Dear Colleagues,

I truly believe there has never been a better time to be a dental hygienist. As evidence of a relationship between periodontal disease and systemic injury continues to emerge, hygienists have an unprecedented opportunity to redefine the important role we have in the healing arts and transform our patients’ health. Since I graduated from West Virginia University in 1974, I stand in awe of the evolution of our profession.

During this 30 year time span, I have watched a parade of innovative products — from the most basic prophy angle to the most sophisticated technologies — change the way we practice dental hygiene. Some of these advances have impacted the profession of dental hygiene more than others. In the editorial which follows I want to share with you a therapeutic technology that I believe has had one of the most significant impacts on our profession — Oraqix® (lidocaine and prilocaine periodontal gel) 2.5%/2.5%. Oraqix is a noninjectable anesthetic indicated for adults who require localized anesthesia in periodontal pockets during scaling and/or root planing. Its use in contemporary practice maximizes the opportunity dental hygienists have to offer optimal therapeutic approaches to the treatment of periodontal disease.

In the pages that follow, I will be discussing an enhanced therapeutic approach to nonsurgical periodontal therapy which I believe is made significantly more possible with the use of Oraqix. In addition, you will hear how two dental hygienists in a general practice have incorporated Oraqix into their clinical pathway for the treatment of periodontal disease. Their patients, Sam and Betsy, are the kind of cases that you see everyday, and represent case studies that demonstrate excellence in care.

I want to thank DENTSPLY Pharmaceutical for their generosity in supporting this project of clinical inquiry. I set out to determine whether this new product called Oraqix was really as efficacious as the company claimed. Although I was not the treating clinician on either of these cases, I worked side by side with Janine and Susan, documenting the ease of use, and patient comfort, among other relevant findings, during the entire procedures.

Oraqix lives up to its claims. In my opinion, it is an essential component of contemporary clinical armamentarium for nonsurgical instrumentation in the treatment of periodontal disease. I think what follows may make you a believer too. I want to thank you for taking this opportunity to learn about Oraqix — the product that makes it possible to provide unparalleled levels of care for our periodontal patients.

Warmest wishes for your continued clinical successes,

Casey Hein, RDH, MBA

Casey Hein, RDH, MBA, is the founder of PointPerio LLC, a national clinical consulting group that specializes in on-site, hands-on education of hygienists in transferring the most current and scientifically supported research in periodontal therapeutics into everyday practice. She is nationally renowned as a speaker and author. She also serves on the advisory boards of several companies and as an independent consultant to the dental industry and think tanks. Casey is a member of the American Dental Hygienists’ Association and the Speakers and Consultants Network. She can be reached at (410) 349-2830 or via e-mail through her Web site at casey@pointperio.com.
The Role of Oraqix® in an Enhanced Therapeutic Approach to Nonsurgical Periodontal Therapy

Introduction

This article presents an enhanced therapeutic approach to the nonsurgical treatment of periodontal disease that relies on the use of one of the most important technological advancements in progressive periodontics — Oraqix® (lidocaine and prilocaine periodontal gel) 2.5 percent/2.5 percent, an FDA-approved noninjectable anesthetic gel indicated for adults who require local anesthesia in periodontal pockets during scaling and/or root planing. Its use in contemporary practice maximizes the opportunity clinicians have to reduce patients’ dental anxiety by offering a less invasive, needle-free alternative to injection anesthesia. The use of Oraqix holds great promise in reducing patients’ fears and their perception of pain. As a result, psychological barriers to the treatment of periodontal disease have been removed for a vast population of patients whose past fear of injections has preempted their acceptance of recommended periodontal treatment.

In introducing how this advancement in local anesthetic delivery supports an enhanced therapeutic approach to the nonsurgical treatment of periodontal disease, the discussion of Oraqix and its application to progressive clinical practice will focus on helping dental practitioners understand several key concepts, which follow:

- The technique sensitivity of periodontal debridement
- The impact of pain or the perception of pain on patients’ readiness to accept periodontal treatment
- The scientific evidence to support “one-stage” periodontal debridement, its potential to enhance clinical outcomes, and the pivotal role of Oraqix in utilizing this approach to nonsurgical treatment

This article will conclude by presenting two case studies to demonstrate the following:

- The importance of assessing patients’ needs for local anesthesia during nonsurgical periodontal therapy
- The effectiveness of Oraqix as an anesthetic for periodontal debridement procedures (both ultrasonic and manual instrumentation) on patients with varying levels of disease extent and severity (i.e., moderate loss of periodontal support and severe loss of periodontal support) and varying degrees of dental anxiety related to injection anesthetic.

