The American Dental Association has reported that 75% of adults in the United States are affected by some form of periodontal disease.\(^1\) Periodontal disease is the primary cause of tooth loss and has been linked to such systemic ailments as cardiovascular disease and uncontrolled diabetes.\(^2,3\) However, traditional methods of periodontal disease diagnosis are often subjective and are based on signs and symptoms that occur after the disease process has damaged the periodontium. Interpretation of radiographic findings and measurement of diseased periodontal pockets might vary among even the most experienced clinicians.

Technological advances, such as the phase microscope, provided clinicians with a means of viewing individual pathogens that were active inside a periodontal lesion. Using the microscope, the dentist—and the patient—could see cocci, rods, and even motile spirochetes removed from a plaque sample. Although it is a useful motivational tool, the microscope did not identify exactly which pathogen(s) were present in (or causing) the patient’s periodontal infection.

Culturing bacteria removed from periodontal pockets with sterile paper points provided dentists with a means to identify specific bacteria in a specific pocket. The bacteria-laden paper points must be shipped to the laboratory overnight where the bacteria are allowed to grow and then are identified—a process taking 10 to 14 days. Although bacteria are indeed identified, the laboratory report does not include a “bacterial load” or number of bacteria present.

Chairside tests, such as the BANA Enzymatic Test (Oratec Corp), provide clinicians with a quick and inex-

Figure 1—MyPerioPath result report indicating high levels of *T. forsythia*.
The following case demonstrates usage of MyPerioPath for gathering baseline patient information, development and implementation of a treatment plan, posttherapy reevaluation, and revision of therapy following retesting.

**Case Study**

The patient is a 37-year-old female with a family history of heart disease. At the time of initial testing, her home care consisted of brushing twice daily with a power toothbrush and flossing each evening. Dental care since 30 years of age included a routine prophylaxis every 3 months. At the time of saliva specimen collection, periodontal findings included three 4-mm pockets (distolinguinal of second molars), 2 sites bleeding on probing, and no visible signs of radiographic bone loss.

MyPerioPath test results indicated *Tannerella forsythia* (*T. forsythia*) above the threshold or concentration at which patients are considered at risk for increased attachment loss (Figure 1). *T. forsythia* is associated with refractory periodontal disease and increased risk of heart attack. The patient additionally tested positive for the interleukin-1 gene mutation (Figure 2; MyPerioID PST, OralDNA Labs), signifying a genetic susceptibility to increased inflammatory response. Recommended treatment at this time was full mouth disinfection: prophylaxis (code 1110), 30 minutes of sulcus debridement with ultrasonic scaler, and a systemic antibiotic (metronidazole 500 mg, twice a day for 8 days).

Three months later, a posttherapy saliva specimen was collected (Figure 3). At this time, *T. forsythia* was no longer detected; however, lower spectrum bacteria were elevated. This elevation often occurs after more pathogenic bacteria are reduced or eradicated. As the patient is genotype positive for interleukin-1 gene mutation, she is at greater risk for infection with the lower level bacteria. Recommended treatment at this time was periodontal maintenance therapy (code 4910); no additional systemic antibiotic was recommended. The patient will be retested at her next recare visit.

Use of these diagnostic tests provided the dentist with valuable information regarding what was happening on a cellular level in this patient’s mouth. Although clinical signs did not indicate a severe periodontal condition, the continued elevated level of pathogenic bacteria indicated an ongoing infection. Given the patient’s family history of cardiovascular disease, progressively worsening periodontal disease could dramatically impact her systemic health.
Diagnostic tests such as MyPerioPath allow the clinician to diagnose earlier, treat more aggressively, and more closely monitor a patient’s oral condition. These tests should become standard procedure in the dental office to ensure the most positive outcome for each case.

Disclosure:
Cynthia T. Hughes, RDH, MEd, and Diane Larson, RDH, are Clinical Specialists for OralDNA Labs, Inc.

References

Figure 3—Post-therapy (Follow-up) MyPerioPath result report indicate eradication of T forsythia with an elevation of lower risk pathogens.

Conclusion
Diagnostic tests such as MyPerioPath allow the clinician to diagnose earlier, treat more aggressively, and more closely monitor a patient’s oral condition. These tests should become standard procedure in the dental office to ensure the most positive outcome for each case.

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