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Clinical and microbiological evaluations of mandibular lateral incisor with radicular-gingival groove

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Abstract We present a case of radicular-gingival groove identified in the mandibular left lateral incisor. A female visited our clinic at the age of 11Y5M complaining of repeated gingival inflammation. An intraoral examination found severe gingival swelling in the affected region, while clinical examinations revealed a groove from the cingulum to the apex of the mandibular left lateral incisor. A gingivectomy and professional brushing instruction were performed, with follow-up examinations given periodically. After a long interval, the patient returned at the age of 18Y4M and reported that gingival inflammation had repeatedly occurred. Subgingival dental plaque samples were collected from the affected area as well as areas around 3 normal teeth with a periodontal healthy condition, along with a saliva sample. Using bacterial DNA extracted from each sample, detection of 10 putative periodontopathic bacterial species was done by PCR, which identified *Tannerella forsythensis*, *Campylobacter rectus*, *Eikenella corrodens*, *Actinobacillus actinomycetemcomitans*, and *Capnocytophaga sputigena* in the sample from the affected region. Further, broad-range PCR targeting 16S rRNA with direct sequencing of the samples showed a variety of bacterial species, including *Neisseria*, *Corynebacterium*, and *Fusobacterium*. *Streptococcus* species occurred at a high rate in the plaque samples from the control teeth, whereas there were none in the affected region. Our findings indicate that the bacterial profile in the area of a radicular-gingival groove may be different from other periodontal healthy sites, which might be related to the occurrence of repeated inflammation in the groove area.

Key words 16S rRNA, Parapulpal line, PCR, Periodontitis, Radicular-gingival groove