Periodontal Debridement: The Cornerstone of Nonsurgical Periodontal Therapeutics

The fundamental goals of periodontal therapy are “to alter or eliminate the microbial etiology and contributing risk factors for periodontitis, thereby arresting the progression of disease and preserving the dentition in a state of health, comfort, and function with appropriate aesthetics; and to prevent the recurrence of periodontitis.” Altering or eliminating the microbial etiology depends on the ability to delay the repopulation of pathogenic organisms by controlling the accumulation of supragingival microbial plaque and disrupting or removing subgingival gram-negative microbiota. The traditional therapy for removing supra- and subgingival plaque, its by-products, toxins, and calculus has been scaling and root planing. Subgingival scaling removes adherent plaque and calculus attached to the root surface; root planing is defined as a “definitive treatment procedure designed to remove cementum or surface dentin that is rough, impregnated with calculus, or contaminated with toxins or microorganisms.”

The rationale for root planing is to smooth the root surface in order to decrease the surface area to which calculus and plaque could attach. It was once thought that bacteria and endotoxins would attach to rough surfaces like calculus and coarse cementum, and that this inhibited tissue healing after instrumentation. With the discovery that bacteria adhere to any surface, rough or smooth, the

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* Indicated for adults who require localized anesthesia in periodontal pockets during scaling and/or root planing. Oraqix should not be used in those patients with congenital or idiopathic methemoglobinemia. Most common adverse reactions in clinical studies were application site reactions, headache, and taste perversion.
treatment of inflammatory periodontal disease evolved to the concept of “periodontal debridement” as the newer terminology for instrumentation. Periodontal debridement has been defined as the removal of any foreign material, including plaque, its by-products and toxins, calculus, and diseased or dead tissue, from the coronal and root surfaces, sulcus or pocket, and periodontium (e.g., supporting bone). This term differs from scaling and root planing in that it encompasses more than just root surfaces to include pocket space, the pocket wall, and the underlying tissues. Accordingly, the evaluation of successful periodontal debridement depends primarily on the soft tissue response and not necessarily on the achievement of smooth root surfaces. Contrary to earlier thought, we now also know that endotoxins found on diseased root surfaces are weakly necessarily on the achievement of smooth root surfaces. Moreover, the concept of “periodontal debridement” as the newer terminology for instrumentation (3edd. St. Louis, MO: Mosby, Inc.; 2002 2) Ronis DL. Sources: 1) Daniel SJ, Harfst SA. Dental Hygiene: Concepts, Cases, and Competencies. St. Louis, MO: Mosby, Inc.; 2002 2) Ronis DL. Updating a measure of dental anxiety: reliability, validity and norms. J Dent Hyg 1994;68:228-33; 3) Malamed, SF. Sedation: A guide to patient management 4. dental anxiety • Negative • Poor oral health experiences • Avoidance of oral health care • A profound but rarely discussed reality is that nearly half the people in the United States fear dentistry to some degree, and 26 percent of adults are afraid of anesthetic injection, so much so that it stops many of these patients from receiving the care they so urgently need. Physicians have long considered pain management for medically invasive procedures as their ethical responsibility. Likewise, managing patients’ fears and anxiety related to dental procedures is an ethical responsibility. Given the escalating evidence of periodontal-systemic links and the importance of treating periodontal disease, reducing patients’ fears and addressing their perception of pain.

