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Lab Director: Leslie Douglas, PhD, HCLD(MD), ABB

Patient: Sample, Sally (1/27/64)

Periodontal Health (Red Complex Panel)

Provider: **Jane Doe, MD**

Test ID: 54927

Sample Collected	Sample Received	Sample Tested	Test Reported
03/01/2023	03/03/2023	03/05/2023	03/08/2023

Sample type: **Super Floss**

Test performed by: L. Douglas

Results:

The highlighted organisms have been detected in the sample provided:

Porphyromonas gingivalis

CARDIOVASCULAR DISEASES, ORAL CANCER

Treponema denticola

TOOTH AND BONE LOSS

Tannerella forsythia

ESOPHAGEAL CANCER

The Red Complex is comprised of three bacteria that are known to cause severe periodontal disease, and it has been suggested that aggregates of these three species may cause the destruction of periodontal tissues.

Campylobacter rectus

Campylobacter gracilis

Porphyromonas endodontalis

Prevotella nigrescens

Prevotella intermedia

Interpretation of Results Disclaimer: DNA Connexions is not a clinical diagnostic laboratory and cannot provide a diagnosis for disease and/or subsequent treatment. These results are from DNA PCR testing, and indicate the presence of disease-causing agents. A positive result indicates the presence of DNA from the highlighted organisms. A negative result only indicates the absence of detectable targeted organismal DNA in the submitted specimen. The information is supplied as a courtesy to health care providers to aide in an overall assessment. This information alone should not be used to diagnose and/or treat a health problem or disease. All reported results are intended for research purposes only and consultation with a qualified health care provider is required.

Treponema denticola [1]:

General Description

Treponema denticola is a Gram-negative, obligate anaerobic, motile and highly proteolytic bacterium. *T. denticola* is associated with the incidence and severity of human periodontal disease.

Symptoms of Infection

T. denticola levels in the mouth are elevated in patients with periodontal diseases and the species is considered one of the main etiological agents of periodontitis. Often *T. denticola* is found in a periodontal infection. There is evidence that members of the *Treponema* genus invade tissue that has already been damaged by other bacterial species.

Suggested Treatment Options

There is some evidence for antibiotic resistance, but the bacteria are not highly resistant. *T. denticola* can be treated with penicillin and other common antibiotics. As a spirochete *T. denticola* is good at evading treatment, so any regimen of antibiotics needs to be aggressive.

Porphyromonas gingivalis [2]:

General Description

Porphyromonas gingivalis is a non-motile, Gram-negative, rod-shaped bacterium common in the human mouth. Some research implicates that Porphyromonas gingivalis infections may be a factor in causing rheumatoid arthritis.

Symptoms of Infection

It is found in the oral cavity, upper gastrointestinal tract, respiratory tract, and in the colon. It is implicated in certain forms of periodontal disease. Collagen degradation that is observed in chronic periodontal disease results in part from the collagenase *P. gingivalis* releases during an infection. In the presence of high concentrations of antibiotics, *P. gingivalis* can take shelter inside human gingival fibroblasts. This allows it to survive unfavorable conditions.

Suggested Treatment Options

Though it has mechanisms to escape antibiotics, *P. gingivalis* does not display strong antibiotic resistance. An aggressive antibiotic treatment with most antibiotics should prove successful against an infection.

Tannerella forsythia [3]:

General Description

Tannerella forsythia is an anaerobic, gram-negative species of bacteria of the Cytophaga-Bacteroidetes family and is implicated in periodontal disease. *T. forsythia* is commonly located on the supragingival tissue and initiates periodontitis by colonizing the subgingival tissue.

Symptoms of Infection

T. forsythia causes periodontal infections and chronic inflammation of tooth supporting tissues which can lead to tooth loss.

Suggested Treatment Options

T. forsythia is susceptible to ampicillin, amoxicillin and doxycycline.

*Campylobacter sp** [4]:

General Description

*Campylobacter sp** is a Gram-negative, microaerophilic spirochete. Motile, with either unipolar or bipolar flagella, the organisms have a characteristic spiral/corkscrew appearance. At least a dozen species of *Campylobacter* have been implicated in human disease.

Symptoms of Infection

*Campylobacter sp** produces an inflammatory, sometimes bloody, diarrhea, or dysentery syndrome accompanied by cramps fever and pain. *Campylobacter* species are also implicated in periodontitis.

Suggested Treatment Options

The infection is usually self-limiting and in most cases, symptomatic treatment by liquid and electrolyte replacement is enough in human infections. The use of antibiotics, on the other hand, is controversial. Symptoms typically last for five to seven days. Standard treatment is now azithromycin and on occasion terbinafine. Quinolone antibiotics such as ciprofloxacin or levofloxacin are no longer as effective due to resistance.

Campylobacter sp refers only to the two *Campylobacter sp.* detected by this panel: *Campylobacter rectus* & *Campylobacter gracilis*.

General Description

Porphyromonas are Gram-negative, anaerobic, rod-shaped bacteria that produce porphyrin pigments (dark brown/black pigments). Though many members of the *Porphyromonas* genus are normal flora in the mouth, *Porphyromonas endodontalis* is only found in patients suffering from periodontal infections.

Symptoms of Infection

Infections frequently cause chronic inflammation of the periodontal tissues. Several post-op infections from oral surgery, most frequently root canals, are caused by *P. endodontalis*. If left untreated, these infections may lead to the infection spreading into the blood or other tissues.

Suggested Treatment Options

Good oral hygiene and proper post-op maintenance of any damaged or exposed tissue in the mouth are the best preventative measures. Studies have shown the *Porphyromonas* genus may have a resistance to metronidazole, penicillin and other related antibiotics.

Prevotella nigrescens [6]:

General Description

Prevotella nigrescens are Gram-negative, anaerobic, non-motile, rod-shaped, singular cells. It is frequently found in the mouth. *P. nigrescens* colonize infection sites by binding or attaching to other bacteria in addition to epithelial cells, exacerbating already existing infections.

Symptoms of Infection

Prevotella species cause infections such as abscesses, bacteraemia, wound infection, bite infections, genital tract infections, and periodontitis. Specific infections caused by *Prevotella* include the disease of tissues surrounding and associated with an individual's teeth.

Suggested Treatment Options

P. nigrescens has penicillin resistance due to beta-lactamase production. It is susceptible to other antibiotics.

Prevotella intermedia [7]:

General Description

Prevotella intermedia is a Gram-negative, non-motile, rod-shaped bacterium that is frequently found in the mouth. An opportunistic pathogen, it is the cause of many anaerobic infection of the mouth and surrounding tissues.

Symptoms of Infection

P. intermedia is involved in periodontal infections, including gingivitis and periodontitis, and often found in acute necrotizing ulcerative gingivitis. It is commonly isolated from dentoalveolar abscesses, where obligate anaerobes predominate. *P. intermedia* uses host steroids as growth factors.

Suggested Treatment Options

P. intermedia shows natural antibiotic resistance but can be treated with: metronidazole, amoxicillin/clavulanate, ureidopenicillins, carbapenems, cephalosporins, clindamycin, and chloramphenicol.

References

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