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PARODONTOPATIJA I KORENSKI KARIJES

PERIODONTAL DISEASE AND ROOT CARIES

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Apstrakt

Uvod. Problem korenskog karijesa je od velike važnosti među odrasлом populacijom.

Cilj rada bio je utvrditi zastupljenost korenskog karijesa kod obolelih od parodontopatije i ukazati na preventivne mere za sprečavanje pojave ovog problema kod osoba starijeg uzrasta.

Materijal i metod rada. Na Klinici za bolesti usta i parodonta obrađeno je 150 pacijenata sa parodontopatijom uzrasta iznad 35 godina. Sve prisutne zube kod pacijenta ispitivali smo na prisustvo korenskog karijesa i oni su ocenjivani kao zdravi zubi, zubi sa korenskim karijesom ili zubi sa karijesom i restauracijom, nezavisno da li je bila prisutna recesija gingive ili ne. Analizirali smo broj pacijenata sa korenskim karijesom i broj korenskih površina kod pacijenata sa korenskim karijesom, sa posebnom analizom korenskih površina sa karijesom i korenskih površina sa karijesom i restauracijama.

Rezultati. Statistički smo određivali stopu prevalencije korenskih površina sa karijesom i korenskih površina sa karijesom i restauracijama. Stopa prevalencije korenskog karijesa iznosila je 38%, stopa prevalencije korenskog karijesa i restauracija iznosila je 52,6%, srednja vrednost zastupljenosti korenskog karijesa na nivou pacijenta iznosila 1,6% a srednja vrednost korenskog karijesa i restauracija na nivou pacijenta iznosila je 1,8%. Kod 68,5% pacijenta korenski karijes bio je povezan sa recesijom gingive a kod 31,5% pacijenta sa inflamacijom.

Zaključak. Rezultati do kojih smo došli u toku našeg istraživanja ukazuju na ozbiljnost problema korenskog karijesa kod odraslih osoba sa parodontopatijom i na potrebu preduzimanja mera prevencije za sprečavanje ovog problema.

Ključne reči: parodontopatija, korenski karijes, recesija, inflamacija

Uvod

Uzimajući u obzir promene u starosnoj strukturi populacije, težnju da odrasle osobe zadrže svoje zube, kao i povezanost uzrasta, parodontopatije i korenskog karijesa, predviđa se da će karijes korenskih površina i parodon-

Abstract

Introduction. Root caries is a problem of great importance among the adult population.

Aim. The purpose of our research was to review the prevalence of the root caries in patients with periodontal disease and to develop preventive methods for managing this problem in adults.

Methods. The information was collected at the Department of Periodontology and Oral Medicine from patients with periodontal disease at the age of 35 and above. The data on root caries were collected from 150 subjects who have retained their teeth. All retained teeth were examined for caries presence and evaluated as healthy teeth with caries or restoration, irrespective of the presence of recession on root surfaces. The analysis was made according to the case and root surface, with special analysis of the root surfaces with caries and root surfaces with caries and restoration.

Results. We statistically defined the rate of prevalence of root surfaces with caries and root surfaces with caries and restoration. The rate of prevalence of root surfaces with caries was 38%; the rate of prevalence of root surfaces with caries or restoration was 52,6%; the middle amount of surfaces with caries was 1.6 per patient; the mean value obtained the presence of root caries 1,6% per patients, while the mean value obtained for root caries and restoration amounted to 1,8% middle amount of surfaces with caries or restoration was 1,8 per patient. The percentage of root surfaces with caries associated with recession was 68,5%. The percentage of root surfaces with caries associated with inflammation was 31,5%.

Conclusion. The results point to the seriousness of the problem in the mature population and the need of preventive and treatment methods for both conditions, periodontal disease and root caries.

Key words: periodontal disease, root caries, recession, inflammation

Introduction

With respect to the changes of the age structure of the population, the increased tendency of adults to retain their teeth as well as the association between age, periodontal disease and root caries, it has been predicted that the caries

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topatija biti ozbiljni stomatološki problemi kod odraslih osoba¹.

