

Therapeutic options in the treatment of supernumerary teeth

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SUMMARY

Introduction Hyperdontia or supernumerary teeth are excess number of teeth in comparison to normal dentition. The aim of this study was to present different variants of permanent supernumerary teeth, as well as their observation or elimination in order to prevent possible complications

Case report Six different cases of hyperdontia are presented in this paper. All hyperdontia cases were multidisciplinary evaluated and individual treatment protocols were applied. Already erupted supernumerary teeth were extracted without surgical intervention. Unerupted teeth were surgically removed or left for observation.

Conclusion Early and frequent dental check-ups are very important for children in order to detect possible dentition irregularities and thus timely start with appropriate therapy.

Keywords: hyperdontia; mesiodens; extraction; tooth eruption; fourth molars; impacted teeth

INTRODUCTION

Healthy and properly aligned teeth have always been a symbol of health and beauty. Deciduous and permanent teeth eruption control is very important in childhood, when a proper occlusion is formed [1, 2]. Tooth eruption disorder occurs due to certain pathological conditions or diseases that are mostly asymptomatic. One of the causes for tooth eruption disorders can be hyperdontia [3].

Hyperdontia or supernumerary teeth are excess teeth in comparison to normal dentition [4, 5]. Supernumerary teeth can have normal appearance, and then they are characterized as dentes supernumeraria and if they differ in appearance (conical, molariform or tuberculoid) they are named dentes accessoria. According to localization, distomolar is a tooth located distal to the third molar while peridens is localized orally or vestibularly from the alveolar ridge. Usually, mesiodens is conical in appearance, smaller than central incisors and it is localized near the midline [2, 6, 7]. If they erupt, they are located between two central incisors or on the palate [8–11].

Supernumerary teeth can cause many complications: absence of eruption and altered position of permanent teeth, teeth resorption, odontogenic cysts development, formation of diastema between central incisors, and may interfere with proper oral hygiene maintenance [1, 12, 13]. It is significant functional and aesthetic problem for young people in adolescence. Hyperdontia is mostly diagnosed accidentally, during clinical and X-ray examination, or if

there is a suspicion of an obstacle to the permanent tooth eruption [5, 14, 15]. According to available literature data, the prevalence of supernumerary teeth in permanent dentition ranges between 0.15 to 3.8% [16, 17, 18].

Early treatments are needed to support right dental occlusion and prevent complications in dento-alveolar complex development [8, 16, 18]. Therefore, a multidisciplinary approach, cooperation of a pediatric dentist, orthodontist and oral surgeon is very important [16, 19, 20].

The aim of this study was to present different variants of permanent supernumerary teeth, as well as their observation or elimination in order to prevent possible complications.

CASE REPORT

Six different cases of hyperdontia are presented in this paper. The children were treated at the Specialist center for dentistry, Faculty of Medicine in Foca, Bosnia and Herzegovina. All patients with hyperdontia were male. All cases were multidisciplinary evaluated and individual treatment protocols were as follows. Supernumerary teeth that had already erupted (CASE I and II) were extracted without surgical intervention. Unerupted teeth were surgically removed or left for observation (CASES III, IV, V and VI).

Case I: A 7.5-year-old patient with erupted mesiodens in dental arch reported to the clinic. After obtaining medical and dental history, clinical examinations and X-ray

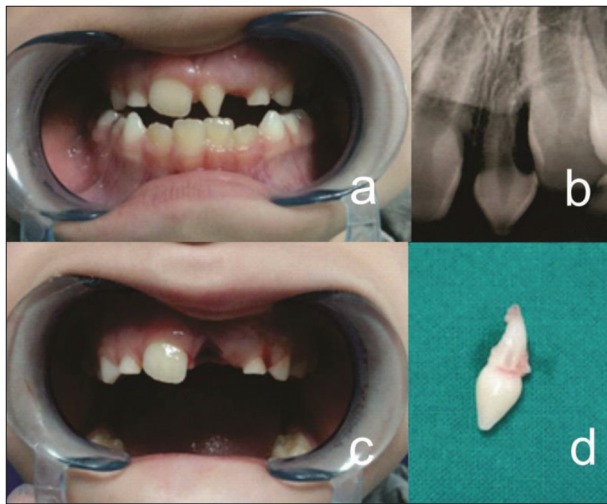


Figure 1. Erupted supernumerary tooth/mesiodens (a – clinical appearance, b – X-ray, c – extraction site, d – extracted mesiodens)
Slika 1. Iznikli prekobrojni zub/meziodens (a – klinički izgled, b – RTG snimak, c – ekstrakciona rana, d – izvađen meziodens)