The Role of Oraqix®/Nonsurgical Periodontal Therapy

The Role of Oraqix®/Nonsurgical Periodontal Therapy

The Role of Oraqix®/Nonsurgical Periodontal Therapy

The Impact of Pain and the Perception of Pain on Periodontal Treatment

The Impact of Pain and the Perception of Pain on Periodontal Treatment

Anxious or fearful individuals avoid visits to the dental office even for the most routine preventive care. Without this level of care, more often than not these individuals also have poor oral health; generally, the only care they seek is for emergencies or pain relief. In these instances, the dental care they receive is often invasive, painful, and costly. This intensifies patients’ anxiety and reinforces their avoidance of needed dental care. Far from being a positive experience, this cycle of learned behavior establishes a negative pattern that patients are likely to repeat. This negative cycle of dental anxiety may apply to an estimated 14 to 34 million adults in the United States.
is essential in removing psychological barriers to the treatment of periodontal disease. Nowhere in dentistry is the ethical responsibility for pain management more relevant.

Studies of the natural history of periodontal disease clearly demonstrate that periodontal disease will progress at a more rapid rate without therapeutic intervention. We also know that for those patients who have already been diagnosed and treated, sites previously affected by periodontitis are at greater risk for future attachment loss, and patients previously treated for periodontitis require more frequent maintenance intervals. Because it is inevitable that the periodontal lesion will progress without professional care, it is important that patients do not avoid oral healthcare because of fear or dental anxiety.

Since the magnitude of this population with dental anxiety is so vast, undertaking the management of their fears is an important dimension to contemporary practice. With an estimated 14 to 43 million fearful adults who avoid dental treatment altogether, it is essential that clinicians realize the significance of overlooking their anxiety. Failure to address their dental anxiety often sets into motion a negative cycle of self-imposed dental neglect that is difficult to reverse (Figure 1). Furthermore, patients are often less willing to undergo procedures perceived as painful for treatment of a disease that most often is painless until the more advanced stages.

Clinicians who are skilled in identifying patients with dental anxiety and properly assessing their needs for pain control increase the likelihood that treatment will be accepted, therapeutic outcomes will be more successful, and patient compliance will be improved. Assessing patients’ needs for local anesthesia is a hallmark of a caring professional, and offering patients more attractive alternatives for pain control during dental procedures is one way we can reassure patients and give them the control over treatment decisions they desire. It is at this intersection of assessment, reassurance, and offering less invasive treatment options that the negative cycle of dental anxiety becomes dismantled.

For most of our patients, the typical level of discomfort during nonsurgical periodontal procedures does not require profound pulpal anesthesia, and therefore does not warrant the discomfort and risks associated with an injection. Yet, due to the lack of another effective option, pain control used for periodontal debridement has predominately relied on injection anesthesia, either in block or infiltration form. Given estimates that at least 50 percent of adult patients in the United States believe that oral injections are painful, the lack of an anesthetic alternative has posed a significant hurdle to treatment.

Many patients report that use of local injectable anesthesia to reduce pain may be just as, and sometimes even more painful than the treatment procedure itself. In one study, 35 percent of patients who received scaling and root planing within the previous six months reported that the anesthetic injection itself was the most bothersome part of treatment. It appears that because of their fear of the anesthetic injection, many periodontal patients decline treatment that includes periodontal debridement or maintenance procedures, or they cancel or fail to arrive for their appointments. Ten percent of patients surveyed within the United States indicated that they had cancelled appointments because they were apprehensive about the injection, and 13 percent reported they had put off seeking periodontal treatment. So what is this fear factor all about?

It is important that clinicians understand and are sensitive to the discomfort associated with a variety of periodontally-related procedures, not just periodontal debridement. Recent investigations provide important insight into the importance of providing noninjectable local anesthetic for other procedures including probing, routine supra- and subgingival scaling, periodontal maintenance, and gross debridement on patients who experience discomfort during those procedures or those who have hypersensitivity. Researchers have found that even the experience of pain from probing may influence pain of future treatment. Figure 2 captures the application of Oraqix on a patient with hypersensitivity that requires anesthesia to control the discomfort associated with probing. The experience of pain during the initial examination procedure may have a long-lasting negative influence on patients’ attitudes and degree of cooperation, and may therefore reduce the long-term success of the treatment.

