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## Prekobrojni zubi povezani s impakcijom trećeg kutnjaka: prikaz slučaja

### *Supernumerary Teeth Associated with Third Molar Impaction: a Case Report*

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#### Sažetak

Prekobrojni zubi nisu česta pojava, osobito ako nisu povezani s kleidokranijalnom displazijom, rascjepom usne i nepca ili sindromima poput Gardnerova. Naizgled zdrava 22-godišnja pacijentica bila je upućena na Odjel oralne kirurgije radi vađenja impaktiranih zuba. Naime, na njezinim panoramskim snimkama bila je otkrivena impakcija gornjih i donjih trećih kutnjaka s prekobrojnim zubima s obje strane gornje čeljusti. Na lijevoj strani, na kraju alveolarnog luka, nalazio se neznikli distomolar, a na desnoj je bila dobro ograničena radiolucetna tvorba suspektna na odontogenu cistu, locirana između dvaju prekobrojnih zuba okružujući krunu trećeg kutnjaka. No, nakon što je zub bio izvađen i uzorak patohistološki analiziran, dijagnoza je glasila hiperplastična zubna vrećica. Svrha je ovoga rada predstaviti slučaj s višestrukim prekobrojnim zubima koji nije povezan sa sindromom, njihovu moguću upletenost u patološke promjene mekog tkiva zubne vrećice te posljedice za susjedne zube.

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#### Uvod

Prema definiciji prekobrojni je zub dodatan na normalan broj zuba i može se nalaziti u bilo kojem dijelu zubnog luka (1). Klinička dijagnoza takvog stanja je hiperdoncija. Prekobrojni zubi (PZ) mogu se pojaviti u objema denticijama, s rasponom prevalencije od 0,8 do 3,6 posto u mlječnoj i trajnoj denticiji (2). Čini se da je najčešće predilekcijsko mjesto premaxilarna regija. Prema istraživanjima, u trajnoj denticiji omjer kod muškaraca i žena iznosi 2:1 (2). Etiologija PZ-a objašnjava se različitim teorijama, no ni jedna ne može u cijelosti razjasniti što je pravi uzrok (1,3,4). Ipak, najprihvatljivija je ona o hiperaktivnosti, prema kojoj su prekobrojni zubi rezultat neovisne, lokalne i uvjetovane hiperaktivnosti zubne gredice (1). Dihotomija zubnog pupoljka može biti razlog da prekobrojni zubi obično posve slične skupini zuba kojoj pripadaju (1,3). Nasljeđe može također imati utjecaj na PZ, što pokazuje činjenica da su prekobrojni zubi češći kod rodnika (2,3).

Klasifikacija PZ-a temelji se na morfologiji i lokalizaciji u zubnom luku. Prema morfološkim obilježjima zubi se dijele na konične (klinasti), kvržičaste (imaju više od jedne kvrži-

#### Introduction

By definition, a supernumerary tooth is one that is additional to the normal series and can be found in any region of the dental arch (1). The clinical condition of having supernumerary teeth (ST) is also known as hyperdontia. The presence of ST is noted in both dentitions, with prevalence ranges from 0,8 to 3,6% in deciduous and permanent dentition respectively (2). The premaxillary region appears to be the most common site of predilection. It is reported that ratio between male and female in permanent dentition is 2:1 (2). The aetiology of the ST occurrence is supported by different theories, which cannot completely explain the real cause of their presence (1,3,4). However, the most acceptable inducement of ST occurrence is explained by hyperactivity theory, which suggests that supernumerary teeth are the result of independent, local and conditioned hyperactivity of the dental lamina (1). Dichotomy of the tooth bud can be the reason that supernumerary teeth usually closely resemble the teeth of the group to which they belong (1,3). The heredity may also play a role in occurrence of ST, which is supported by the fact that supernumerary teeth are more common in relatives (2,3).

ce), suplementne tj. dodatne (slične normalnom zubu) i odontome (masa zubnog tkiva) (5). Prekobrajni zubi mogu se naći na četirima lokacijama: u području sjekutića (meziodensa), uz pretkutnjake (parapremolare), uz kutnjake (paramolare) i distalno od posljednjeg kutnjaka (distomolara) (5). Jedno od njihovih glavnih obilježja jest impakcija i inverzija pozicije (6). Uglavnom su malformirani i/ili mikroodontni. Zubi smješteni u prednjem dijelu gornje čeljusti pokazuju invaginacije (7). Solitarni te višestruki prekobrajni zubi obično su povezani s kleidokranijalnom displazijom, rascjepom usne i nepca ili Gardnerovim sindromom (2,8).

