R-14. Simple and rapid detection of serum antibody to periodontopathic bacteria by dot blotting

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Periodontitis patients usually show high levels of antibodies to some kinds of periodontopathic bacteria such as *Porphyromonas gingivalis* and *Actinobacillus actinomycetemcomitans*. The aim of this study was to detect the specific immunoglobulin G antibodies against periodontopathic bacteria by dot blotting. In the procedure used, bacterial preparations were blotted on a nitrocellulose membrane. After blocking the non-specific binding sites, the diluted serum was then blotted onto the preparations. The membrane was immersed in secondary antibodies and then immersed in substrate buffer. The colored blots were evaluated. We first evaluated the reliability of this procedure by examining the sera of high and low ELISA titers. Whole-cell sonic extracts and fimbriae of *P. gingivalis* and formalin-killed whole cells of *A. actinomycetemcomitans* were both used as antigens in dot blotting and ELISA. PCR procedure was also used to detect *A. actinomycetemcomitans* from plaque and saliva. After 4 hours, the coloration of blots was more clearly visible for the high-titer sera than for the low titer sera. The intensity of coloration of the blots of *P. gingivalis* and *A. actinomycetemcomitans* showed correlation with ELISA titers. Particularly significant correlation was shown when *P. gingivalis* fimbriae were used as antigen. Neither blot intensity nor ELISA titer correlated with the results of this PCR assay for *A. actinomycetemcomitans*. These results suggest that this dot blot method is a simple and rapid means of detection of serum antibodies, and that it shows promise as a chair-side assay method