Based on previous experiences of pain, most patients who undergo scaling and root planing are concerned about experiencing pain again. The ability to deliver dental care with a minimum of discomfort is an essential part of the skills of individual clinicians.
make an effort to minimize the degree of discomfort during treatment and periodically evaluate their skill by asking patients to give feedback on their pain experiences following various periodontal procedures.17

Another liability associated with injectable anesthesia is the postprocedural experience. Many patients dislike post-treatment numbness from injection anesthesia. In a patient population that underwent scaling and root planing for the first time, 46 percent reported being somewhat or quite bothered by post-treatment numbness due to injection anesthesia.15 Patient reports of postprocedural problems with speech after use of injection anesthesia are common. Sixty-five percent of a patient population that underwent scaling and root planing for the first time and 43 percent of those who had undergone scaling and root planing within the last eight months reported having mild to moderate problems with speech postoperatively.15 Research indicates that many patients are willing to give up complete anesthesia in order to avoid the discomfort associated with injection anesthesia and postoperative numbness.16 In fact, 35 percent of a patient population that underwent scaling and root planing for the first time and 64 percent of patients that underwent scaling and root planing within the last eight months reported that they would be willing to accept mild to moderate pain during the procedure in order to avoid anesthetic injections and the lasting numbness that accompanies it.15

Recently published research evaluated patient preferences for a noninjectable gel containing 25-mg/g lidocaine plus 25mg/g prilocaine with thermosetting agents (Oraqix) versus conventional injection anesthesia (lidocaine with 2 percent adrenaline) in conjunction with scaling and root planing.18 While 80 percent of the patients expressed satisfaction with the level of anesthesia from anesthetic gel compared with 96 percent who reported satisfaction with the level of anesthesia from injection, 70 percent of the patients preferred noninjectable anesthetic gel to injection anesthesia (22 percent).19 Patients who opted for the gel cited the most common reason was less postprocedural numbness.18 Postprocedural problems were significantly less with the anesthetic gel than with the injection anesthesia18 (Table 1). When asked how their willingness to return for treatment would be affected if they knew they would be offered anesthetic gel for scaling and root planing, 45 percent of patients would be much more or more willing to return.18

Given the high levels of dental anxiety associated with injection anesthesia and postoperative issues related to its residual numbness, clinicians and patients alike have heralded Oraqix as a product that has revolutionized the nonsurgical treatment of periodontal disease.

Table 1
Postprocedural problems associated with local anesthesia

<table>
<thead>
<tr>
<th></th>
<th>Noninjectable anesthetic gel</th>
<th>Conventional injection anesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbness</td>
<td>15%</td>
<td>66%</td>
</tr>
<tr>
<td>Soreness/pain</td>
<td>44%</td>
<td>63%</td>
</tr>
<tr>
<td>Problems with daily</td>
<td>19%</td>
<td>69%</td>
</tr>
<tr>
<td>activities, i.e., speaking, eating, appearance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Patient reports of postprocedural problems associated with injectable anesthesia and noninjectable anesthesia.18

The Potential of “One-Stage” Periodontal Debridement to Enhance Clinical Outcomes

One of the most promising treatment options we can offer our patients is to perform instrumentation on the entire dentition at one time. This concept has been termed “one-stage” periodontal debridement and Oraqix is pivotal in being able to utilize this approach to nonsurgical treatment. The use of this treatment option is gaining popularity in practices that have adopted progressive disease management strategies and patient acceptance is extremely high.19

The effect of scaling and root planing alone on clinical outcomes was established by Cobb and published in 1996 in his landmark review of relevant literature,20 which concluded the following:
- In baseline pocket depths of 4 to 6 mm, average reduction in pocket depth of 1.29 mm and an average gain of 0.55 mm in clinical attachment can be achieved by scaling and root planing alone.
- In baseline pocket depths ≥ 7 mm, average reduction in pocket depth of 2.16 mm and an average gain of 1.19 mm in clinical attachment can be achieved by scaling and root planing alone.

The question becomes: Can an alternative model of mechanical therapy yield more successful results than traditional quadrant-by-quadrant scaling and root planing alone? In fact, there is evidence to suggest that the use of a one-stage approach has the potential to further reduce pocket depth and increase clinical attachment over and above what can be achieved by quadrant-by-quadrant scaling and root planing alone.21,22

Research on using a one-stage approach to scaling and root planing was born out of research published in 1995 by Quirynen and his colleagues based on several tenets.21 Quirynen et al. claimed that:
- The oropharyngeal area is an “open growth system,” a complex, microbiological habitat, an entity unto itself.
- The rate that periodontal pathogens adhere to
intraoral surfaces may be genetically programmed.