Gingiva je u toku hronične parodontopatije zahvaćena ne samo upalnim već i degenerativno-distrofičnim promenama, koje uzrokuju razgradnju vezivno-tkivnih elemenata, pojavu recesije i ogoljenje korena zuba. Recesija se čak može registrovati na svim zubima zahvaćenim parodontalnom bolešću. Imajući u vidu da se u toku parodontopatije registruje i inflamacija gingive, ona zbog edema može biti i uvećana². Tako uvećana gingiva u određenom broju slučajeva može maskirati recesiju. Radi se o prikrivenoj recesiji, koja nastaje zbog destrukcije i gubitka epitelnog i vezivno-tkivnog pripoja.

Nezavisno da li se radi o vidljivoj ili prikrivenoj recesiji, cement korena zuba je izložen štetnim bakterijskim produktima, što može biti razlog za demineralizaciju cementa korena zuba i pojavu korenskog karijesa. Parodontopatija, koja se karakteriše gubitkom epitelnog i vezivno-tkivnog pripoja, neosporno predstavlja faktor rizika korenskog karijesa³. Ostali faktori rizika koji se povezuju sa korenskim karijesom kod odraslih pacijenata su: kserostomija, restauracije zuba, parcijalne proteze, sistemski oboljenja, uzimanje medikamenata, kao i smanjenje psihomotornih sposobnosti starijih osoba. Sprovedena su brojna istraživanja populacije sa ciljem da se utvrdi zastupljenost korenskog karijesa⁴⁻⁸.

Ova istraživanja potvrđuju povezanost korenskog karijesa sa uzrastom pacijenata i u njima se navodi da je stopa korenskog karijesa i/ili restauracija od 10 do 80 procenata. Na primer, Beck⁷ je ustanovio da 63,2% neinstitutionalizovanih osoba starijeg uzrasta, koji su sačuvali jedan ili više prirodnih zuba, imaju korenski karijes ili plombu.

Nasuprot težnji da se standardizuje metoda dijagnostikovanja korenskog karijesa, studije o korenskom karijesu međusobno se jako teško mogu upoređivati zbog korišćenja različitih merenja i dijagnostikovanja ovog oboljenja. Nekada se fokus istraživanja usmerava samo na prisustvo korenskog karijesa a ponekad se u obzir uzimaju i korenske površine sa restauracijom. U originalnoj formulaciji Indeksa korenskog karijesa (IKK), Katz-a⁹, uzimaju se u obzir samo lezije i restauracije korenskih površina na kojima je prisutna recesija. Dok mnogi autori prate ovaj protokol, drugi su ga modifikovali.

on root surfaces and periodontal disease will represent a serious dental problem for adults¹.

Beside the inflammatory changes, during the chronic periodontal disease, the gingiva also suffers from degenerative and dystrophic changes. This brings about the decay of the juncture tissue elements, appearance of recession of the gingiva and stripping of dental roots. This process is obvious with all the teeth affected periodontal disease. Bearing in mind that gingiva is inflamed during periodontal disease, it can be enlarged due to oedema². Such an enlarged gingiva in a certain number of cases can mask the recession. In other words, this is the case of a hidden recession which appeared due to destruction and loss of the connective tissue junction.

However, irrespective of obvious or hidden recession, the cement of the dental root is exposed to dangerous bacterial plaque products. This can be the reason for demineralization of the root cement and appearance of root caries.

The periodontal disease, which is always followed by the loss of the epithelium and connective tissue junction, is definitely a risk factor for the appearance of root caries³. Other risk factors related to the appearance of root caries in mature patients are: xerostomy, presence of teeth restoration, partial prosthesis, general diseases, drugs as well as lowered psychomotor skills of adults.

A large number of population studies and specific population studies has been undertaken to document the presence of root caries⁴⁻⁸.

All the studies prove the relation between root caries and age, and they say that the level of presence of root caries and/or restoration is 10 to 80%. For example, Beck⁷ came to the conclusion that 63.2% from the sample of non-institutionalized mature individuals who have retained one or more natural tooth/teeth have root caries or filling.

