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TRIO TALONOVIH KVRŽICA NA SPOJENOM MAKSILARNOM CENTRALNOM SEKUTIĆU: JEDINSTVENA PREZENTACIJA

A TRIO OF TALON'S CUSP ON A FUSED MAXILLARY CENTRAL INCISOR: A UNIQUE PRESENTATION

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Sažetak

Uvod: Odontogene malformacije zuba mogu se često susresti i zahvatiti kako primarnu, tako i stalnu denticiju. Međutim, istovremeno pojavljivanje „talon“ kvržice u zubu neuobičajena je razvojna dentalna aberacija, koja zahteva različite profilaktičke procedure kako bi se potencijalne posledice svele na minimum. Često, prisustvo talonove kvržice može dovesti do nekroze pulpe, zbog njene ekstenzije, što povećava funkcionalnu složenost.

U ovom slučaju opisano je spajanje suplementnog zuba sa maksilarnim stalnim zubom, u kombinaciji sa višestrukim oštrim kvržicama sa labijalne i palatinalne strane, što je izuzetno redak entitet i prvi takve vrste.

Rezultati: Endodontski tretman praćen estetskom rekonstrukcijom zahvaćenog zuba smatra se standardnim tretmanom u slučajevima zahvatanja pulpe bilo kog odontogeno deformisanog zuba. Ovaj slučaj takođe pokazuje uspostavljanje tačne dijagnoze korišćenjem trodimenzionalnog modaliteta snimanja, kako bi se prevazišli nedostaci periapikalne radiografije.

Zaključak: Pored dijagnoze, lekari takođe treba da imaju dubinsko razumevanje porekla, prevalencije, kliničkih i radiografskih karakteristika odontogenih malformacija, što pomaže u efikasnoj strategiji lečenja.

Ključne reči: zubna papila, prekobrojni zub, spojeni zubi, kompjuterizovana tomografija konusnog snopa, talon kvržica

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Abstract

Introduction: Odontogenic malformations of teeth can be frequently encountered affecting both the primary and permanent dentition. The co-occurrence of talon cusp in a fused tooth, however, is an uncommon developmental dental aberration that necessitates a variety of prophylactic procedures to minimize potential consequences. Often, the presence of talon's cusp can result in pulpal necrosis due to its deep extension, which increases functional complexity.

Methods: The present case describes the fusion of a supplemental tooth to a maxillary permanent tooth in conjunction with multiple talon's cusps on labial and palatal aspects which is an extremely rare entity and first of its kind.

Results: Endodontic management followed by esthetic reconstruction of the affected tooth is considered as the standard treatment in cases of pulpal involvement of any odontogenically malformed tooth. Our case also demonstrates the establishment of an accurate diagnosis using a three-dimensional imaging modality by overcoming the challenges of periapical radiographs.

Conclusion: In addition to diagnosis, practitioners should also have an in-depth understanding of the origin, prevalence, clinical and radiographic characteristics of odontogenic malformations, which aids in an effective treatment strategy.

Key words: dental papilla, supernumerary tooth, fused teeth, cone-beam computed tomography, talon's cusp

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Uvod

Fuzija je razvojna aberacija, koja nastaje kao posledica embriološkog spajanja klica dvaju susednih zuba i rezultira formiranjem specifičnog zuba sa proširenom kliničkom krunom, konfluentnim dentinom i odvojenim kanalima korena^{1,2}. Prema Pindborgu, fuzija je spajanje gleđi i dentina dvaju ili više zuba koji se nezavisno formiraju³. Ova abnormalnost spojenih zuba takođe se naziva „dvostruki zub”, „konacija”, „sinodontija” ili „zubi blizanci”^{2,4}. Sa stopom prevalencije koja se kreće od 0,1% do 0,85%, čini se da se fuzija javlja pet puta češće u mlečnoj denticiji nego u trajnoj denticiji^{1,5}.