- Periodontal pockets are the preferred habitat for certain organisms.
- There is proof of translocation of periodontopathogens within the oropharyngeal area.
- Because untreated pockets jeopardize the healing of recently instrumented sites, the treatment of periodontitis should involve a “one-stage” approach of all pathologic pockets.

Accordingly, Quirynen and his colleagues proposed a model called “full-mouth disinfection,” a treatment regimen which involved two two-hour root planing sessions within 24 hours, with multiple chlorhexidine treatments including subgingival irrigation, tongue cleansing, rinsing, and tonsil cleansing, twice daily for two months. This therapeutic strategy attempted to eradicate, or at least suppress, all periodontal pathogens in a short time span, not only from periodontal pockets but from the entire oral cavity. Shortly after this, another study compared the clinical outcomes of one-stage, full-mouth disinfection with standard therapy (i.e., root planing per quadrant with two-week intervals) and concluded the following:

- Additional reduction in probing depth of 1.2 mm for single-rooted and 0.9 mm for multirooted teeth up to eight months post-therapy.
- Corresponding “additional” gains in clinical attachment of 1.0 mm for single-rooted and 0.8 mm for multirooted teeth up to eight months post therapy.

In order to determine whether the inclusion of chlorhexidine was significant in bringing about these improved clinical parameters, the one-stage, full-mouth disinfection study was repeated but without the use of chlorhexidine. Both one-stage, full-mouth disinfection and full-mouth root planing (without chlorhexidine) resulted in nearly the same clinical and microbial improvements, with a slightly more pronounced and clearly faster improvement for the one-stage, full-mouth disinfection with chlorhexidine.

The biologic explanation for these therapeutic improvements is still under investigation; however, it does appear that this one-stage approach reduces the opportunity for periodontal pathogens to translocate from untreated quadrants to recently instrumented sites. This may result in additional gains in clinical attachment and pocket depth reduction. Indeed, if research strengthens the evidence that removing the threat of translocation of periodontal pathogens from untreated quadrants to recently instrumented sites improves clinical outcomes, one-stage periodontal debridement may become the standard for the mechanical treatment of periodontal disease.

In a recent review of the literature related to a one-stage approach to mechanical therapy (with and without chlorhexidine), Greenstein concluded that more clinical trials are required to determine whether full-mouth therapy provides clinically relevant improvements compared with partial-mouth disinfection. However, Greenstein also concluded that the concept of scaling and root planing the entire dentition to reduce the bacterial challenge in an attempt to inhibit recolonization from other intraoral niches:

- is rational;
- could decrease the number of patient visits and allow more efficient use of treatment time;
- has no evidence of major adverse reactions with or without adjunctive chemotherapy.

Do these findings on a one-stage approach have a clinically meaningful impact? Tables 2a and 2b provide projections of the potential therapeutic gains from utilizing a one-stage approach to periodontal debridement, beyond scaling and root planing alone, and they could be significant.

### Tables 2a, 2b

#### Single Rooted Teeth

<table>
<thead>
<tr>
<th>Baseline PD</th>
<th>PD Reduction from S &amp; RP Alone §</th>
<th>Additional PD Reduction from “One-Stage” †</th>
<th>Potential for Enhanced PD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6 mm</td>
<td>1.29 mm</td>
<td>1.2 mm</td>
<td>2.49 mm</td>
</tr>
<tr>
<td>≥ 7 mm</td>
<td>2.16 mm</td>
<td>1.9 mm</td>
<td>4.06 mm</td>
</tr>
</tbody>
</table>

#### Multiple Rooted Teeth

<table>
<thead>
<tr>
<th>Baseline PD</th>
<th>PD Reduction from S &amp; RP Alone §</th>
<th>Additional PD Reduction from “One-Stage” †</th>
<th>Enhanced Potential for PD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6 mm</td>
<td>1.29 mm</td>
<td>0.7 mm</td>
<td>1.99 mm</td>
</tr>
<tr>
<td>≥ 7 mm</td>
<td>2.16 mm</td>
<td>1.6 mm</td>
<td>3.76 mm</td>
</tr>
</tbody>
</table>

Potential therapeutic gains from utilizing a “one stage” approach to periodontal debridement (beyond scaling and root planing alone).


offer an average additional 1 mm of pocket depth reduction beyond scaling and root planing alone, this increased benefit may:

❍ significantly improve a prognosis;
❍ increase the predictability of therapeutic outcomes;
❍ alter a treatment plan from one that includes surgery to nonsurgical treatment only.