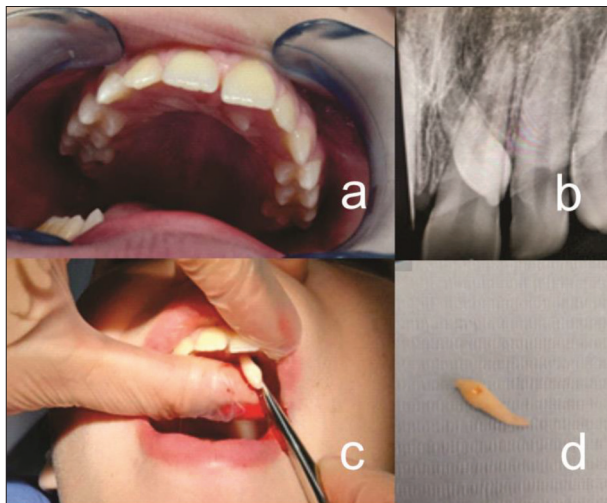


Figure 2. Erupted supernumerary tooth in the palate/mesiodens (a – clinical appearance, b – X-ray, c – tooth extraction, d – extracted mesiodens)
Slika 2. Iznikli prekobrojni zub na nepcu/meziodens (a – klinički izgled, b – RTG snimak, c – ekstrakcija zuba, d – izvađen meziodens)

imagining, the diagnosis was made. The X-ray showed that mesiodens was an obstacle to the eruption of tooth 21 (Figure 1 – a, b, c, d).

Case II: A 9.5-year-old patient reported with a mesiodens on the palate. The tooth did not interfere with the eruption of permanent teeth. However, due to esthetic reasons and in order to avoid possible complications, it was decided that the tooth should be extracted (Figure 2 – a,b,c,d). Local anesthesia was applied, and the teeth were extracted using an elevator and appropriate dental forceps. Tamponades were performed with sterile tampons. Patients were advised not to rinse their mouths. There was no need for wound suture and the extraction wounds were left to heal per primum (Case I and II).

Case III: The parents reported to the clinic with a 7-year-old boy because a year passed since the extraction of the deciduous tooth (61) and the permanent has not erupted yet. After taking panoramic and periapical x ray, a

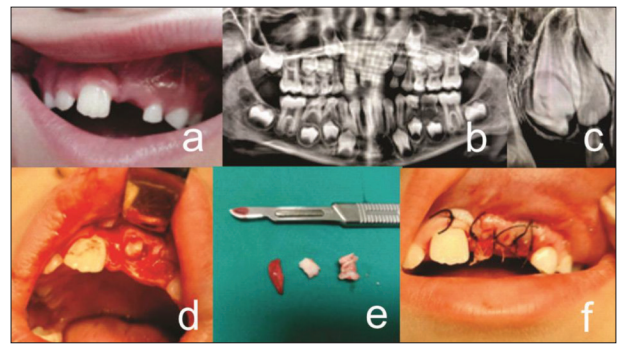


Figure 3. Unerupted tooth 21 (a – clinical appearance, b – X-ray, c – X-ray, d – extraction site, e – extracted supernumerary tooth, d – post-extraction suture)
Slika 3. Neiznikli zub 21 (a – klinički izgled, b – ortopanski snimak, c – rendgenski snimak, d – ekstrakciona rana, e – izvađen prekobrojni zub, f – postekstrakcioni šav)