Dodatna struktura slična kvržici zuba, odnosno „talon” kvržica, rezultat je morfološke diferencijacije zuba na koju ukazuje produžetak abnormalne strukture, koja štrči iz cemento-gleđnog spoja (CGS) prednjih zuba ili iz regiona cingulum^{3,6}. Ova struktura razvija se usled privremene lokalizovane hiperplazije mezenhimalne dentalne papile i savijanja epitelnih ćelija unutrašnjeg gleđnog epitela. „Talonova” kvržica ima ukupnu stopu prevalencije od 1,67% i pretežno se primećuje kod muškaraca^{7,8}. Zbog svoje posebne arhitekture, spojeni zubi mogu predstavljati i funkcionalne i estetske probleme, koji zahtevaju multidisciplinarni stomatološki tretman⁹. Prema našim saznanjima, u prethodnoj literaturi nikada nije prijavljena pojava višestrukih „talon” kvržica, kao razvojna anomalija. Upotrebom tro-dimenzionalnog (3D) radiografskog snimanja utvrđeni su dodatni detalji poput veličine, konture i morfološkog proširenja vrha kvržice, što je olakšalo plan lečenja. Ovaj slučaj demonstrira neobičnu i retku pojavu trija „talon” kvržica na maksilarnom levom centralnom sekutiću sa spojenim prekobrojnim zubom, kao i njegovo estetsko i endodontsko zbrinjavanje uz korišćenje kompjuterizovane tomografije konusnog snopa (CBCT), kao dijagnostičke pomoćne metode.

Prikaz slučaja

Pacijent star 17 godina javio se Odeljenju za oralnu medicinu i radiologiju sa žalbom na neprivlačno velik levi gornji prednji zub, koji izaziva estetske probleme, krvarenje desni i sakupljanje hrane u toj regiji. Porodična anamneza pokazala je da je pacijent bio najmlađi od troje braće i sestara roditelja koji nikada nisu bili u srodstvu. Pacijent je, shodno uzrastu, imao zdrav fizički izgled, bez prethodne istorije orofacijalne traume.

Introduction

Fusion is a developmental aberration following the embryological union of developing germs of two neighbouring teeth resulting in the formation of an exclusive tooth with an expanded clinical crown, confluence dentin and separate root canals^{1,2}. According to Pindborg, fusion is the merging of the enamel and dentin of two or more developing teeth independently³. This abnormality of conjoined teeth is also referred to as “double teeth/formation”, “connation”, “synodontia” or “dental twinning”^{2,4}. With a prevalence rate ranging from 0.1% to 0.85%, fusion appears to occur five times more commonly in deciduous dentition than in permanent dentition^{1,5}.

An accessory cusp-like structure, the talon's cusp results from the morphodifferentiation of teeth which is indicated by the extension of an abnormal structure protruding from the cemento-enamel junction (CEJ) of anterior teeth or from the cingulum region^{3,6}. It develops by virtue of temporary localized hyperplasia of the mesenchymal dental papilla and outward folding of the inner enamel epithelial cells. Talon's cusp has an overall prevalence rate of 1.67% of the population and is predominantly observed in males^{7,8}. Due to their peculiar architecture, fused teeth may present both functional as well as esthetic issues which demand multi-disciplinary dental care⁹. To our knowledge, the co-occurrence of multiple talon's cusps with a developmental anomaly has never been reported in the previous literature. In addition, the use of a three-dimensional (3D) radiographic imaging modality enhances the subsidiary details like size, contour and morphological extension of the talon cusp which further corroborate the treatment plan. This case demonstrates the unusual and rare occurrence of a trio of Talon's cusps on a fused maxillary left central incisor with a supernumerary tooth as well as its esthetic and endodontic management with the use of Cone Beam Computed Tomography (CBCT) as a diagnostic aid.

Case Report

A 17-year-old male patient presented to the Department of Oral Medicine and Radiology with a complaint of an unattractively large left upper anterior tooth causing aesthetic issues along with bleeding gums and food impaction. The patient was the youngest of three siblings of parents who had never been related through consanguinity with no relevant family history.

