Periodontitis or gum disease is a chronic infectious transmissible disease present in the majority of adults. It can be caused by many different species of organisms usually anaerobes or facultative anaerobes and one-celled parasitic animals. The best and most logical approach to treatment is to disinfect the gum tissues and destroy the infectious organisms prior to dental intervention and thus and avoid further systemic spread of these common organisms.

Bacterial Endocarditis can result from pathogenic bacteria spread into the blood stream during many common dental procedures. Oral bacteria can travel to the heart from the mouth thereby causing an infection on one or more of the valves. During dental procedures if the organisms are present a large volume of pathogenic bacteria are spread to the circulation. This is especially true when teeth are deep scaled, cleaned by hand or with an ultrasonic cleaner and or water irrigated. In a comprehensive review by Xialojing Li in 2000 it was shown that pathogenic oral bacteria have been linked to bacteria endocarditis, metastatic infections, aortic aneurisms, cardiovascular disease, myocardial infarction, low birth weight babies, bacterial pneumonia, diabetes mellitus, and many other adverse health effects. Xialojing states that, “The incidence of bacteremias following dental procedures such as tooth extraction, endodontic treatment, periodontal surgery, and root scaling have been well documented.”

Bacteremias after dental extraction third-molar surgery, dental scaling, and endodontic treatment has been studied by means of lysis-filtration of blood samples with subsequent anaerobic and aerobic incubation. Bacteremia was observed in 100% of the patients after extraction, in 70% after dental scaling, in 55% after third-molar surgery, in 20% after endodontic treatment. Anaerobes were isolated more frequently than facultative anaerobic bacteria.

Brushing and chewing in an infected state has also been shown to spread bacteria to the blood stream. It is apparent then that the best policy is to prevent the spread of these organisms into the blood stream during dental procedures and ultimately eliminate them from the oral cavity.

Since it is not possible to determine in advance if the existing oral flora has the potential for harm the best policy is to simply disinfect the oral sulcus prior to mechanical intervention for operative dentistry, oral surgery or dental cleanings. This precaution is similar to requiring doctors to wash their hands prior to delivering a baby.
The International Academy of Oral Medicine and Toxicology’s non-surgical biocompatible periodontal treatment will accomplish this goal.

The following patient protection and treatment guideline is proposed.

1. Prior to intervening in the oral cavity with any invasive procedure the clinician or appropriate technician should identify the oral bacteria present. Three common methods are available for this analysis.
   a. In order to rapidly screen the oral flora a wet mount of the subgingival plaque using a phase contrast or dark field microscope is the fastest screening method currently available. If motile organisms are seen then a culture may be made and the gums disinfected prior to treatment of any kind.
   b. If antibiotic use is anticipated prior to disinfection an anaerobic bacterial sample should be taken under a nitrogen drape and sent for culture and sensitivity testing.
   c. Another chairside method of determining the nature of the periodontal (gum) infection is tests such as BANNA and DNA analysis.

2. Once the presence of motile organisms has been determined, the gums should be disinfected as rapidly and thoroughly as possible through the topical application of disinfectants. Disinfection is not possible with oral antibiotics because only minimal amounts of systemic antibiotics are excreted in saliva and crevicular fluids.

3. When amoebas or trichomonads are identified during the initial microscopic evaluation it will be necessary to use topical disinfectants, topical antibiotics and systemic antibiotics. (Note: it is not possible to culture these two organisms as they are animals and not bacteria)
   a. Treatment for oral amoebiasis with an antibiotic: Amoebas are one-celled animals and their presence in gum pockets produces severe inflammation and greatly accelerates bone loss and periodontal destruction. In situations where amoebas are present they should be treated both topically and systemically with metronidazole if possible.
   b. First the oral flora should killed be irrigating with a rapidly lethal antiseptic such as chloramine-T or Povidone Iodine. NOTE: Both these products are for external use only therefore; every effort should be made to prevent the patient from swallowing them. An oral irrigator with a 25 gage or smaller cannula can be used to introduce the solutions into the sulcus around each tooth. The whole mouth should be treated at each intervention. After irrigation another bacterial sample should be taken to visually confirm the eradication of the motile organisms.
   c. A syringe may also be used to apply the solution but is somewhat less desirable since manipulating a small cannula while pressing on
a syringe is not as simple as an oral irrigator and some have expressed concerns about the amount of pressure a syringe can generate. Nevertheless a syringe with a 12" flexible tubing attached has been successfully used to disinfect gums and is an acceptable method of treatment.

d. Prior to the use of any antibiotic a careful medical history and any allergies or personal habits that might make antibiotic use contraindicated should be taken. Of particular concern would be allergy to the medication and in the case of metronidazole determine through interview any history of continued chronic alcohol use. Metronidazole and alcohol will rapidly produce nausea this includes use of alcohol based mouthwash.

e. Once the oral flora has been disinfected the hygienist, dentists or physician should introduce ophthalmic metronidazole (a liquid suspension of metronidazole) into the gum collar of each tooth. A small syringe with a 25g cannula can be used to introduce the solution into the gum collar sulcus.

f. Systemic antibiotics should start within the next 4 hours and continuously taken for the next 7 days.

g. After 7 days the oral flora should be reevaluated and again disinfected.

h. Ophthalmic metronidazole should again be applied.

i. If no amoebas were seen during the microscopic evaluation there is no need to continue systemic metronidazole. If amoebas are present another week of metronidazole is indicated. Interview the patient for any possible sources of infection, spouse, dog, and other intimate personal contacts.

j. Several follow up visits for disinfection should be made at approximately 2 week intervals until no more infective organisms are present on two sequential visits. This is often somewhat difficult in advanced cases of periodontal infection, as research has confirmed the presence of pathogenic bacteria from the sulcus in the pulp and dentin of teeth. Repeatedly applying liquid antiseptic to the sulcus both in the dental office and at home will eventually destroy these organisms but a single visit of disinfection seldom produces the desired result. Generally speaking it takes between 4 and 6 visits of disinfection to effectively eradicate the pathogens.

4. Long term follow up visits should be schedule no later than 3 months to confirm the removal of pathogenic bacteria and healing of the periodontal pockets.

5. The depth of the pocket should be measured annually and monitored for healing.

6. The presence of bleeding, swelling or pus is a definitive sign that the infection is not completely controlled and retreatment is necessary.


