

## ULTRASTRUCTURAL ANALYSIS OF EXTERNAL APICAL ROOT RESORPTION

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Primary teeth mineralized tissue resorption is considered physiological, while this process in persons with permanent dentition is obligatory pathological. External root resorption is the consequence of multinuclear clastic cell activity which starts at the root surface and spreads further into cementum all the way to the dentin. In normal conditions there is a dynamic balance between osteoblastic and osteoclastic cell activity that maintain a physiological state of root and bone. Due to the disbalance of cells activity, under the influence of different factors, root resorption occurs. The aim of the present study was to perform ultrastructural analysis of pathologically resorbed apical root cementum and dentin formed after traumatic occlusion. The study was conducted on 18 extracted teeth from male patients aging from 54 to 73 years with internal and external pathological root resorption. The resorbed root surface (dentine structure) was analyzed using scanning electron microscope. In all studied samples occlusal surface enamel cracks, as a consequence of traumatic occlusion, were found. Ultrastructural analysis of the dentine surface in the peripheral parts of the root revealed the smooth surface of the resorbed apical root surface, described as "eggshell", with clear demarcation line separating preserved from the resorbed dentine. Also, wavy multi-layered resorption with irregular structure could be seen. Based on the scanning electron microscopic analysis of the apical root dentin one can conclude that the main cause of the external pathological resorption of the apical root, occurring due to traumatic occlusion, is aseptic inflammation.

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