Intraoralnim pregledom uočena je upala marginalne gingive, zajedno sa naslagama na maksilarnom levom centralnom sekutiću. Zub broj 21 bio je veći od svog pandana na suprotnoj strani i blago rotiran prema labijalno. Takođe je pokazivao više „talonovih” kvržica, od kojih je jedna bila na vestibularnoj, a dve na palatalnoj strani. „Talonove” kvržice viđene su kako se protežu od CGS-a do 1 mm ispod incizalne ivice. Na palatinalnoj strani uočen je razvoj nekarijesnih brazda. Zubi 11, 12, 21 i 22 takođe su imali duboke karijesne lezije (Slike 1A i 1B). Pacijent je imao blago otvoreni zagrižaj i incizalnu okluziju „tet a tet” zbog nepravilnog položaja prednjih zuba. Ukupan broj zuba ostao je nepromenjen i u maksilarnom i u mandibularnom luku. Klinička zapažanja dovela su do privremene dijagnoze geminacije u odnosu na zub 21 sa višestrukim „talon” kvržicama i hroničnim generalizovanim gingivitisom. Razmatrana diferencijalna dijagnoza bila je fuzija zuba 21 sa prekobrojnim zubom. Izvedenom intraoralnom periapikalnom radiografijom otkrivena je velika kruna sa dvema „talon kvržicama”, koje su bile postavljene jedna preko druge. Zahvaćeni zub imao je veliki koren sa dva korenska kanala i karijes dentina sa distalne strane (Slika 1C). Pošto se precizna morfološka anatomija zuba 21 nije mogla lako uočiti, planirano je 3D snimanje pomoću CBCT dental skenera (Planmeca ProMax S2-2D; Helsinki, Finska, 2008) po dobijanju informisanog pristanka pacijenta. Automatsko podešavanje postavki ekspozicije optimizovano je u skladu sa dimenzijama pacijenta. Dobijena slika imala je zapreminske dimenzije od 251 mm k 251 mm k 251 mm i veličinu vokselu od 0,2 mm³. Aksijalni preseki (na svaka 2 mm) otkrili su veliki zub 21, koji je bio spojen sa dodatnim zubom i dva različita korena sa dva kanala korena. Postojale su tri radioopalescentne projekcije u obliku slova V, bez zahvatanja pulpe, koje su se protezale od cervikalne trećine krune; dve su bile na srednjem delu sa bukalne i palatinalne strane, a jedna distalno na palatinalnoj strani zuba (Slika 2A).

3D snimci pokazali su fuziju zuba 21 i prekobrojnog zuba zajedno sa trima „talonovim” kvržicama (Slike 2B i 2C). Na osnovu kliničkih i radiografskih nalaza, došli smo do dijagnoze fuzije zuba 21 sa prekobrojnim zubom sa više „talonovih” kvržica. Opcija lečenja uključivala je endodontsku terapiju zuba 11, 12, 21 i 22.

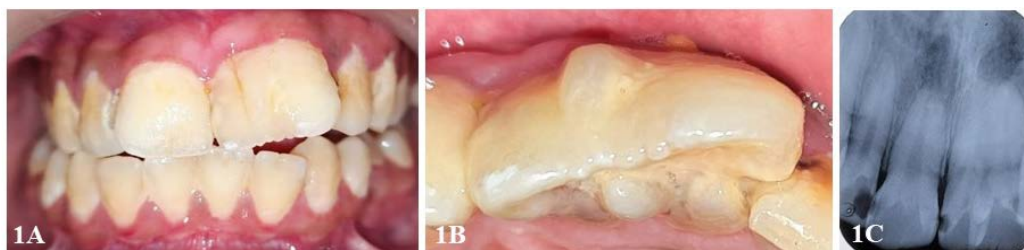
The patient had a healthy, age-appropriate physical appearance with no previous history of orofacial trauma.

