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Anaerobic bacteraemia and fungaemia of patients receiving endodontic treatment.

Oral focal infection, a concept neglected for several decades, is still a subject of controversy. Recent progress in oral microbiology has renewed interest in and concern for focal infection. In the present study, microorganisms released to the bloodstream during and after endodontic treatment were traced back to their presumed source, the root canal. Phenotypic methods (biochemical tests, antimicrobial susceptibility tests, SDS-PAGE of cellular proteins and gas-chromatography of cellular fatty acids) and genetic methods (ribotyping) were used for identification and tracing of the microorganisms. Microbiological samples were taken from the root canal of 26 patients with asymptomatic apical periodontitis of single-rooted teeth. Patients' blood samples were withdrawn during and 10 min after endodontic therapy. A total of 132 strains were isolated from 26 root canals and all contained anaerobic bacteria. Different bacteria (*Propionibacterium acnes*, *Peptostreptococcus prevotii*, *Fusobacterium nucleatum* ss. *vincentii*, *Prevotella intermedia*, *Prevotella nigrescens*, *Actinomyces israelii*, *Streptococcus intermedius*, and *Streptococcus sanguis*) and a yeast (*Saccharomyces cerevisiae*) were recovered from the blood of the patients at a frequency of 31–54%. The microorganisms from the root canal and blood presented identical phenotypic and genetic characteristics within the patients examined. These characteristics differed between patients. The findings strongly suggested that the microorganisms isolated from the blood originated from the root canal. The present study demonstrated that microbial spreading after endodontic treatment, previously neglected, can be the cause of anaerobic bacteraemia and fungaemia. This unintentional extraoral spreading of microorganisms may have serious consequences in the compromised host.