Despite the efforts to standardize the researches of root caries, the studies on root caries can be hardly compared due to usage of various methods for measurement and diagnostics of this disease. Some researchers focus only on the root caries, whereas others also research the root surfaces which were restored. In the original formulation of the Index of the Root Caries (IRC) according to Katz⁹, only lesions and restorations of root surfaces infected with recession can be taken into account. While many researchers follow this protocol, others have

Na primer, neki autori isključuju karijes koji se nalazi u blizini konzervativnih ili protetskih nadoknada, čak i kada se nalazi na korenskoj površini. Drugi autori uzimaju u obzir i karijes i restauracije na korenskim površinama, nezavisno da li je prisutna recesija ili ne^{10,11}.

Predmet našeg istraživanja bila je zastupljenost korenskog karijesa kod pacijenata sa parodontopatijom, kod kojih je bila prisutna recesija gingive kao i parodontalni džepovi. U našem istraživanju primenili smo i ispitivali sve korenske površine, nezavisno da li je bila prisutna recesija ili inflamacija gingive, odnosno pravi parodontalni džepovi. Nismo uzimali u obzir korenske karijese kada je koren bio prekriven inflamiranim gingivom, ukazujući da je njihova frekvencija veoma niska. Isto tako, ukazujemo da ove lezije predstavljaju različiti bakterijski proces i da mogu biti izazvane različitim faktorima okruženja i drugim faktorima rizika.

Cilj našeg rada bio je utvrditi zastupljenost korenskog karijesa kod obolelih od parodontopatije i ukazati na preventivne mere za sprečavanje pojave ovog problema osoba starijeg uzrasta.

Materijal i metod rada

Na Klinici za bolesti usta i parodonta, obrađeno je 150 pacijenata sa parodontopatijom, uzrasta iznad 35 godina.

U zavisnosti od uzrasta, pacijenti su bili podeljeni u tri grupe:

- prvu grupu su činili pacijenti uzrasta od 35 do 50 godina,
- drugu grupu su činili pacijenti uzrasta od 51 do 65 godina i
- treću grupu su činili pacijenti uzrasta iznad 65 godina.

Sve prisutne zube kod pacijenata ispitivali smo na prisustvo korenskog karijesa i ocenjivani su kao zdravi zubi, zubi sa korenskim karijesom ili zubi sa karijesom i restauracijom, nezavisno da li je bila prisutna recesija zuba ili ne. Analizirali smo broj pacijenata sa korenskim karijesom i broj korenskih površina kod pacijenata sa korenskim karijesom, sa posebnom analizom korenskih površina sa karijesom i korenskih površina sa karijesom i restauracijama. Statistički smo određivali stopu prevalenci-

modified it. For instance, some authors exclude the caries close to restorations or crowns even if it is present on root surfaces, while other authors take into consideration both caries and restorations, irrespective of recession^{10,11}.

Our study is focused on the presence of root caries in patients with periodontal disease, in whom the presence of gingival recession and periodontal pockets were reported. In accordance with this, we made researches on all root surfaces for caries and restorations, no matter if there was recession or inflammation of the gingiva, i.e. real periodontal pockets. The last lesions were excluded from IRC on the basis that their frequency was low. We also suggested that these lesions could represent a different bacterial process and could be caused by various environmental and other risk factors.

The aim of our paper was to determine the presence of the root caries in patients with periodontal disease and to provide preventive guidance for managing this problem with the mature population.

Materials and methods

At the Clinic for Oral Diseases and Periodontal Disease there were collected data of random samples from periodontal disease patients older than 35. The data on root caries were gathered from 150 patients with retained teeth. The patients were divided in 3 groups according to their age.

- Group I consisted of patients with periodontal disease aged 35 to 50.
- Group II included patients with periodontal disease aged 51 to 65.
- Group III involved patients with periodontal disease, aged over 65.

All retained teeth were examined regarding the presence of root caries and were evaluated as: healthy, with caries or restoration present on the root surface, no matter if root surfaces were affected by recession or not. The analysis was made on the case basis and on the basis of the root surface, with particular analysis on the root surfaces with caries and root surfaces with caries and filling.

je korenskih površina sa karijesom i korenskih površina sa karijesom i restauracijama.