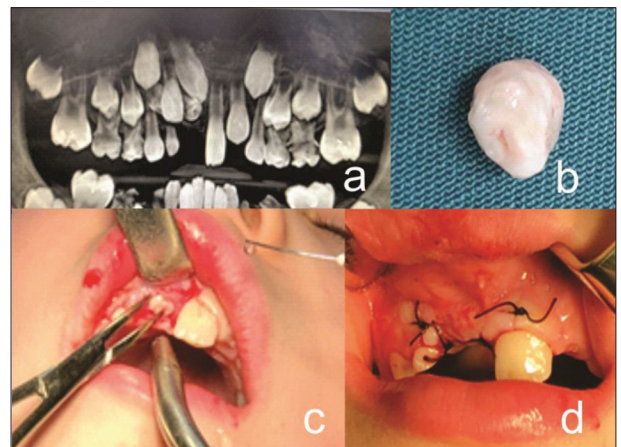


Figure 4. Unerupted tooth 11 (a – X-ray, b – extracted supernumerary tooth, c – extraction site, d – post-extraction suture)
Slika 4. Neiznikli zub 11 (a – ortopanski snimak, b – izvađen prekobrojni zub, c – ekstrakciona rana, d – postekstrakcioni šav)

mesiodens, was observed then surgically removed (Figure 3 – a, b, c, d, e, f).

Case IV: A 9-year-old patient reported to clinic due to delayed eruption of the central incisor 11. After a panoramic recording, two extra teeth were observed in the upper jaw. Mesiodens was found to be an obstacle for the eruption of tooth 11 while another supernumerary tooth was found located between teeth 13 and 14. Mesiodens was surgically removed. The other supernumerary tooth was left to be monitored for a certain period of time, as it was expected to erupt spontaneously (Figure 4 – a, b, c, d).

Case V: A 13-year-old patient, due to the persistence of the deciduous canine on the left side (73), underwent a panoramic imaging. The image showed three excess teeth and impacted canine, located below the central and lateral left incisors. One supernumerary oversized tooth had only a crown, the other one was placed horizontally and the third was placed too low in the jaw and looked like a premolar. Two of the teeth were surgically removed while the third was left to erupt spontaneously. We assumed that the affected canine would not erupt but this would certainly be monitored over time (Figure 5 – a, b, c, d, e, f).

Local anesthesia was applied and flap was designed and elevated. Then, the teeth were surgically removed using

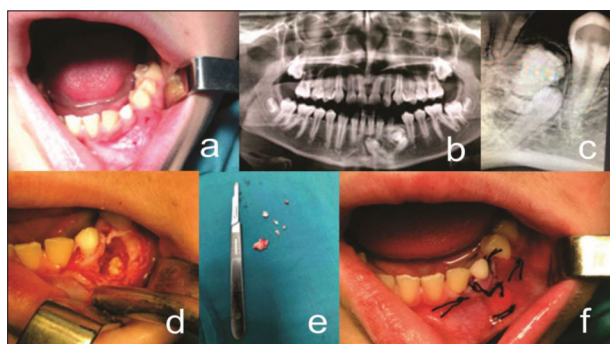


Figure 5. Persistence of the tooth 73 (a – clinical appearance, b – X-ray, c – X-ray, d – extraction site, e – extracted supernumerary tooth, f – post extraction suture)

Slika 5. Perzistencija zuba 73 (a – klinički izgled, b – ortopanski snimak, c – rendgenski snimak, d – ekstrakciona rana, e – izvađen prekobrojni zub, f – postekstrakcioni šav)

an elevator and appropriate dental forceps. Sutures were placed. Antibiotics were prescribed for seven days. Patients were advised not to rinse their mouths after the interventions, use cold compresses and seven days after surgical procedures sutures were removed (Case III, IV and V).

Case VI: During clinical examination of a 14-year-old patient it was observed that all permanent teeth were reduced in all dimensions. A panoramic image was taken to complete the diagnostic procedure. The image clearly showed the buds of the third and fourth molars in both jaws on the left and right side (Figure 6). The boy and his parents were explained that it was important for them to come for regular check-ups and that no intervention was needed at the moment.