Indeed, the impact of this revelation may provide a strong rationale for modifying the way we structure our clinical protocols. Yet, if this one-stage approach can achieve such significant improvements over traditional quadrant-by-quadrant treatment, why have clinicians not utilized this approach?

It is important to point out that one of the greatest concerns clinicians have voiced regarding utilizing a one-stage approach is the reluctance they have to anesthetizing the whole mouth during one visit. This is a legitimate concern. Fortunately though, with the introduction of Oraqix, this barrier to one-stage periodontal debridement has effectively been eliminated. I utilize a one-stage approach to periodontal debridement throughout my case studies, and it is part of a clinical pathway I recommend to all my clients and the hygienists I coach.

By adopting a one-stage approach to scaling and root planing, we not only enhance our clinical outcomes and their predictability, but we also become much more efficient with the use of our operatory time. Oraqix is pivotal in overcoming the concerns related to full-mouth anesthesia, which is usually necessary to perform one-stage periodontal debridement.

### Case Studies
The two case studies that follow have been conducted to:

1. Demonstrate the importance of assessing a patient’s need for local anesthesia during nonsurgical periodontal therapy.
2. Report the effectiveness of Oraqix by ascertaining whether it provided adequate pain control during periodontal debridement procedures, including both ultrasonic and manual instrumentation, on patients with varying levels of periodontal disease extent and severity and varying degrees of dental anxiety related to injection anesthetic.

The following case studies have been assigned fictitious names, Sam and Betsy.

#### Sam: Case Study on the Significance of Oraqix for Patients with Dental Anxiety

Sam is a 32-year-old male Caucasian who works in the construction industry. Sam was treated in a general practice and represents one of many patients who indefinitely postpone periodontal treatment due to a fear of injection anesthesia. This case provides a credible testimonial for the importance of providing an alternative to injection anesthesia. Prior to the availability of Oraqix, Sam was unwilling to accept treatment.
Initial Presentation

Medical profile — Sam is 6’3” tall. With a weight of 235 lbs, Sam is overweight and, as such, has increased risk of developing heart disease, hypertension, and type-2 diabetes. The only relevant medical conditions reported were environmental allergies and a history of multiple tattoos. Sam reported no medications or drug allergies. Nothing significant to Sam’s periodontal status or contraindications for treatment were apparent in these findings.

Previous dentistry — At his new-patient visit, when Sam was asked about when he last visited the dentist, he reported that it had been three to four years and that in the past he had not received routine dental examinations. He could not recall his previous dentist’s name or whether radiographs had been taken.

Periodontal risk assessment — The periodontal risk assessment questionnaire that Sam completed revealed the following risk factors:

- Current smoker, one pack of cigarettes per day for more than 15 years
- Familial history of type-2 diabetes

As a smoker, Sam is at four times greater risk of developing periodontitis than those who have never smoked, and as a heavy smoker (more than 20 per day), he is at risk for greater periodontal disease progression than light smokers. Being overweight with a familial history of type-2 diabetes also significantly increases the risk Sam has for developing diabetes. Should Sam cross over this threshold, as a diabetic with periodontal disease, he may experience a significant challenge in glycemic control. To that end, intercepting periodontal infection at this stage of Sam’s disease is very important, as is elimination/modification of the risk factors for periodontal disease, i.e., smoking cessation and weight loss.

Periodontal status — An overview of the results of the periodontal evaluation (Figure 3) found:

- BOP of 23 percent of sites, most located on posterior teeth
- Pocket depths ≥ 4 mm were 50 percent
- Pocket depths ≥ 5 mm were 20 percent
- Generalized and moderately heavy plaque; slight level of supra- and subgingival calculus

The patient’s radiographs are shown in Figure 4. Sam was diagnosed with generalized chronic periodontitis of moderate severity.