Rezultati

Kod pacijenata obuhvaćenih ovim ispitivanjem, bila je registrovana parodontopatija i oni su dolazili na redovni kontrolni pregled za održavanje postignutih rezultata terapije. Radi se o slučajno izabranom uzorku, koji broji 150 ispitanika. Naš stav je da je uzorak dovoljno reprezentativan jer se mogu obezbediti prihvatljive procene o zastupljenosti korenskog karijesa.

Naši rezultati su pokazali da je stopa prevalence korenskih površina sa karijesom 45% a da je stopa prevalence korenskih površina sa korenskim karijesom ili restauracijama 52,6% (grafikon br 1). Ovi rezultati su skoro identični rezultatima koje je dobio Locker¹² (37.2%; 56.8%), o zastupljenosti korenskog karijesa kod populacije starijeg uzrasta u Kanadi.

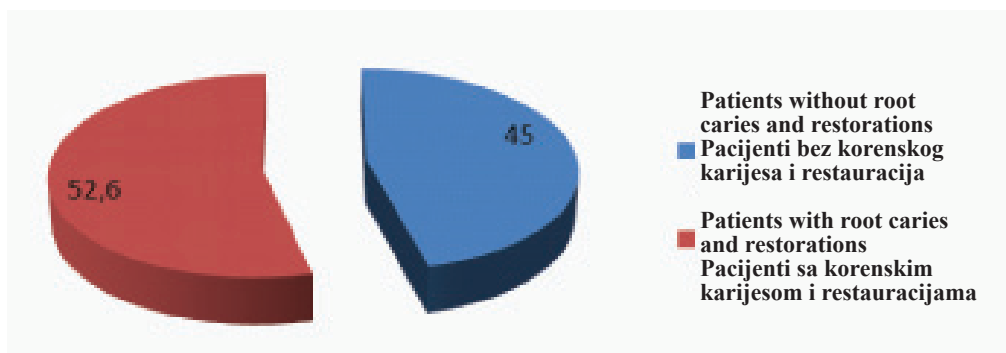
We statistically determined “the level” of prevalence on the root surfaces with caries and root surfaces with caries and filling.

Results

Our research recruited the patients with periodontal disease who, due to the disease treatment, visited the Clinic of Oral Diseases and Periodontal Disease. The sample was randomly chosen and it covered 150 patients. In our opinion, valid estimations on the presence of root caries could be provided, as the sample is representative enough.

Our results showed that “the level” of prevalence of root surfaces with caries was 45%, and “the level” of prevalence of root surfaces with caries or restoration was 62.6% (Fig. 1).

These results are almost identical with Locker's¹² results (37.2%; 56.8%) about the presence of the root caries in the adult population in Canada.



Grafikon 1. Stopa prevalence korenskih površina sa karijesom i restauracijama
Fig. 1. Level of prevalence of root surfaces with caries and restorations

Ovaj podatak na samo što ukazuje na podudarnost naših rezultata sa rezultatima Lockera, već ukazuje i na to da je komparacija rezultata o zastupljenosti korenskog karijesa moguća samo ukoliko se koriste isti standardi pri ispitivanju. Naime, autor je u svom istraživanju ispitivao sve korenske površine na prisustvo korenskog karijesa i restauracija, nezavisno da li je bila prisutna recesija ili inflamacija gingive.

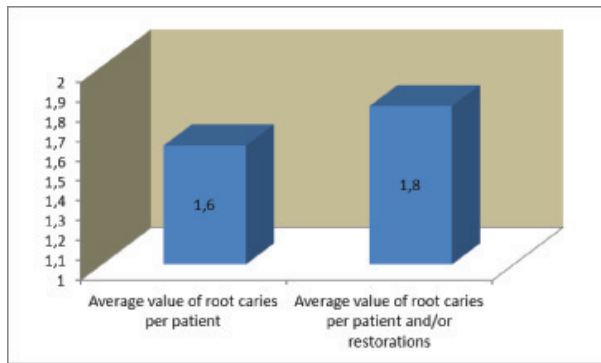
Srednja vrednost korenskih površina sa karijesom, na nivou pacijenta, bila je 1,6, dok je srednja vrednost korenskih površina sa karijesom i restauracijom bila 1,8 (grafikon broj 2). U Lokerovoj studiji ove vrednosti su bile 1,3 i 2,6 (na nivou pacijenta).