On intra-oral examination, marginal inflammation along with deposits on the maxillary left central incisor was evident. Tooth number ‘21’ was larger than its counterpart and slightly rotated on the labial aspect. It also exhibited multiple talon’s cusps with one on the facial aspect and two on the palatal aspect. These talon’s cusps were seen extending from the CEJ to within 1mm of the incisal edge. Non-carious developing grooves were seen on the palatal aspect. Tooth ‘11.12.21’ and ‘22’ also had deep carious lesions (Figure 1A and 1B). The patient also had a mild open bite and edge-to-edge incisal occlusion due to the irregular position of anterior teeth. The total number of teeth remained unaltered in both maxillary and mandibular arches. These observations led to the provisional diagnosis of gemination with respect to ‘21’ with multiple talon’s cusps and chronic generalized gingivitis. The differential diagnosis considered was a fusion of ‘21’ with a supernumerary tooth. An intra-oral periapical radiograph was made which revealed a large crown with 2 talon’s cusps superimposed on each other. The affected tooth had a large root with 2 root canals and dentinal caries on the distal aspect (Figure 1C). As the precise morphological anatomy of ‘21’ could not be readily seen, a 3D imaging using CBCT (Planmeca ProMax S2-2D; Helsinki, Finland, 2008) was planned following which informed consent was procured from the patient. Automatic adjustment of the exposure settings was optimized in accordance with the patient’s size. The resultant image had volumetric dimensions of 251 mmx 251 mmx 251 mm and a voxel size of 0.2 mm³. Axial sections (at every 2 mm) revealed a large tooth ‘21’ which was fused with a supernumerary tooth and two distinct roots with 2 root canals. There were three ‘V-shaped’ radiopaque projections with no pulpal involvement extending from the cervical one-third of the coronal structure, two of which were on the midline of the facial and palatal aspect and one distally on the palatal aspect (Figure 2A).

The 3D images showed fusion between ‘21’ and a supernumerary tooth along with 3 talon’s cusps (Figure 2B and 2C). On the basis of clinical and radiographic findings, we arrived at a diagnosis of fusion of ‘21’ with supernumerary tooth along with multiple talon’s cusps.

Za estetsku rehabilitaciju izračunata je zlatna proporcija prema kojoj je za zub 21 odlučeno da se podeli na zub 21 i zub 22. Zubi 22, 23 oblikovani su tako da liče na zube 23 i 24. Nakon toga usledila je ugradnja bezmetalnih krunica na maksilarnim sekutićima u cilju poboljšanja estetike (Slike 3A i 3B). Na kontrolnom pregledu posle šest meseci zubi su bili bez simptoma.

The treatment option included intentional endodontic therapy of '11,12,21 and 22'. Golden proportion was calculated for esthetic rehabilitation according to which '21' was decided to be split into '21' and '22'. '22, 23' were contoured to resemble '23' and '24' respectively. This was followed by metal-free crown implantations on maxillary incisors to improve aesthetics (Figure 3A and 3B). The tooth was completely asymptomatic at the six-month recall visit.



Slika 1A: Intraoralna klinička slika (*en face*) koja prikazuje fuziju levog maksilarnog centralnog sekutića sa prekobrojnim zubom

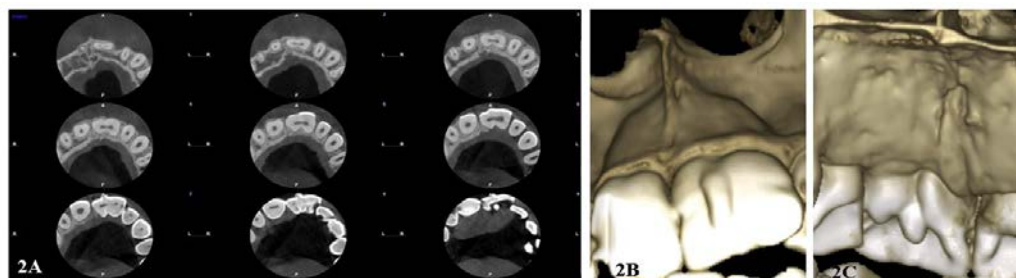
Slika 1B: Intraoralna klinička slika (*incizalni prikaz*) fuzije na kojoj se vidi bukalna i palatinalna kvržica sa izraženim razvojnim žlebom

Slika 1C: Periapikalni rendgenski snimak maksilarnih sekutića koji pokazuje invaginaciju koronarne gleđi u maksilarnom levom centralnom sekutiću koja se proteže do spoja cementa i gleđi.