The parents of all patients, described in this paper, were informed in detail and gave their written consent to present the cases and publish the pictures. This study was approved by the Ethics committee of the Medical faculty in Foca, No; 01-2-38.

DISCUSSION

Supernumerary teeth can erupt spontaneously or remain impacted in the jaws for life [5]. If they erupt, the most common therapeutic intervention is extraction. If they remain impacted in the alveolar ridge, there is a dilemma whether to remove them and when it is best time to do so, in order to prevent possible complications.

Supernumerary teeth can occur in both dentitions but are five times more common in permanent dentition and upper jaw [2, 14, 21, 22]. According to literature data, they are more prevalent in boys [2, 5, 14, 16, 18]. However, there are studies that show that there is no statistically significant difference in supernumerary teeth appearance in relation to gender and jaw [17, 23] as well as studies that show that hyperdontia is more prevalent in females [6]. Data from the literature indicate that mesiodens is the most common supernumerary tooth [1, 6, 14, 17, 23], although there are also studies that have reported premolars as such [3, 18, 19]. This study presented a patient who had both mesiodens and excess premolars at the same time. Supernumerary teeth can occur independently or as part



Figure 6. Panoramic image showing the buds of the fourth molars
Slika 6. Ortopanski snimak na kome su uočljivi zameci četvrtih molara

of the syndromes [8, 24, 25]. One supernumerary tooth occurs in about 76–86% of cases, two in 13–23% of cases, while the incidence of multiple excess teeth is about 1% [26]. In this study, patients who had more than one excess tooth were not part of any syndrome.

The following rule applies to excess teeth: sooner they are diagnosed, better the prognosis! Treatment plan is based on medical and dental history, clinical examination, X ray and multidisciplinary evaluation that involve pediatric dentist, oral surgeon and orthodontist. It is essential to determine proper diagnosis of a particular disorder because it directs us to the best treatment strategy.

If the excess tooth interferes with normal eruption or placement of permanent tooth in its dental arch position, it is necessary to remove it. Sometimes, no intervention is needed, just regular clinical and radiological monitoring [1, 5]. The patient diagnosed with fourth molars was advised to come for regular check-ups and teeth eruption monitoring, but also the condition of the dentition. The optimal period for extraction of these teeth will be determined after consultation with an orthodontist and oral surgeon [27].

When it comes to mesiodens, there are two methods: early extraction - before the permanent incisor root formation and late extraction - after permanent incisor root formation [21, 28]. Most authors recommend mesiodens removal at an early stage in order to facilitate spontaneous emergence and proper permanent incisor placement and thus minimize the need for orthodontic treatment [25, 29]. If mesiodens is diagnosed after the tenth year of child's age, more complex surgical and orthodontic treatment will probably be needed [5]. The fact is that dentists are not always able to choose the time for extraction of excess teeth because it primarily depends on the moment when the patient reports to the clinic and the moment the diagnosis is made.

Removal of excess teeth may be an effective therapeutic procedure for elimination of aesthetic or functional dentition defects as well as prevention of possible complication.

CONCLUSION

Early and frequent dental check-ups are very important for children in order to detect possible dentition irregularities and thus timely start with appropriate therapy.

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Terapijske mogućnosti u lečenju prekobrojnih zuba

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KRATAK SADRŽAJ

Uvod Hiperdoncija (*dentis supernumeraria*) ili prekobrojni zubi predstavljaju povećan broj zuba u alveolarnom nastavku u odnosu na njihov normalan broj.

Cilj ovog rada bio je da se prikažu različite varijante stalnih prekobrojnih zuba, kao i njihovo posmatranje ili eliminisanje kako bi se na vreme sprečile moguće komplikacije.

Prikaz bolesnika U radu je prikazano šest različitih slučajeva hiperdoncije kod dece. Nakon konsultacije sa ortodontom i oralnim hirurgom primenjen je individualni plan terapije za svakog pacijenta. Prekobrojni zubi koji su bili već iznikli ekstrahovani su na uobičajen način bez hirurškog operativnog zahvata. Neiznikli prekobrojni zubi ekstrahovani su hirurškim putem ili su ostavljeni za praćenje.