Recesija gingive je faktor koji se povezuje sa prisutnošću korenskog karijesa. U toku

Beside the fact that this data matches our results about the root caries frequency with those of Locker, it also shows that comparison of the presence of the root caries is possible if we use the same standards when making the researches. Namely, in his research he examined all root surfaces with caries and restoration no matter if recession or gingival inflammation was present.

The average value of the number of root surfaces with caries was 1.6 per patient, and the average value of surfaces with caries or filling was 1.8 per patient (Fig. 2). In Locker's study these values were 1.3 and 2.6 per patient.

The gingival recession is a factor which is always associated with the presence of root



Grafikon 2. Srednja vrednost korenskih površina sa karijesom i restauracijama

Fig. 2. Average value of root caries and restoration per patient.

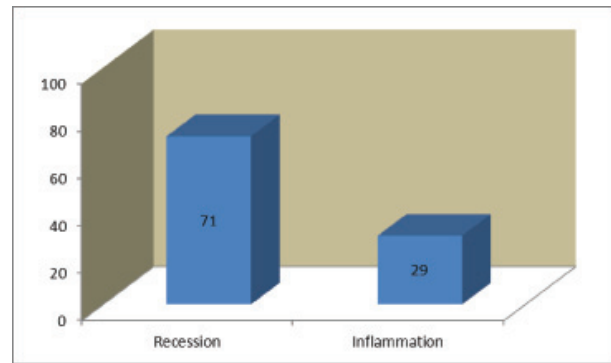
našeg ispitivanja ustanovili smo da je kod 71% pacijenata sa korenskim karijesom bila prisutna recesija gingive i da je kod 29% pacijenata sa korenskim karijesom bila prisutna inflamacija gingive (grafikon 3). Iznenadio nas je podatak o duplo manjoj zastupljenosti korenskog karijesa kod pacijenata sa inflamacijom gingive. Ipak, ovaj podatak uzimamo sa rezervom, zato što veoma često korenski karijes koji je lokalizovan subgingivalno, a naročito na aproksimalnim površinama, ostaje nedijagnostikovano.

Diskusija

Naš stav je da pri ispitivanju korenskog karijesa treba uzeti u obzir sve kariozne lezije korena, nezavisno da li su one prekrivene gingivom ili ne, zato što se korenski karijes i ne može pojaviti bez prethodne apikalne migracije i gubitka parodontalnog pripoja. Zbog toga, razumnije je umesto termina „površine izložene riziku“ koristiti termin „površine sa kliničkim gubitkom pripoja“.

Povećanje stope korenskog karijesa ne mora se uvek dovoditi u vezu sa samim procesom starenja osobe, već sa pogoršanjem ukupnog oralnog zdravlja kod starijih osoba. Starije osobe sa dobro očuvanim oralnim zdravljem imaju niže stope zastupljenosti korenskog karijesa¹³.

Treba istaći da mnogi drugi faktori koji se dovode u vezu sa korenskim karijesom nisu bili predmet ovog našeg istraživanja. U brojnim studijama se ukazuje na značajnu korelaciju između korenskog karijesa i drugih medicinskih, bihevioralnih i psihosocijalnih varijabli^{14,15}. Na primer, neki autori ukazuju



Grafikon 3. Procenat recesije inflamacije gingive kod pacijenata sa korenskim karijesom

Fig. 3. Percentage of presence of recession and gingival inflammation in patients with root caries

during our research, in 71% of patients with periodontal disease, the root caries was associated with the gingival recession and in 29% was associated with gingival inflammation (Fig. 3). The fact that root caries was two times less frequent in patients with gingival inflammation was very surprising. However, this data should be carefully interpreted, because root caries which subgingivally localized, particularly on the approximal surfaces of teeth most frequently remains undiagnosed.

Discussion

We consider that when doing researches on the root caries dentists should take into account all caries lesions on the root, no matter if they are covered with the gingiva or not, because root caries cannot form without prior apical migration and loss of the periodontal juncture. Because of this, it would be more appropriate instead of using the term 'surfaces exposed to risk' to use the term 'surfaces with clinical loss of the juncture'.