Svrha je ovog izvještaja predstaviti klinički slučaj bilateralno lokaliziranih prekobrajnih zuba u gornjoj čeljusti kod naizgled zdrave pacijentice.

### Prikaz slučaja

Dvadesetdvogodišnja pacijentica upućena je iz obližnjega medicinskog centra u Zavod za oralnu i maksilofacijalnu kirurgiju Stomatološkog fakulteta Sveučilišta u Istanbulu na kirurško vađenje impaktiranih zuba. Iz povijesti bolesti vidjelo se da je riječ o zdravoj osobi koja nema poteškoća uzrokovanih impaktiranim zubima. No, stomatolog joj je rekao da ima više zuba nego što je normalno te da to može potaknuti patološke promjene, posebice na desnoj strani gornje čeljusti. Klinički pregled otkrio je manjak trećih donjih kutnjaka i gornjega desnog trećeg kutnjaka. Ortodontogram (Slika 1.) pokazao je impakciju donjih trećih kutnjaka, gornjega desnog trećeg kutnjaka i prekobrajnih zuba na obje strane gornje čeljusti. Desno su dva prekobrajna zuba oblikovala prsten oko trećeg kutnjaka, uzrokujući impakciju i visoku poziciju iznad vrha korijena drugog kutnjaka i lateralno ispod sinusa. Dobro ograničena radiolucetna tvorba na desnoj strani gornje čeljusti, suspektna na odontogenu cistu, bila je locirana između dvaju prekobrajnih zuba okružujući krunu trećeg kutnjaka na kraju zubnoga luka.

Nakon temeljite kliničke i radiološke procjene odlučeno je da se obave četiri zahvata pod lokalnom anestezijom i izvađe impaktirani zubi. U prvom zahvatu trebali su se ukloniti zubi s desne strane gornje čeljusti, zbog sumnje na odontogenu cistu. Pod lokalnom anestezijom bio je učinjen potpuni mukoperiostalni sulcularni rez od drugog kutnjaka do kraja alveolarnog luka. Nakon toga je podignut mukoperiostalni režanj. Prekobrajni zubi su izvađeni, a pristup umnjaku omogućen je osteotomijom (Slika 2.). Masa mekoga tkiva izljuštena iz područja impakcije, a koja je prema veličini i radiološkoj interpretaciji bila suspektna na odontogenu cistu, poslana je na patohistološku analizu. Režanj je reponiran i sašiven. Nakon deset dana rana je zacijelila te su izvađeni konci.

Patohistološki pregled otkrio je primitivan odontogeni epitel u vezivnom tkivu sastavljenom od bogatih kolagenih vlakana u obliku debelih slojeva. U nekim dijelovima stvarao