Zaključak U dečjem uzrastu važni su rani i česti kontrolni pregledi kako bi se na vreme uočile nepravilnosti u denticiji, a samim tim i blagovremeno započelo s odgovarajućom terapijom.

Ključne reči: hiperdoncija; meziodens; vađenje zuba; nicanje zuba; četvrti molari; impaktirani zubi

UVOD

Zdravi i pravilno poređani zubi u zubnom luku oduvek su bili simbol zdravlja i lepote. U dečjem uzrastu veoma je važno kontrolisati nicanje, kako mlečnih tako i stalnih zuba, da bi se formirala pravilna okluzija [1, 2]. Poremećaj nicanja zuba nastaje usled određenih patoloških stanja ili oboljenja koja su uglavnom asimptomatska. Jedan od uzroka poremećaja nicanja zuba može biti hiperdoncija zuba [3].

Hiperdoncija ili prekobrojni zubi su stanje koje se karakteriše pojavom većeg broja zuba u alveolarnom nastavku u odnosu na njihov normalan broj [4, 5]. Prekobrojni zubi prema obliku mogu biti normalnog izgleda, i tada se nazivaju *dentis supernumeraria*, a ako izgledom odudaraju (koničan, molariformni ili tuberkuloidni) nazivaju se *dentis accessoria*. Kada je lokalizacija u pitanju, ako se prekobrojni zub pojavi distalno od trećeg molara naziva se *distomolar*, a ako je oralno ili vestibularno od zubnog luka, naziva se *peridens*. *Meziodens* je obično koničnog izgleda, a lokalizacija mu je u incizalnom delu u blizini linije spajanja dva maksilarna procesusa [2, 6, 7]. Manji je od susednih zuba i ako iznikne, najčešće je postavljen između centralnih sekutića ili palatinalno [8–11].

Prekobrojni zubi mogu izazvati brojne komplikacije: izostanak erupcije, izmenjen položaj stalnih zuba, resorpciju susednog zuba, razvoj odontogenih cisti, nastanak dijasteme između centralnih inciziva, a mogu i ometati izvođenje pravilne oralne higijene [1, 12, 13]. U većini slučajeva, pored funkcionalnog, prekobrojni zubi predstavljaju i značajan estetski problem mladim osobama u osetljivom periodu života. Prekobrojni zubi se dijagnostikuju tokom kliničkog pregleda ili pregleda rendgenskih snimaka, najčešće slučajno, ili u situacijama kada postoji opravdana sumnja da postoji prepreka u nicanju zuba [5, 14, 15]. Prema podacima iz literature, učestalost ove pojave u populaciji se kreće 0,15–3,8% u stalnoj denticiji [16, 17, 18].

S terapijom je najbolje započeti što pre kako bi se na vreme formirala normalna okluzija i kako bi se sprečile posledice na celi orofacijalni sistem [8, 16, 18]. Zbog toga je multidisciplinarnan

pristup, saradnja dečjeg stomatologa, ortodonta i oralnog hirurga, od izuzetnog značaja [16, 19, 20].

Cilj ovog rada bio je da se prikažu različite varijante stalnih prekobrojnih zuba, kao i njihovo eliminisanje kako bi se na vreme sprečile moguće komplikacije u zubnom nizu.

PRIKAZ BOLESNIKA

U radu je prikazano šest različitih slučajeva hiperdoncije kod dece koja su lečena u Specijalističkom centru za stomatologiju Medicinskog fakulteta u Foči, Bosna i Hercegovina. Pacijenti sa prekobrojnim zubima su muškog pola.

Svim pacijentima, nakon detaljnog multidisciplinarnog pregleda, primenjen je individualni plan terapije. Iznikli prekobrojni zubi (prikaz I i II) ekstrahovani su bez hirurškog operativnog zahvata. Neiznikli prekobrojni zubi su izvađeni hirurški ili su ostavljeni na posmatranje (prikaz III, IV, V i VI).

