

Ocjena preoblikovanja kosti nakon endodontske terapije periapeksne lezije

Kuiš D, Kovačević M, Tamarut T, Bešlić S, Šnjarić D, Horvat J.

Medicinski fakultet, Studij stomatologije, Katedra za bolesti zuba, Rijeka, Hrvatska

Svrha je istraživanja ocijeniti preoblikovanje kosti mjereći površinu osteoida, debljinu osteoida, osteoklasni indeks i broj upalnih stanica nakon dviju različitih endodontskih terapija periapeksnih lezija na psećim zubima.

Na 23 donja premolara (37 korijenskih kanala) 6 pasa mješanaca inducirane su periapeksne lezije. U skupini 1, 17 korijenskih kanala instrumentirano je do apeksne delte crown-down tehnikom služeći se ProFile® Ni-Ti rotirajućim instrumentima napunjeno do iste dužine tehnikom Thermafill® i Top Seal® cementom. Ostalih 20 korijenskih kanala (skupina 2) instrumentirani su tehnikom kontrolirane preinstrumentacije do točke određene elektroodontometrijski (električni apeks lokator EED-11, Struja, Zagreb, Hrvatska). Kanali su napunjeni tehnikom Thermafill® na dužini 2 mm kraćoj od radne dužine. U objema skupinama dužina punjenja provjerena je radiološki, a pristupni kaviteti ispunjeni amalgamom. Životinje su žrtvovane 35 dana nakon endodontske terapije. Nedemineralizirani rezovi debeli 5-7 mm obojeni su Toluidinskim modrilom. Histomorfometrijski indeksi (površina osteoida, debljina osteoida, osteoklasni indeks i broj upalnih stanica) mjereni su svjetlosnim mikroskopom koristeći se računalnim programom (ISSA, Vams, Zagreb, Hrvatska).

Razlike između skupina statistički su znatne za sve mjerene indekse. U skupini 1 površina osteoida je manja ($10,34 \% \pm 11,60$), a tako i debljina osteoida ($15,62 \mu\text{m} \pm 7,41$) i broj upalnih stanica ($111,39 \pm 75,81$), dok je osteoklastni indeks viši ($111,34 \text{ mm} - 2 \pm 115,46$). U skupini 2 površina osteoida je veća ($33,21 \% \pm 21,43$), kao i debljina osteoida ($16,26 \mu\text{m} \pm 6,46$) i broj upalnih stanica ($137,62 \pm 46,34$) a osteoklastni je indeks niži ($27,00 \text{ mm} - 2 \pm 39,03$). Za statističke raščlambe upotrijebljen je Mann-Whitney U test.

Rezultati dobiveni mjerenjem morfometrijskih indeksa pokazuju održavanje aktivnosti resorpcije kosti u skupini 1 i brže stvaranje kosti u skupini 2. Veći broj upalnih stanica u skupini 2 vjerojatno je uzrokovan dodatnom traumom

periapeksna tkiva prigodom preinstrumentacije. Ova trauma ne utječe na remodelaciju kosti.

Evaluation of Bone Remodelling After Endodontic Therapy of the Periapical Lesion

Kuiš D, Kovačević M, Tamarut T, Bešlić S, Šnjarić D, Horvat J.

Medical faculty, School of Dentistry, Department of Dental Pathology, Rijeka, Croatia

The aim of the study was to evaluate bone remodelling by measuring osteoid surface, osteoid thickness, osteoclast index and inflammatory cell count after two different approaches in endodontic therapy of periapical lesion on dogs' teeth.

After inducing periapical lesion in 23 mandibular premolars (37 root canals) from six mongrel dogs, 17 root canals were instrumented to the apical delta with crown-down technique using ProFile® Ni-Ti rotary instruments and filled to the same length with Thermafill® obturation technique and Top Seal® cement (group 1). The other 20 root canals (group 2) were instrumented using controlled overinstrumentation technique to the point determined electronically (electronic apex locator EED-11, Struja, Zagreb, Croatia). Teeth were obturated with Thermafill® at the length 2mm shorter than the working length. Length of obturation was confirmed radiographically and access cavities sealed with amalgam in both groups. The animals were sacrificed 35 days after the end of endodontic treatment. Undemineralized sections 5-7 mm thick were stained with toluidine blue. The histomorphometric indices (osteoid surface, osteoid thickness, osteoclast index and inflammatory cell count) were measured by light microscopy using computer program (ISSA, Vams, Zagreb, Croatia).

The difference between groups was statistically significant in all measured indices. In group 1 the osteoid surface was lower ($10,34 \% \pm 11,60$) as well as osteoid thickness ($15,62 \mu\text{m} \pm 7,41$) and inflammatory cell count ($111,39 \pm 75,81$) while osteoclast index was higher ($111,34 \text{ mm} - 2 \pm 115,46$). In group 2 osteoid surface was higher ($33,21 \% \pm 21,43$) as well as osteoid thickness ($16,26 \mu\text{m} \pm 6,46$) and inflammatory cell count ($137,62 \pm 46,34$), while osteoclast index was lower ($27,00 \text{ mm} - 2 \pm 39,03$). Statistical analysis was performed using Mann-Whitney U Test.