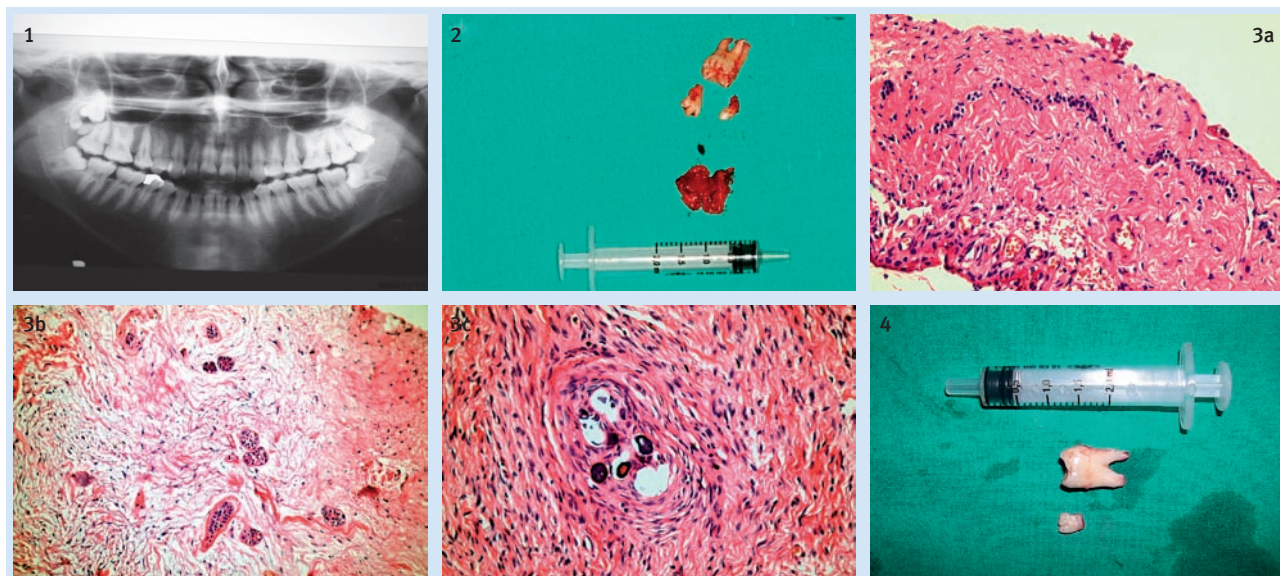
The classification of ST is based on their morphology and location in dental arch. By morphological characteristics the teeth are divided into: conical (peg shaped teeth), tuberculate (made of more than one cusp or tubercule), supplemental (resemble normal teeth) and odontoma (mass of dental tissue) (5). Supernumerary teeth can be seen in four different locations such as: the region of incisor (mesiodens), beside premolars (para-premolar), beside molars (paramolar) and distal to the last molar (distomolar) (5). One of the main characteristics of supernumerary teeth is their impaction and inversion in the position (6). The majority of ST are malformed and / or dwarfed. Teeth located in the maxillary anterior region show invaginations (7). The presence of solitary or multiple supernumerary teeth is usually associated with cleidocranial dysplasia, cleft lip palate or Gardner syndrome (2,8).

The purpose of this report is to present a clinical case of bilaterally located maxillary supernumerary teeth in an apparently healthy female patient.

### Case Report

A 22-year old female patient was referred by a nearby medical centre to the Department of Oral and Maxillofacial Surgery at the Istanbul University School of Dentistry, for surgical extractions of impacted teeth. From the patient's health history, we found out that she was an apparently healthy person and that she did not have any complaints about impacted teeth. However, her dentist told her that she had a more than normal number of teeth, which could produce pathological changes, especially on the right side of her upper jaw. Clinical examinations revealed missing lower third molars and upper third molar from the right side of maxilla. The panoramic radiograph (Fig. 1) disclosed the impaction of lower third molars, upper right third molar and supernumerary teeth from both sides of maxilla. On the right side two supernumerary teeth were forming the "ring" around the third molar, causing the tooth impaction and high position beyond the top of the root of the second molar, and laterally below the sinus space. A well-circumscribed radiolucet formation, from the right side of maxilla, suspicious to be a dentigerous cyst was located between two supernumerary teeth surrounding the crown of the third molar. The position of the left unerupted supernumerary tooth was in a distal position to the left third molar, at the end of alveolar arch.

