Lip piercing presents dental and periodontal risks

Body piercing is gaining popularity with 51 percent of the western world’s population having some type of piercing. Oral and perioral piercings account for three to 20 percent of piercings. Complications include recession, tooth fractures, infection, swelling and bleeding. Most published reports on oral piercings are case reports.

Researchers at the University of Barcelona in Spain evaluated 50 patients with unilateral lip piercing to determine differences in probing depths, recession, amount of keratinized tissue and mucosal complications. In this group of 39 women and 11 men, piercing was in place for an average of three years and were primarily titanium with 78 percent being labret-types and the rest rings. The intraoral stud used in 88 percent of the labret piercings was made of metal and the rest were silicone. The longer a piercing was worn, the more likely to see recession. In this group, 22 percent had recession compared to only four percent on the non-pierced side. Probing depths were deeper on teeth adjacent to piercings compared to non-pierced sides.

Seven subjects had mucosal complications related to piercings including swelling, hyperplastic tissue and keloid scarring. Cracked enamel or small fractures were evident in 20 percent of the teeth. Of the 10 people with a ring on one side, nine had fractures or cracks.

The researchers speculate that oral hygiene might be impaired on the side with the piercing, explaining the deeper probing depths.

Clinical Implications: Patients with lower lip piercings should be advised of the dangers and risks associated with lip piercing. To prevent damage to teeth and periodontal tissues, removal is advised.


Topical fluoride arrests root surface decay

As our population ages, more people are keeping their teeth and the incidence of root caries will be an ever increasing problem in the future. These lesions are initially shallow and directly along the tissue margin, making operative therapy difficult. Remineralization is a better choice than placing a restoration, which provides a margin for secondary caries formation.

Researchers at Göteborg University in Sweden compared three fluoride protocols on early root caries lesions. The 60 lesions treated were at least 2mm wide with a depth of less than 1mm. All subjects were given a .32 percent sodium fluoride toothpaste, Pepsodent to use during the 12-month study. Subjects ranged in age from 31 to 85 years, 12 females and 28 males, and the majority of lesions were found on buccal surfaces.

Colgate Duraphat fluoride varnish was used alone in one protocol and after application of Carisolv to remove softened tooth structure for another protocol. The third protocol was freshly made eight percent stannous fluoride applied for five minutes with cotton pellets. For those receiving the Carisolv protocol, the gel was applied for 30 seconds then the carious root structure removed with a specially designed Swedish instrument. The surface was rinsed and dried before the Duraphat was applied.

No significant differences were found between the three fluoride protocols. At one year, all but four lesions were considered arrested: two in the Carisolv group and one each in the other fluoride groups.

Clinical Implications: Fluoride varnish is a good choice, easy to apply and effective for arresting root surface caries. Early intervention is best, while the lesion is no deeper than 1mm.

3D tissue model for testing mouthrinses

Laboratory studies exposing single layer cultures of epithelial cells to alcohol containing mouthrinses have reported potential cell toxicity. In real life, the mouth is not a single layer of cells, but rather a complex combination of many layers of different cells.

Researchers at the University of Sheffield in the United Kingdom designed a 3D model of oral epithelium complete with connective tissue, basement membrane, lamina propria, keratinocytes and epithelial cells, all seeded into a porous scaffold. This model was used previously to test the effects of restorative materials on oral tissues.

Seventy-two models were constructed and 12 models were exposed to each of the six solutions: saline, dental resin monomer (positive control), cola drink, Listerine Original, Listerine Coolmint, and Listerine Advanced Tartar Control.

The mouthrinses were mixed in a nine-to-one ratio with saline to simulate saliva. All tissues models were rinsed with saline after their two 30-second exposures, 10 hours apart.

Tissue samples were visually examined and several tests completed to determine cell changes. As expected, the positive control, the monomer, caused significant tissue damage, and separation of the basement membrane. The other rinses were not nearly so damaging. No significant changes were observed for the saline, cola and Listerine Advanced Tartar Control, which is formulated with zinc chloride for tartar control. Although no damage was observed with the other two Listerine mouthrinses, a significant amount of IL-1B was released, but not nearly as much as the positive control. Release of IL-1B has been reported when cells are exposed to toothpaste as well.

Clinical Implications: Based on these findings, alcohol containing mouthrinses should be safe for oral tissues.


