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Advances in Periodontal Therapy

Laser Assisted Periodontal Therapy

There has been much in the news lately about the link between periodontal health and overall physical health. Periodontal disease has been proven to increase the risk for coronary artery disease, and to increase the risk of cancer. It is believed that the cause of this is the burden that chronic inflammation (which periodontal disease is), puts on our bodies.

In the past, there were only a few treatment options. They were periodontal scaling and root planing and surgery. When periodontal scaling and root planing did not reduce the depth of the periodontal pockets to normal limits, surgical intervention (cutting open the gums, recontouring bone and soft tissue, electively removing gum tissue, and suturing it closed) was the only definitive treatment. Now, with the introduction of the use of lasers, we have a new, less invasive choice.

The objective in all periodontal therapy is to produce an environment that the patient can maintain at home, needing only occasional professional treatment (routine dental prophylaxis). When a patient has periodontal pocket depths deeper than 3mm, they, by definition, have periodontitis. Pocket depths deeper than 4mm are nearly impossible for a patient to maintain (keep free of bacteria) at home, with the regular tools (toothbrush, floss, Waterpik, etc.).

The laser has some unique properties which have revolutionized periodontal treatment. It can accomplish things that were considered impossible a few years ago. Using the laser it is possible to actually re-grow bone, and also to get the gum to re-attach to the tooth. This regrowth and re-attachment ultimately reduces the pocket depth to a level that a patient can keep clean at home.

You are probably wondering how the laser can help achieve such positive results. The laser targets hemoglobin and melanin: darker pigmented tissue. The diseased lining of a periodontal pocket is full of inflamed tissue containing large amounts of these pigments. The treatment is done as follows: The doctor will numb the area to be treated with local anesthetic. The thin fiber optic tip of the laser is placed into the periodontal pocket and activated. The laser vaporizes the diseased tissue but leaves all healthy tissue undamaged. Additionally, the laser almost completely sterilizes the periodontal pocket, killing 99.99% of all bacteria within it. Once the pocket is free of diseased tissue and is sterilized, traditional periodontal scaling and root planing is performed. Both ultrasonic and hand instruments are used to remove any remaining

calcified bacterial deposits (tarter) that are adherent to the tooth. We place Emdogain, a genetically engineered enamel protein matrix, which helps regrow attachment into the defects. The laser treated tissue is then compressed against the teeth that are now clean, smooth and tartar free. A fibrin clot forms as the tissues heal allowing new, long junctional epithelial fibers to reconnect the gum to the tooth, and stimulates the regrowth of lost bone. The bite is checked and adjusted to make sure that no unwanted lateral forces are exerted on the treated teeth which might disturb the formation of new attachment. The patient is instructed not to brush, floss, Waterpik or eat on the treated teeth for one week following treatment for this same reason. A special prescribed mouth rinse is given to the patient to use for one week instead of brushing and flossing the treated area. A follow up appointment one week after treatment is necessary to check on the progress of healing. After that, the patient is seen every three months for a dental prophylaxis (a traditional cleaning performed above the gumline) to keep the treated area clean and to continue monitoring healing. No probes or instruments are introduced into the gum crevices during these visits because they might disrupt the new attachment from forming. After eight months the pocket depth is reprobred and measured to determine how much new attachment is gained. Sometimes it is necessary to retreat some areas that did not respond fully to the treatment (this is often required in cases that are surgically treated, as well).

Three questions are often asked by patients: 1. What is the cost of this treatment compared to traditional surgery?

2. How will I feel after this procedure, compared to how I would feel after surgery? 3. How effective is laser periodontal therapy compared to traditional periodontal therapy? There is good news for all these questions. Laser assisted periodontal treatment is much less costly than surgical periodontal treatment. Surgical treatment costs between \$1700 and \$2500 per quadrant (one quarter of the mouth) depending on the severity of the case. Laser periodontal treatment costs between \$700 and \$1000 per quadrant, again, depending on the severity of the case. The cost of the Emdogain is between \$135 and \$500, depending on how much we need to use. Laser assisted periodontal treatment results in significantly less postoperative discomfort than surgical treatment. Since there is no scalpel dissection, tissue flap reflection, no bone removal, and no suturing required, there is almost no postoperative bleeding and much less postoperative discomfort. Some patients have experienced some minor swelling and discomfort the day after the procedure, but none have reported that they were prevented from engaging in their normal activities. Pain medication is routinely prescribed, but not always needed. Occasionally, oral antibiotics are prescribed as well. The effectiveness of laser periodontal therapy is equal to, or greater than the effectiveness of traditional periodontal therapy. As was mentioned before, sometimes certain areas need to be retreated, as is true for traditional surgical cases, too.

We are extremely excited to be able to offer this new option to our patients. Our mission is to optimize the health and safety of our patients, and to provide the highest quality care with a minimum of discomfort.

One final note. Currently, laser periodontal treatment is not covered by insurance. However since it costs approximately half of what traditional periodontal surgery costs, and because it is so much less debilitating, it is still preferred by most patients who are given the choice between the two.