Recommended Treatment

Sam appeared to comprehend the importance of periodontal treatment and initially consented to treatment. However, when the clinician explained the process of periodontal debridement, Sam became reluctant to schedule treatment. Several weeks later, the clinician contacted Sam to inquire why he had not yet scheduled an appointment for definitive care. It was at that time that the clinician discovered that Sam was afraid of injection anesthesia. The clinician reassured Sam by explaining that she had just recently begun to use an alternative to injection Oraqix, which had worked very well on other patients who had dental anxiety.

Figure 4

Sam’s radiographs.

Figure 5

Treating clinician applies Oraqix® on Sam.
Sam decided to go forward with treatment and a one-stage approach to periodontal debridement utilizing both ultrasonic and manual instrumentation with Oraqix being performed. Figure 5 illustrates the treating clinician applying Oraqix on Sam. Adjunctive procedures that were also performed at this same time included subgingival irrigation with 10 percent aqueous solution of tetracycline, and application of Arestin® at sites that were ≥ 5 mm and which simultaneously bled on probing.

The treating clinician’s astute assessment of Sam’s anesthetic needs seemed to be the “tipping point” in gaining Sam’s commitment to go through with periodontal treatment. The decision on what kind of oral anesthetic to use should be made at the assessment or diagnostic visit, before treatment plans are presented and long before treatment is performed.

This allows clinicians the opportunity to consider the unique needs of individual patients to formulate a care plan that ensures that the patient’s treatment experience will be successful. To optimize the utility of Oraqix, provide patients with more control over treatment decisions, and construct a care plan that addresses their individual and specific needs, it is important to identify the unique oral anesthetic requirements of each patient.

In determining patients’ unique needs for oral anesthesia, it is essential that clinicians consider a variety of factors including medical history, psychological attitude, the extent of treatment area, the extent of inflammation, the duration of anesthesia required for the procedure, patient preferences, and the possibility of self-mutilation postoperatively.

### The Effectiveness of Oraqix: Patient Response

Sam tolerated the periodontal debridement procedures very well and experienced very little discomfort. In one area of his mouth, additional Oraqix was reapplied. When asked whether he would choose to use Oraqix again, he was emphatic that he would.

The use of Oraqix in Sam’s case was a great example of the importance of offering a less invasive, needle-free alternative to injection anesthesia. This treatment modality effectively dismantled the hurdles associated with Sam’s dental anxiety. Without treatment of his periodontal disease, Sam may have an increased risk for periodontal-systemic involvement.

Therefore, it is reasonable to speculate that managing his fears and anxiety regarding injection anesthesia was pivotal in helping Sam achieve periodontal and perhaps even whole body health.

### Betsy: Case Study on the Effectiveness of Oraqix for Treatment of Periodontal Disease of Advanced Severity

Betsy is a 62-year-old female Caucasian who was treated in a general practice. This case represented a good opportunity to test the effectiveness of Oraqix in managing the discomfort associated with periodontal debridement and adjunctive therapies on a patient undergoing initial nonsurgical treatment for more advanced periodontal disease.

This case also provides evidence that a one-stage approach to periodontal debridement, which entails a longer appointment time, may be appropriate for some diabetic patients.
Initial Presentation

Medical profile — Betsy is 5’4” tall. She weighs 165 lbs. with WC (waist circumference) > 35”. She was diagnosed with type-2 diabetes several years ago. These factors place Betsy at high risk for heart disease. Betsy is under a physician’s care for diabetes. Medications include Glucophage (oral hypoglycemic which improves insulin sensitivity) and Prempro (estrogen and progesterone hormone replacement therapy). The only medical condition reported was surgery for gallbladder removal many years ago. The patient reported no drug allergies. The only significant medical concern relative to proceeding with treatment was the long appointment time necessary for full-mouth periodontal debridement and ensuring that Betsy’s blood glucose level was stable. To this end, on the morning of treatment, Betsy assured the treating clinician that she had assessed her pretreatment blood glucose level with her glucometer, her blood glucose level was stable, and she had eaten a routine meal before her appointment.