Gingivitis is a risk factor for periodontitis

It has been more than 100 years since GV Black first introduced the word “plaque,” and now with sophisticated microscopy, we understand more about the complex nature of biofilm. Hundreds of oral bacterial have been identified, some harmful and some not. Those considered to be important in periodontitis are: Aggregatibacter actinomycetemcomitans, Porphyromonas gingivalis, Tannerella forsythia, Prevotella intermedia, Campylobacter rectus, and Spirochetes.

Gingivitis begins with an change in gingival crevicular fluid makeup and flow. Thin fluid gradually fills with serum and leukocytes and the flow increases. Redness of the tissue is due to enlargement of the blood vessels in the connective tissue and formation of capillary loops closer to the outer epithelium of the gingiva. Swelling and loss of texture reflects destruction of underlying connective tissue.

Gingivitis is usually painless and doesn’t bleed spontaneously but will bleed when probed.

A long term study in Norway measured the effects of gingivitis on recession and tooth loss between 1969 and 2003. Recession gradually increased with age, however those teeth with bleeding over the years experienced more recession than teeth free from gingivitis.

Teeth with no bleeding associated with gingivitis at the start of the study, experienced a 99.5 percent tooth retention rate. Those teeth that were surrounded with tissue that bled upon probing at most visits experienced a tooth retention rate of 63.4 percent. Avoiding gingivitis is desirable in order to prevent further disease and according to these long term findings, in order to prevent tooth loss later in life.

Clinical Implications: Not only is gingivitis a precursor for periodontal disease, gingival inflammation is also a risk factor for tooth loss.


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Because of anti-inflammatory properties, ibuprofen is often recommended following periodontal surgery to control pain. Side effects of ibuprofen include stomach upset, gastric ulceration, and an increased tendency to bleed. Acetaminophen (Tylenol) works centrally and ibuprofen works both centrally and peripherally and also provides anti-inflammatory properties.

A researcher at the Cairo University in Egypt compared Acetaminophen (500mg) with caffeine (30mg) to ibuprofen (400mg) following periodontal flap surgery. Each patient had at least two surgeries scheduled and they were randomly assigned one of the pain medications at each visit. They were instructed to take one pill immediately following surgery and one pill eight hours later and asked to record their pain level each hour for eight hours and three times on the second day. If the pain became too much, patients were instructed to take a rescue medication of aspirin (300mg) and record the time it was taken. Of the 15 test subjects, only three needed the rescue medication and all three were in the acetaminophen/caffeine group.

No pain was reported by the acetaminophen group for the first two hours, while the ibuprofen group experienced slight pain. For the next three hours, slightly increasing pain was reported by both groups and from five to eight hours, the ibuprofen group experienced slightly more pain. The second day, pain levels for both groups were extremely low. Neither medication is intended to control pain for more than a couple of hours.

Clinical Implications: Tylenol with caffeine might be an effective alternative for controlling pain following periodontal surgery for patients who want to avoid the side effects of ibuprofen.


Dental implants provide an effective method to replace lost teeth, thus re-establishing aesthetics and chewing function. Although most implants have a good prognosis, biological complications do occur as periimplant mucositis or periimplantitis. The screw-shaped designs and surface characteristic of implants allow for enhanced biofilm accumulation and difficulty with deplaquing the site.

Researchers at Lund University in Sweden compared two non-surgical approaches to treating periimplantitis in cases with less than 2.5mm of bone loss and probing depths 4mm or more. A total of 37 patients began the six-month study, but only 31 completed all visits.

Test group one was treated with mechanical instruments designed by a Swiss instrument company specifically for implants. Completing the study were 17 subjects that had been randomly assigned to this group.

Test group two was treated with the Vector system, an ultrasonic system with tips specifically designed for implants. Completing the study were 14 subjects. All subjects received rubber cup polishing with polishing paste. Oral hygiene instructions were provided at baseline and reviewed at one, three and six month visits.

Despite treatments and oral hygiene instructions, very little healing was evident and no differences were seen between treatments. Plaque scores decreased from 73 percent to 53 percent and bleeding scores decreased slightly. Probing scores remained unchanged. Microbial analysis also showed no change at any of the time points of the study. An ending plaque score of 53 percent is still very high and might explain the lack of healing from either of the treatments.

Clinical Implications: The jury is still out on the best way to treat periimplantitis.