After full clinical and radiographic evaluation, extractions of impacted teeth were planned to be performed in four procedures under local anaesthesia. During the first procedure, the decision was made to remove impacted teeth from the right side of upper jaw, because of the suspected dentigerous cyst. Under local anaesthesia a full mucoperiostal, sulcular incision from the second molar tooth to the end of the alveolar arch was made. Mucoperiostal flap was reflected into the fornix. Supernumerary teeth were extracted and approach to the wisdom tooth was made by osteotomy (Fig.2). The mass of soft tissue, which was excised from the area of impaction, due to its large size and radiographic interpret-



**Slika 1.** Predoperativni ortopantomogram koji pokazuje impakciju umnjaka i prekobrojnih zuba  
**Figure 1** Preoperative panoramic radiograph showing an impaction of wisdom and supernumerary teeth  
**Slika 2.** Gornji desni umnjak i višestruki prekobrojni zubi s masom izljuštenoga mekog tkiva nakon operacije  
**Figure 2** Upper right wisdom and multiple supernumerary teeth with the mass of excoheated soft tissue after surgery  
**Slike 3a, 3b, 3c.** Histološke slike mekog tkiva koje je okruživalo impaktirani treći kutnjak (hematoksilin-eozin bojenje)  
**Figure 3a,3b,3c** Histological images of the soft tissue that surrounded impacted third molar (hematoxylin and eosin stain).  
**Slika 3a.** Odontogene epitelne stanice poput zubnih gredica u zubnoj vreći  
**Figure 3a** Odontogen epithelial cells lining like dental laminas in dental follicle  
**Slika 3b.** Zelene strelice pokazuju masu odontogenog epitela okruženog debelim vezivnim tkivom koje pokazuju crne strelice  
**Figure 3b** Green arrows show odontogenic epithelial masses, surrounded by thick connective tissue, showed by black arrows.  
**Slika 3c.** Strelice pokazuju cementno-koštano tkivo u hiperplastičnoj zubnoj vreći  
**Figure 3c** Arrows show cementoosseous tissue in hyperplastic follicle  
**Slika 4.** Gornji lijevi umnjak i prekobrojni zub  
**Figure 4** Upper left wisdom and supernumerary tooth

je mostiće. Dijagnoza je glasila - hiperplastična zubna vrećica (Slike 3a, 3b, 3c).

Tijekom idućih mjesec i pol bile su obavljene i ekstrakcije ostalih impaktiranih zuba. U posljednjem zahvatu bio je uklonjen gornji lijevi treći kutnjak s neizniklim distomolom (Slika 4).

Svi prekobrojni zubi imali su normalnu morfologiju. Distomolar i distalno pozicioniran prekobrojni zub bili su kvržičasti, a onaj mezijalno pozicioniran koničan. Svi su bili manji od normalnih kutnjaka.

## Rasprava

Vrlo je neuobičajena pojava nekoliko prekobrojnih zuba, a bez simptoma ili stanja koja su s njima povezana. U takvim asimptomatskim slučajevima predilekcijsko mjesto je regija pretkutnjaka u donjoj čeljusti (2,8). Mi smo opisali slučaj s prekobrojnim zubima u području kutnjaka. U nekim podacima iz literature ističe se je učestalost prekobrojnih kutnjaka od 0,4 do 0,5 posto te da uzrokuju impakciju susjednih zu-

ed analysis, suspected to be a dentigerous cyst, was submitted for histopathological examinations. The flap was placed on its original position and sutured. After 10 days the wound healed and the sutures were removed.

Histopathological examinations revealed primitive odontogenic epithelium in connective tissue composed of rich collagen fibers in the shape of thick layers. In some areas odontogenic epithelium creates connective bridges. The diagnosis was hyperplastic dental follicle (Fig.3a,3b,3c).

During the first month and a half, the planned extractions of the other impacted teeth were done. In the last procedure, upper left third molar with unerupted distomolar were removed. (Fig. 4).

The morphology of all supernumerary teeth was normal. Distomolar and distal positioned supernumerary tooth were in the tuberculate, while the mesial positioned supernumerary tooth was in the conical form. All of them were smaller than the regular molars.