Overall, our analysis point out that increase of presence of the root caries over years is not necessarily due to aging but can also be as a result of the general deterioration of oral health which accompanies aging. Elderly people with good oral health have lower level of root caries¹³.

Yet, it should be pointed out that many other factors which are related to the root caries were not examined in this case study. Other studies which used univariable or multivariable techniques found out significant correlations between root caries and many other medical, behaviorist and psycho-social variables^{14, 15}. For instance, some authors came to the conclu-

da su najbolji prediktori za korenski karijes: broj preostalih zuba u ustima, supragingivalni kalkulus, plak i korišćenje medikamenata koji izazivaju kserostomiju¹⁶.

Prevenција korenskog karijesa, pored ostalog, podrazumeva i određivanje nivoa rizika za pojavu karijesa. Osim toga, preventivne mere koje treba preduzeti su:

- redovno, individualno i profesionalno odstranjivanje dentalnog plaka,
- redovan treman parodontalne bolesti,
- smanjiti konzumiranje slatkih proizvoda i
- lokalna primena fluorida i korišćenje pasta sa zube sa fluorom.

Zbog recesije gingive i izloženosti korenova zuba hemijskim i termičkim nadražajima povećava se osetljivost zuba, zbog čega je otežano održavanje oralne higijene. Zbog toga je potrebna edukacija ili reedukacija pacijenata za održavanje oralne higijene i upotreba pomoćnih sredstava kao što su: čačkalice za zube, interdentalni konac i interdentalna četkica.

Hemijska kontrola plaka je veoma značajna kod odraslih pacijenata, naročito kod onih osoba kod kojih je mehanička eliminacija plaka otežana. Za prevenciju korenskog karijesa koristi se hlorheksidin glukonat, sam ili u kombinaciji sa fluoridima.

Poseban preventivni režim treba sprovoditi kod pacijenata sa smanjenim lučenjem pljuvačke. Potrebno je stimulisati lučenje pljuvačke žvakaćom gumom bez primese šećera. Ukoliko je žlezdani parenhim uništen, onda se koristi simptomatska terapija kserostomije (lubrikanti).

Zaključak

Zastupljenost korenskog karijesa kod pacijenata sa parodontopatijom povećava se sa starenjem, a karijes je češće asociran sa recesijom gingive nego sa inflamacijom. Relativno mali procenat saniranih karioznih lezija ukazuje na ozbiljnost ovog problema kod starije populacije i na potrebu preduzimanja preventivnih i terapijskih mera ne samo za korenski karijes već i za parodontopatiju.

That the best predictors for the root caries is the number of retained teeth, tartar, plaque and usage of medicaments with the effect of xerostomy¹⁶.

The prevention of root caries implies appropriate treatment and determination of the risk level for the occurrence of caries. Appropriate preventive measures involve:

- regular, both individual and professional removal of plaque,
- appropriate treatment of periodontal disease,
- lower input of sugars,
- use of local fluorides and use of toothpaste with fluoride.

- Due to the gingival recession and exposure of tooth roots to thermal and chemical influences their sensitivity increases which significantly complicates the oral hygiene. It is frequently necessary to educate or re-educate the patients for keeping the oral hygiene as well as to highlight the need of using accessories for oral hygiene, such as: toothpicks, inter-dental floss and inter-dental brush.

- The chemical control of the biofilm is significant for elderly patients, especially for those individuals where the mechanical plaque control is difficult. Chlorine hexidine alone or in combination with fluorides is used for prevention of root caries.

- Separate prevention regime should be maintained in the patients with root caries and lowered saliva secretion. Sugar-free chewing gum is necessary to stimulate saliva secretion. However, if the parenchyma of the gland is totally destroyed, then symptomatic therapy with lubricants is applied.

Conclusion

The presence of the root caries in the patients with periodontal disease increases with aging, as they grow older, and caries is more frequently associated with gingival recession than with inflammation. The relatively low percentage of the treated caries lesions points to the seriousness of the problem in adult population and the need of taking preventive and therapeutical measures for the periodontal disease as well as the root caries.

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