Prikaz I. Pacijentu uzrasta sedam i po godina atipičan zub je iznikao u zubnom luku. Nakon anamneze, kliničkog pregleda i rendgenskog snimka postavljena je dijagnoza. Rendgenski snimak je pokazao da iznikli meziodens predstavlja prepreku nicanju zuba 21 (Slika 1 – a, b, c, d).

Prikaz II. Pacijentu uzrasta devet i po godina meziodens je nikao na nepcu. Iznikli zub nije bio prepreka nicanju stalnih zuba. Zbog estetskih razloga ali i kako bi se sprečilo nastajanje mogućih komplikacija odlučeno je da se zub izvadi (Slika 2 – a, b, c, d).

Nakon primene lokalnog anestetika zubi su izvađeni pomoću poluge i odgovarajućih klešta. Tamponada rane je obavljena sterilnim tuperferima, a pacijentima je savetovano da ne ispiraju usta. Nije bilo potrebe za ušivanjem rane, tako da je ostavljeno da rana zaraste *per primum* (prikaz I i prikaz II).

Prikaz III. Roditelji su doveli dečaka uzrasta sedam godina zbog toga što je prošlo godinu dana od ekstrakcije mlečnog zuba (61), a stalni nije nicao. Nakon urađenog ortopanskog i retroalveolarnog snimka uočena je prepreka koja asocira na meziodens i koja je otklonjena hirurškim putem (Slika 3 – a, b, c, d, e, f).

Prikaz IV. Pacijent uzrasta devet godina javio se na kliniku zbog zakasnelog nicanja centralnog sekutića 11. Nakon urađenog ortopanskog snimka uočena su dva prekobrojna zuba u gornjoj vilici – meziodens, koji je prepreka nicanju zuba 11, ali i prekobojni zub koji se nalazi između zuba 13 i 14. Meziodens je hirurški odstranjen, a prekobojni zub je ostavljen da se prati određeni period jer se moglo desiti da spontno iznikne (Slika 4 – a, b, c, d).

Prikaz V. Pacijentu uzrasta od 13 godina, zbog perzistencije mlečnog očnjaka na levoj strani (73), urađen je ortopanski snimak. Na snimku su uočena tri prekobrojna zuba i impaktiran očnjak, smešten ispod centralnih i lateralnih levih sekutića. Jedan prekobrojni zub je imao samo krunicu, drugi je bio horizontalno postavljen, a treći je bio isuviše nisko postavljen u vilici i ličio je na premolar. Hirurškim putem odstranjena su dva prekobrojna zuba, dok je treći ostavljen da spontano iznikne. Pretpostavili smo da impaktirani očnjak neće nići, ali to će se svakako vremenom pratiti (Slika 5 – a, b, c, d, e, f).

Nakon primene lokalne anestezije, napravljenog i odignutog režnja, zubi su izvađeni pomoću poluge i odgovarajućih zubnih klešta. Postavljeni su šavovi i ordinirani antibiotici narednih sedam dana. Pacijentima je dat savet da ne ispiraju ranu, da primenjuju hladne obloge spolja, kao i da nakon sedam dana dođu da im se uklone konci (prikaz III, prikaz IV i prikaz V).

Prikaz VI. Pacijentu od 14 godina urađen je klinički pregled i uočeno je da su krunice stalnih zuba smanjene u svim dimenzijama. Kako bi se postavila pravilna dijagnoza, urađen je ortopanski snimak, na kome su se jasno uočili zameci trećih i četvrtih molara u obe vilice sa leve i desne strane (Slika 6).

Dečaku i njegovim roditeljima je objašnjeno da trenutno nije potrebna stomatološka intervencija, kao i da je važno da dolaze na redovne kontrolne preglede (prikaz VI).

Svi roditelji čija su deca učestvovala u ovoj studiji, nakon detaljnog objašnjenja istraživanja, dali su usmeni i pismeni pristanak da se slučajevi opišu u radu, kao i da se prikažu fotografije. Istraživanje je odobreno od strane Etičkog komiteta Medicinskog fakulteta u Foči, broj 01-2-38.