Figure 1A: Intra-oral clinical image (*facial view*) showing fusion of left maxillary central incisor to a supernumerary tooth

Figure 1B: Intra-oral clinical image (*incisal view*) of the fused tooth showing buccal and palatal talon cusp with a marked developmental groove

Figure 1C: Periapical radiograph of maxillary incisors showing coronal enamel invagination in the maxillary left central incisor extending downwards to the cemento-enamel junction



Slika 2A: Aksijalni preseki koji pokazuju istaknute projekcije u obliku slova V ukazuju na bukalnom i palatinalnom aspektu zuba '21' u nivou cervikalne trećine krune

Slika 2B: Slike 3D rekonstrukcije koje prikazuju bukalni vrh kvržice

Slika 2C: 3D slike koje prikazuju nepčane kvržice na mezijalnoj i distalnoj strani

Figure 2A: Axial sections showing prominent 'v-shaped' projections suggestive of talon's cusp on the buccal and palatal aspect of '21' at the level of cervical one-third of crown

Figure 2B: Cropped 3D reconstruction images of a buccal talon cusp

Figure 2C: 3D reconstruction images of palatal talon cusps on the midline and distal aspect



Slika 3A: Intraoralna klinička slika (*en face*) koja prikazuje estetsku rekonstrukciju zuba „21 i 11“ nakon endodontskog tretmana

Slika 3B: Postoperativna periapikalna radiografija 21

Figure 3A: Intra-oral clinical image (*facial view*) showing aesthetic reconstruction of tooth ‘21 and 11’ following endodontic management

Figure 3B: Post operative periapical radiograph of 21

Diskusija

Jedan od razvojnih defekata koji proizilaze iz aberacija ektoderma i mezoderma uključuju spojene zube sa „talonom“ kvržicom¹⁰. Kada je jedan zub pogođen kao rezultat ovih izmenjenih fizioloških procesa, mora se tretirati kao anomalija. Prema Maderovom „pravilu o dva zuba“, termin „fuzija“ koristi se kada ima manje zuba u zubnom luku, pod uslovom da se atipični zub računa kao jedan. Međutim, kada se atipični zub posmatra kao jedan pored normalnog broja zuba u zubnom luku, kao u našem slučaju, postoji dijagnostička dilema. Ovakvu pojavu treba smatrati ili geminacijom ili fuzijom normalnog i prekobrojnog zuba². Prema Ramaru i saradnicima, spojeni zubi mogu se klasifikovati u četiri tipa na osnovu morfoloških i radiografskih karakteristika, i to kao: I – bifidne krune sa jednim korenom; II – jedna velika kruna sa ekvivalentnim korenom; III – duple spojene krune sa konusnim korenom; IV – dvostruko spojene krunice sa dva spojena korena¹¹. Na osnovu ovih nalaza i radiografskih karakteristika, ovaj slučaj spada u fuziju tipa IV. Fuzija je u našem slučaju kod stalnog maksilarnog centralnog sekutića i prekobrojnog zuba.

Prema Groveru i Lortonu, faktori kao što su lokalne i genetske metaboličke smetnje mogu uticati na izdržljivost dentalnih laminalnih tkiva između zubnih klica, izazivajući fuziju^{1,12,13}. Fuzija se može desiti jednostrano ili bilateralno i češće se primećuje među stalnim prednjim zubima u maksili³. Mogu se javiti ili u potpunosti, stvarajući jednu ogromnu krunu sa zajedničkom pulpnom komorom ili nepotpuno, dajući veliki pojedinačni zub sa fuzijom ograničenom na korenove^{1,14}.

