veću površinu, a gde bi amalgam verovatno imao problema sa retencijom, ujedno eliminišući značajnu količinu zdravog zubnog tkiva. Krunice od nerđajućeg čelika su izuzetno trajne, manje skupe, podložne minimalnoj tehničkoj osetljivosti tokom ugrađivanja i nude prednost pune koronalne pokrivenosti. U predstavljenom slučaju, krunice od nerđajućeg čelika su korišćene na zubima 74 i 75, prateći pulpektomiju. Pulpotomija je urađena na zubima 84 i 85. Usledilo je postavljanje krunica od nerđajućeg čelika koje su pomogle u uvećanju okluzivne vertikalne visine.

Potpuni oporavak usta deteta nakon karijesa u ranom detinjstvu je izazov za dečjeg stomatologa. Pored dentalnih benefita, oralna rehabilitacija takođe doprinosi poboljšanju opšteg i psihološkog stanja deteta.

The full mouth oral rehabilitation of these teeth is a great challenge to the pediatric dentistry. Numerous materials and techniques have been used in the restoration of primary anterior teeth. Glass ionomer cements, amalgams, silicate cements, compomer, composite resins, stainless steel crowns, open face stainless steel crowns, and polycarbonate crowns are frequently used today. Amalgams and stainless steel crowns are contraindicated when esthetics is a major consideration. Recently, zirconium crowns are becoming popular due to its esthetic acceptance.

Silicate cements and resins are indicated for small lesions, but often fail when used to restore larger lesions.<sup>5</sup> Polycarbonate crowns provide excellent esthetics, but require careful cementation procedures for retention. Failure in the cementation of the polycarbonate crown is a major problem, resulting in early fracture and loss of the crown prior to the exfoliation of the restored tooth.<sup>6</sup> In the present case, celluloid preformed crown with composite resin material was used because of its advantage of producing an esthetic result because of shade matching, functional and proven economical restoration.

In children with the primary and the early mixed dentition, stainless steel crowns are an effective type of restoration in managing severely destructed primary molars and permanent molars in children. In primary teeth, the stainless steel crowns are indicated following pulpotomy or pulpectomy and are also applicable for teeth with developmental defects, large carious lesions involving multiple surfaces where amalgam is likely to fail and teeth are likely to fracture.<sup>7</sup> The stainless steel crowns are extremely durable, less expensive, and subject to minimal technique sensitivity during placement and offer the advantage of full coronal coverage.<sup>8</sup> In the present case, stainless steel crowns were used on teeth 74 and 75 following pulpectomy. Pulpotomy was done in teeth 84 and 85 and was followed by placement of stainless steel crowns which aided in increasing the vertical height of occlusion.

Full mouth rehabilitation of a child with early childhood caries is challenging for pediatric dentist. Apart from the dental benefits, oral rehabilitation also contributes to the improvement of general and psychological wellbeing of the child.

Pacijent je imao simptom Frankelovog ponašanja sa ocenom 1, tj. negativnom ocenom, ali saradnja sa njim je uspela uz pomoć tehnike nefarmakološkog tretmana. Prema pacijentu se ponašalo jako pažljivo, sa izuzetno velikom dozom strpljenja, što je zahtevalo i višestruke posete – rad u više seansi. Na kraju tretmana, pacijent je otišao sa odeljenja ne samo oslobođen bolesti usne duplje, već i kao jači i samopouzdaniji pojedinac, sa pozitivnijim stavom prema posetama dečijem stomatologu.

### **Zaključak**

Potpuni oporavak usta deteta nakon karijesa u ranom detinjstvu je izazov za dečjeg stomatologa. Pored koristi za oralno zdravlje, oralna rehabilitacija takođe doprinosi poboljšanju opšteg i psihološkog stanja deteta.

The patient had a Frankl behavior rating one i.e. definitely negative, but was managed using only non-pharmacological behavior management techniques. The patient was carefully dealt with an extraordinary amount of patience and hence required multiple sittings. At the end of treatment, the patient walked out of the department not only with disease free oral cavity but also as a stronger and more confident individual with a positive attitude towards dental treatment.

### **Conclusion**

Full mouth rehabilitation of a child with early childhood caries is challenging for pediatric dentist. Oral rehabilitation also contributes to the improvement of general and psychological wellbeing of the child.

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