## Discussion

Occurrence of multiple supernumerary teeth in the absence of any associated symptom or condition is very uncommon. In such non-symptomatic cases, mandibular premolar region is the preferred site of occurrence (2,8). In our presented case it is described an occurrence of supernumerary teeth located in the molar area. In the literature some data suggest that supernumerary molars occur with a frequency of

ba u 25 posto slučajeva (7). Čini se da je to najčešće u gornjoj čeljusti distalno od trećih kutnjaka. Obično je riječ o samo jednom prekobrojnem kutnjaku, ponekad i dva, a rijetko kada više (7). U mnogim kliničkim istraživanjima spekuliralo se da na distomolare u gornjoj čeljusti otpada od 75 do 91 posto svih distomolara (9-11). Casetta i suradnici govore o prisutnosti s prevalencijom od 75 posto, Spauga o 91 posto, a Grimani o 79 posto (9-11). Općenito, obostrana prisutnost distomolara u čeljusti vrlo je rijetka (12). Paramolari su rudimentarni zubi smješteni bukalno uz kutnjake. Ispitivanja pokazuju da se razmjerno često mogu naći i uz meziobukalni kut gornjega trećeg kutnjaka, rjeđe uz drugi gornji kutnjak, a nikad uz prvi. Na tome i ostalim nalazima temelji se teorija atavizma kojom se objašnjava ta genetska aberacija (13,14). U literaturi su rijetko predstavljeni slučajevi opisanih paramolara. Ipak, Stafne izvještava o 58 gornjih paramolara tijekom radiološke analize 48 tisuća 550 pacijenata (13). Izvještaj Timočina i suradnika govori o nalazu zubnih vrećica paramolara u oba mandibularna kvadranta (15).

Kliničko značenje prekobrojnih zuba, prema ne pokazuju kliničke simptome, povezano je s mogućim patološkim promjenama u čeljusti koje nastaju zbog njih ili njihova utjecaja na trajni zub. Najčešće je to odontogena cista. Ona je jedna od najčešćih lezija u čeljusti - na nju otpada više od 20 posto svih cista u čeljusti (12). Odontogena cista izvorno potječe od proliferacije i cistične transformacije otočića epitela u vezivnom tkivu stijenke zubne vrećice. Taj preinačeni epitel spaja se s folikularnim epitelom i stvara solitarnu cistu oko krune zuba (12). U različitim kliničkim istraživanjima pretpostavlja se da u 5 do 11 posto svih slučajeva incidencija odontogenih cista potječe od prekobrojnih zuba (16-18). Njih više od 90 posto povezano je s meziodensom u gornjoj čeljusti (16). U literaturi se izvještava o povećanoj zubnoj vrećici u 30 posto svih slučajeva, kao što je i u našem prikazu. No, histološki je nalaz ciste potvrđen samo u 4 do 9 posto slučajeva (19). Hiperplastična zubna vrećica jedna je od abnormalnosti zubne vrećice za koju se smatra da je odgovorna za kašnjenje ili sprječavanje nicanja zuba (7). Najčešće opisane komplikacije vezane za prekobrojne zube su izostanci nicanja, osobito gornjih središnjih sjekutića. To se može pojaviti u obliku retencije zuba, kao što je u našem slučaju. Promjena položaja trajnog zuba koja varira od blage rotacije do potpune distopije, drugi je najčešći klinički simptom. Resorpcija korjenova trajnih zuba vrlo je rijetka komplikacija (20). Ipak, neimpaktirani prekobrojni zubi povećavaju incidenciju karijesa susjednih zuba. Radiogrami imaju veliku ulogu u otkrivanju komplikacija (proširenje perikoronarnog prostora, resorpcija susjednog zuba, itd.) (7).

Premda su najčešće prekobrojni zubi klinički asimptomatski, naše je mišljenje da se tijekom redovitih stomatoloških pregleda trebaju obaviti periapikalni i panoramski radiogrami kako bi se na vrijeme otkrili, locirali i procijenili prekobrojni zubi. Tako bi se izbjegle s njima povezane moguće patološke promjene.