Discussion

One of the developmental defects that emerge from the aberrations of ectoderm and mesoderm include fused teeth with Talon’s cusp¹⁰. When a single tooth is affected as a result of these altered physiologic processes, it must be treated as an anomaly. According to Mader’s “two-tooth rule”, the term “fusion” is employed when there are fewer teeth in the dental arch, provided the atypical tooth is counted as one. However, when the atypical tooth is regarded as one in addition to normal number of teeth in the dental arch as in our case, there exists a diagnostic dilemma. Such an occurrence should be considered as either gemination or fusion between a normal and a supernumerary tooth². According to Ramar et al., fused teeth can be classified into four types on the basis of morphological and radiographic features as follows: I—Bifid crown with a single root, II—One large crown with equivalent root, III—Double fused crowns with conical roots and IV—Double fused crowns with two fused roots¹¹. Based on these findings and radiographic features, our case falls under Type—IV fusion. The fusion in our case was between a permanent maxillary central incisor and a supernumerary tooth.

According to Grover and Lorton, factors like local and genetic metabolic interferences may influence the durability of dental laminal tissues between tooth germs causing fusion^{1,12,13}. Fusion can occur unilaterally or bilaterally and is more frequently observed among the permanent teeth of the anterior maxilla³. They can occur either completely producing a single enormous crown with a common pulp chamber or incompletely giving rise to a large single tooth with the fusion limited to the roots^{1,14}.

Ova anomalija povremeno se viđa uz prateće sindrome, kao što su sindrom srednjeg rasepa lica, Ellis–Van Creveld sindrom i oralno-facijalno-digitalni sindrom^{1,15}. Međutim, pacijent je u našem slučaju bio bez sindroma i sa prisustvom višestrukih „talon” kvržica na stalnom zubu.

Prekobrojni zubi nastaju kao rezultat uslovljene lokalne hiperaktivnosti dentalne lamine i obično izgledaju kao konusna struktura. Sreću se od 8,2 do 10 puta češće u maksili nego u mandibuli¹⁶. Za razliku od geminacije, koja se pojavljuje kao odraz u ogledalu, fuzija prekobrojnog zuba sa normalnim zubom često se manifestuje manjim strukturnim promenama unutar dveju spojenih kruna, kao što se vidi u datom slučaju¹.

„Talonova” kvržica, koja često zahvata maksilarne stalne sekutiće, jeste pomoćna kvržica sastavljena od gleđi i dentina, a nekada i pulpnog tkiva^{2,12}. Hattab i sar. su na osnovu morfoloških karakteristika^{1,17} klasifikovali „talon” kvržicu u tri tipa – „prava talon”, „polutalon” i „transtalon”. „Talon” kvržica prikazana u našem slučaju odgovara tipu I prema Hattabu i sar¹⁷. Osim pojave „talonove” kvržice kod osoba sa sindromima, kao što su Rubenstein–Taibi sindrom i Mohrov sindrom, ove dodatne kvržice mogu biti povezane i sa razvojnim dentalnim aberacijama, uključujući dens invaginatus, dens evaginatus zadnjih zuba i bočne sekutiće u obliku klina^{3,8}. Međutim, neobična pojava višestrukih „talon” kvržica sa bukalne i ipalatinalne strane na krune je relativno retka i neobična. Klinički problemi povezani sa fuzijom uključuju karijesne lezije u pregradnom žlebu, dijastemu, smetnje u okluziji, aplaziju ili impakciju stalnog zametka i parodontalnu bolest^{1,18}. U ovom slučaju evidentne su karijesne lezije, smetnje u okluziji i parodontalna bolest. Dalje, prisustvo „talonove” kvržice može izazvati endodontske komplikacije koje izazivaju preosetljivost dentina ili ekspoziciju pulpe zbog smanjene debljine gleđi i dentina^{2,3}. Često se predlaže selektivno brušenje duž kvržice u uzastopnim posetama u intervalu od šest do osam nedelja, nakon čega sledi nanošenje fluoridnog gela ili agensa za vezivanje dentina bez uključivanja pulpe. Ova tehnika obezbeđuje sedimentaciju reparativnog dentina, neophodnu za zaštitu pulpe^{10,11,15}. Zub je, u našem slučaju, endodontski zbrinut i estetski rekonstruisan tehnikom koronarne resekcije zbog zahvatanja pulpe karijesnim lezijama na proksimalnim stranama.