DISKUSIJA

Prekobrojni zubi mogu spontano eruptirati ili ostati impaktirani u vilici celi život [5]. Ako izniknu, najčešća terapijska intervencija je ekstrakcija. Ukoliko ostanu u alveolarnom nastavku impaktirani, postoji dilema da li ih izvaditi i u kom periodu je to najbolje uraditi, kako bi se sprečio mogući nastanak komplikacija.

Prekobrojni zubi se mogu javiti u obe denticije, ali su pet puta češći u stalnoj denticiji i gornjoj vilici [2, 14, 21, 22]. Prema podacima iz literature prisutniji su kod dečaka [2, 5, 14, 16, 18]. Međutim, postoje i studije koje pokazuju da nema statistički

značajne razlike u pojavljivanju prekobrojnih zuba u odnosu na pol i vilice [17, 23], kao i studije koje govore da je hiperdonacija prisutnija kod osoba ženskog pola [6]. Podaci iz literature ukazuju da je meziodens najčešći prekobrojni zub [1, 6, 14, 17, 23], mada postoje i studije koje su utvrdile da su to premolari [3, 18, 19]. U ovoj studiji prikazan je pacijent koji ima istovremeno meziodens i prekobrojni premolar.

Prekobrojni zubi mogu se javiti samostalno kao posebna anomalija ili u sklopu nekog sindroma [8, 24, 25]. U oko 76–86% slučajeva se javlja jedan, u 13–23% slučajeva dva, dok je incidenca višestrukih prekobrojnih zuba oko 1% [26]. U ovoj studiji pacijenti koji su imali više od jednog prekobrojinog zuba nisu bili u sklopu nekog sindroma.

Za prekobrojne zube važi pravilo: što se pre dijagnostikuju bolja je prognoza. Plan terapije je individualan za svakog pacijenta, a donosi se nakon urađene detaljne anamneze, rendgenskog snimka, kao i multidisciplinarnog pregleda koji uključuje dečjeg stomatologa, oralnog hirurga i ortodonta. Važno je utvrditi i etiologiju pojedinog poremećaja jer nas ona usmerava na izbor najbolje terapije.

Ako prekobrojni zub ometa normalno nicanje ili postavu zuba zamenika u zubnom luku, potrebno ga je ukloniti. Ukoliko ne izaziva nikakve smetnje, nije potrebna intervencija, već samo redovno kliničko i rendgensko praćenje [1, 5]. Pacijentu kome su, u ovoj studiji, dijagnostikovani četvrti molari savetovano je da dolazi na redovne kontrole, kao i da se prati nicanje zuba. Optimalan period za vađenje ovih zuba određuje se nakon konsultacije sa ortodontom i oralnim hirurgom [27].

Kada je meziodens u pitanju, postoje dve metode: rano vađenje – pre formiranja korenova stalnih sekutića i kasno vađenje – posle formiranja korenova stalnih sekutića [21, 28]. Većina autora preporučuje vađenje u ranoj fazi kako bi se olakšalo spontano nicanje, omogućilo pravilno postavljenje sekutića i tako minimizovala potreba za ortodontskim tretmanom [25, 29]. Ako se meziodens dijagnostikuje posle desete godine deteta, verovatno će biti potrebno složenije hirurško ali i ortodontsko lečenje [5]. Činjenica je da terapeuti nisu uvek u mogućnosti birati vreme za ekstrakciju prekobrojnih zuba jer to prvenstveno zavisi od momenta kada se pacijent javi i momenta kada se postavi dijagnoza.

Uklanjanje prekobrojnih zuba predstavlja efikasan terapijski postupak zbog eventualnog otklanjanja estetskih ili funkcionalnih nedostataka u zubnom nizu, kao i sprečavanja mogućih komplikacija.

ZAKLJUČAK

U dečjem uzrastu važni su rani i česti kontrolni pregledi kako bi se na vreme uočile nepravilnosti u denticiji, a samim tim i blagovremeno započelo s odgovarajućom terapijom.