0.4-0.5% and are found to lead to the impaction of adjacent teeth in one quarter of cases (7). The most frequent appears to be in the area distal to the third molars in the maxilla. There is usually only one supernumerary molar, sometimes two, and rarely more (7). Different clinical studies speculated that incidence of maxillary distomolars account between 75-91% from the presence of all distomolars (9-11). Casetta et al. report the presence by prevalence of 75%, Spauga 91%, Grimani 79% (9-11). Generally speaking, the presence of distomolars on both sides of the jaw is very rarely seen (12). Paramolars are rudimentary teeth usually situated buccally in the molar row. Examinations show that paramolars occur relatively often at the mesiobuccal corner of the maxillary third molar, less often as the maxillary second molar and never associated with the first molar. This and other observations form a basis for the theory of atavism explaining the occurrence of this genetic aberration (13,14). In the literature, the cases with reported paramolars are very rare. However, Stafne reports the finding of 58 maxillary paramolars by analyzing the dental radiographs of 48.550 patients (13). The report made by Timočin et al. presents the case of paramolar tooth follicles in both mandibular quadrants (15).

The clinical importance of supernumerary teeth, although they do not show any clinical signs of occurrence is connected with the potential pathological changes in the jaw due to their presence, or to their influence to the permanent teeth. The most frequently noticed pathological changes associated with supernumerary teeth are dentigerous cysts, which are reported to be one of the most common lesions of the jaw accounting for more than 20% of jaw cysts (12). Dentigerous cysts originate initially by proliferation and cystic transformation of islands of epithelium in the connective tissue wall of the dental follicle. This transformed epithelium unites with the lining follicular epithelium and forms a solitary cyst around the crown of the tooth (12). Different clinical studies speculate that the incidence of development dentigerous cyst arising from supernumerary teeth is seen in 5% to 11% of all the cases (16-18). Almost 90% of them is associated with a maxillary mesiodens (16). In literature there are reports of the presence of an enlarged follicular sac in 30% of all cases, as it is the case in our report. However, histological evidence of cyst formation was found in only 4-9% of cases (19). Hyperplastic follicle (sac) is one of the abnormalities of dental follicle for which it is thought that it may be responsible for delayed or arrested tooth eruption (7). The most seen reported complications associated with supernumerary teeth are failure of eruption, especially in the cases of maxillary central incisors. It can occur in the form of retention of the tooth, as it is exemplified with our case, too. Displacement of the permanent tooth, which vary from mild rotation or complete displacement, is the second most observed clinical sign. Resorption of roots of permanent teeth is one of the very rare complications (20). However, supernumerary teeth, which are not impacted, increase the incidence of dental caries in adjacent teeth. Radiographs play an important role in determining whether any complications have occurred (widening of pericoronal space, resorption of neighbouring teeth, etc) (7).

Although in many cases the presence of supernumerary teeth is clinically asymptomatic, in our opinion, during patient's routine dental screenings, periapical and panoramic radiographs should be made for the sake of timely detection, proper localization, and evaluation of supernumerary teeth, with the goal of avoiding any potential pathological changes associated with them.

#### Abstract

The presence of multiple supernumerary teeth is not frequent, especially if it is not associated with cleidocranial dysplasia, cleft lip palate or syndromes, such as Gardner syndrome. An apparently healthy 22-year old female patient was referred for surgical extractions of impacted teeth. The panoramic radiographs disclosed impactions of maxillary and mandibular third molars with supernumerary teeth from both sides of maxilla. On the left side there was an unerupted distomolar at the end of the alveolar arch, while on the right side a well-circumscribed radiolucent formation suspicious to be a dentigerous cyst, was located between two supernumerary teeth, surrounding the crown of a third molar. However, after surgical extractions of the teeth and histopathological evaluation of the sample, the diagnosis of hyperplastic dental follicle was made. The purpose of this report is to present a case of non-syndrome associated multiple supernumerary teeth, their potential involvement in pathological changes of soft tissue of dental follicle, and consequences of their presence for adjacent teeth.

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#### Key words

Tooth, Supernumerary; Molar, Third;  
Dental Sac; Dentigerous Cyst; Impaction

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