This anomaly is occasionally seen accompanying syndromes like median-cleft-facial syndrome, Ellis-van Creveld syndrome and oral-facial-digital syndrome^{1,15}. However, the patient in our case was non-syndromic with the presence of multiple talon's cusps on a fused permanent tooth.

Supernumerary teeth arise as a result of conditioned local hyperactivity of the dental lamina, which is commonly seen as a cone-shaped structure. They occur 8.2 to 10 times more common in the maxilla than in the mandible¹⁶. Unlike gemination, which often appears as mirror images, a fusion of a supernumerary tooth with a normal tooth frequently manifests as minor structural changes within the two conjoined crowns as seen in the present case¹¹.

Talon's cusp which frequently affects the maxillary permanent incisors is an accessory cusp made of enamel, dentin and occasional pulp tissue^{2,12}. Hattab et al. classified talon's cusp into three types, namely true-talon, semi-talon and trance-talon based on their morphological characteristics^{1,17}. The talon's cusp depicted in our case corresponds to type—I according to Hattab et al. In addition to the occurrence of talon's cusp in individuals with syndromes like Rubenstein-Taybi syndrome and Mohr syndrome, these accessory cusps can also be associated with developmental dental aberrations including dens invaginatus, dens evaginatus of posterior teeth and peg-shaped lateral incisors^{3,8}. However, the unusual occurrence of multiple talon's cusps on the facial and palatal aspects of a fused crown is relatively rare and unusual.

The clinical problems associated with fusion include carious lesions in the dividing groove, diastema, occlusal interference, aplasia or impaction of the permanent successor and periodontal disease^{1,18}. In the present case carious lesion, occlusal interference, and periodontal disease were evident. Further, the presence of talon's cusp can bring about endodontic complications causing dentinal hypersensitivity or early pulpal exposure due to the decreased thickness of enamel and dentin^{2,3}. Often, selective grinding along the cuspal lengths on consecutive visits over an interval of 6–8 weeks followed by the application of fluoride gel or dentine bonding agent is suggested to treat talon's cusp without any pulpal involvement. This technique ensures the sedimentation of reparative dentin which is required for pulpal protection^{10,11,15}. In our case, the fused tooth was endodontically managed and esthetically reconstructed by a coronal resection technique due to the involvement of pulp by the carious lesions on proximal aspects.

Jasno je da je upotreba CBCT-a za analizu arhitekture kanala korena rešila ograničenu količinu informacija dobijenih iz konvencionalno periapikalnih radiografija, te da se pokazala korisnom za efikasno planiranje lečenja^{3,10}.

Zaključak

Istovremena pojava fuzije sa brojnim „talon” kvržicama na bukalnoj i palatinalnoj površini prednjeg maksilarnog zuba čini ovaj slučaj jedinstvenim. Ovo snažno ukazuje na međudejstvo različitih etioloških faktora, koji rezultiraju razvojnim aberacijama. S obzirom na funkcionalne, estetske i endodontske probleme, neophodan je plan lečenja sa multidisciplinarnim pristupom, uz razumevanje kliničke slike i radiografskih prikaza, koji dodatno pomažu u njegovoj identifikaciji. Ovaj slučaj pokazao se kao idealan primer korišćenja jedne od širih primena modaliteta 3D snimanja u dijagnostičkom polju maksilofacijalne regije.

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Clearly, the use of CBCT for analyzing the root canal architecture addressed the limited amount of information that was procured from the conventionally captured periapical radiographs and proved to be advantageous for effective treatment planning^{3,10}.

Conclusion

In conclusion, the concurrent occurrence of fusion with numerous talon's cusps on facial and palatal aspects of a maxillary anterior tooth makes the present case remarkably unique. This strongly suggests the interplay of various etiological factors resulting in developmental aberrations. Considering the functional, aesthetic and endodontic problems, a treatment plan with a multi-disciplinary approach is necessary along with an in-depth understanding of the clinical perspectives and radiographic presentations that further aid in its identification. The present case proves to be an ideal example that utilizes one of the wider applications of 3D imaging modality in the diagnostic field of maxillofacial region.

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