Previous dentistry — At her new-patient visit, Betsy advised that she had received routine preventive care and periodic exams from her previous dentist of 10 years. Her records from her previous dentist had no documentation of periodontal evaluations and no mention of the diagnosis of periodontal disease.

Periodontal risk assessment — The periodontal risk assessment questionnaire Betsy completed revealed no

Figure 7
Betsy’s clinical presentation.

Figure 8
Betsy’s radiographs.
risk factors other than diabetes.

As a diabetic, Betsy has a fourfold increased risk for progressive destruction of bone loss and attachment loss compared with individuals without diabetes. Accordingly, progressive management of her periodontal disease that includes monitoring her HbA1c levels against her periodontal status will be important. Betsy was also advised that nonsurgical treatment was only initial care and that referral to a periodontist and surgery may be indicated.

**Periodontal status** — An overview of the results of the periodontal evaluation (Figure 6) found:
- BOP of 100 percent of sites
- Pocket depths ≥ 4 mm were 50 percent
- Pocket depths ≥ 5 mm were 18 percent
- Pocket depths ≥ 6 mm were 10 percent
- Tooth No. 2 had three 9-mm pockets and as such was significantly compromised with questionable prognosis
- Eight mandibular anterior teeth had recession ≥ 3 mm
- 14 areas of furcation involvement, Class I and II
- Seven teeth had some degree of mobility
- Generalized and moderately heavy plaque, heavy supragingival calculus, and moderately heavy subgingival calculus

Figure 7 includes the patient’s clinical presentation and the patient’s radiographs are shown in Figure 8. Betsy was diagnosed with generalized chronic periodontitis of advanced severity.

**Recommended Treatment**

Betsy was treated by full-mouth, one-stage periodontal debridement with both ultrasonic and manual instrumentation utilizing Oraqix anesthesia. Photographs of probing and the application of Oraqix and instrumentation are displayed in Figure 9.

It is recommended that Oraqix be applied to the marginal tissue around two or three teeth at a time, within the same quadrant. Because the calculus was especially heavy on the mandibular anterior teeth, it was necessary to apply Oraqix in two stages; the first Oraqix application was for gross debridement followed by a second application of Oraqix (Figure 10). Removing the gross calculus allowed the clinician to place the second application of Oraqix all the way to the base of the pockets. Other procedures that were performed at this same time included subgingival irrigation with 10 percent aqueous solution of tetracycline, and application of Arestin at sites that were ≥ 5 mm that simultaneously bled on probing.

Betsy was comfortable throughout the procedure and no rescue anesthesia was necessary.

**Conclusion**

In the health-care arena, often we are faced with weighing the projected benefit of a therapy or treatment against a loss or some other disadvantage. With Oraqix,
there appears to be no such downside or tradeoff. The benefits for patients seem clear, yet there are also intangible benefits that accrue to dentists and dental hygienists. For example, besides the time that is saved on dentists’ schedules, releasing them from the responsibility of administering anesthesia translates into decreased levels of occupational stress for many.

As a result of utilizing Oraqix, a less invasive, needle-free alternative to injection anesthesia, patients are more receptive to care, and our clinical outcomes may be enhanced. In the hands of professionals dedicated to patient-centered, evidence-based periodontal care, Oraqix plays a significant role in bringing about these successes.

As for dental hygienists, the market introduction of Oraqix seems to be doing more than helping patients. The treating clinicians of these cases, Jeanine Pickett, RDH, BS, and Susan Seibel, RDH, BS, summed it up very succinctly.

When I questioned Susan on how Oraqix had changed the way she practiced, she said, “When I don’t have to rely on the dentist to give anesthesia, I feel more confident and I can start the case without delay. More importantly, the patient looks at me more as a professional provider because I am able to give anesthesia and make them comfortable.”

I asked Jeanine to choose one word to describe how Oraqix has affected the practice of contemporary dental hygiene. She took a minute to ponder the question and then replied, “I’d have to say it’s indispensable.”

She went on to say, “I don’t want to go back to the old way of practicing. I think Oraqix has taken dental hygiene to another level.”

I wholeheartedly agree.

Author disclosure: The author thanks DENTSPLY Pharmaceutical for the educational grant to underwrite this project.
References


