

Oral and Maxillofacial Surgery: New Tools, Training for Oral Surgeons

By Eric Schroder

When it comes to referring patients to oral surgeons, general practitioners' roles are not well defined — it depends on what procedures you are comfortable performing. Other factors are in play as well; for example, whether or not offering conscious sedation is worth pursuing special licensure (depending on the state in which you practice) and the increased cost of malpractice insurance.

Perhaps you are comfortable extracting impacted third molars or have decided doing so isn't worth the chance of busting up the rest of your daily schedule. And every dentist in town has a different definition of what's considered "difficult." For many, a medically compromised patient presenting with a list of medications as long as

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your arm is enough to warrant a cautionary referral to your favorite oral surgeon, e.g., female patients taking a bisphosphonate drug, brittle-boned geriatric patients, etc.

For other practitioners, small children and teenagers with orthodontia are automatically referred. Or, knowing which of your patients are considered "anxious" may be all you need to refer them. Your patients certainly don't want to hear that they need to have oral surgery, but, of course, several conditions do require it. Oral surgery is often suggested in instances of tooth loss. You may recommend that patients get dental implants to replace the missing teeth. Similarly, improperly fitting dentures can result in oral surgery. Sometimes, instead of fixing the dentures, you may recommend correcting jaw irregularities.

Most GPs today may be screening for oral cancers, and perhaps even employing a ViziLite oral lesion identification and marking system that is used as an adjunct to the conventional head and neck examination. This system includes a chemiluminescent light source to improve the identification of lesions and a blue phenothiazine dye to mark those lesions. This instrument costs about \$5,000 and can help eliminate precancerous cells; however, if you do find something during screening, it is recommended that you send the patient to an oral surgeon for biopsy.

While the desire to grow a practice and increase income may tempt some GPs into territory often claimed by oral surgeons, outfitting your office with the equipment and instruments that would allow you to do the best dentistry might prove cost prohibitive. For example, an iCAT type of imaging machine can cost as much as \$200,000. How many cases will you see that demand your seeing a three-dimensional image or cross section of bone?

Unless you are prepared through training and experience to handle the complications that can arise from extracting a difficult tooth, for example, your patients would be best served by seeing an oral surgeon, says Steven Guttenberg, D.D.S., M.D., President of the Washington Institute for Mouth, Face, and Jaw Surgery in Washington, DC, and President of the American College of Oral and Maxillofacial Surgeons. His was the first private practice in the United States to own the first-generation iCAT from Imaging Services.

"General practitioners can see a hole in the bone from a film radiograph, but without any feeling for its depth, they have no idea if that hole might extend all the way through the jaw," says Dr. Guttenberg.

Break Fiber, Not Bone

WestPort Medical has developed the Powertome, a powered periosteal elevator that allows for extremely precise tooth extraction with minimal or no alveolar bone loss. This device provides precise control over the amount of force the periosteal tip exerts and the distance it travels into the periodontal ligament space.

"The loss of bone during tooth extraction is a concern for patients who will undergo restorative procedures," says oral surgeon Dr. Anthony Bouneff, Chief Medical Officer of WestPort Medical. "Healthy, intact bone is necessary for proper and ideal placement of implants and other prosthetic appliances. Using the Powertome has enabled me to preserve bone during extractions."

Currently, most practitioners perform extractions by using dental elevators and hand periosteal elevators to initially expand the socket and mobilize the tooth. Often, bone is removed using a drill to further mobilize the tooth. The tooth can then be removed with forceps. The difficulty with these instruments is that the amount of force exerted on the periodontal ligament and bone can be variable. Also, bone removal with a drill is counterproductive to the goal of conserving bone. Hand periosteal elevators sometimes require using mallets with dental assistants tapping on the handle to expand the periodontal ligament to separate the tooth from bone, and this can cause unnecessary discomfort for the patient.

Using this device gives you precise automated control through a microprocessor-controlled actuator, which eliminates uncertainty in the dental chair, says the company. The amount of force the instrument's tip exerts and the distance it travels into the periodontal ligament space is fully regulated. It allows for very precise expansion of the socket with minimal or no alveolar bone loss.

The result offers numerous advantages for the patient. The surgery can be flapless and patients will experience reduced discomfort and swelling. Because bone loss is minimized, healing occurs faster and immediate placement of implants is often possible. The automated system also reduces concern for fracture of lingual bone or the buccal plate. Ultimately, this translates to reduced chair time and faster recovery.

The Powertome has been in use for the past two years by a number of oral surgeons and periodontists. Dr. Steven A. Guttenberg, President of the Washington Institute for Mouth, Face and Jaw

Surgery, Washington, D.C., received one of the first units for evaluation and has used it for hundreds of extractions. "During the past century, there have been very few advances in the manner in which teeth are extracted. The Powertome is perhaps the most significant instrument which has been introduced which will allow teeth to be removed more quickly and more easily while, very importantly, preserving the surrounding jaw bone which can be used to insert a tooth replacement [dental implant]," says Dr. Guttenberg. "I believe that the Powertome will become a mainstay of the armamentaria of all dentists who perform dental extractions."

"[This instrument] has become a standard part of my extraction armamentarium when bone preservation is desired," says Dr. Bradley S. McAllister. "It has also proven extremely useful in large, multiple-extraction cases. I can now extract a tooth much more rapidly than when I was using the hand periosteal elevators and I find I have much less hand fatigue."

The Powertome is available for sale in the U.S. through WestPort Medical, a privately owned company in Salem, OR, focused on dental extraction technologies. For more information, please visit www.westportmedical.com or call (503) 798-6376.



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Having the latest technology on hand benefits the oral surgeon. Dr. Guttenberg has been involved in the testing of a new instrument called the Powertome Periotope from WestPort Medical in Oregon (see sidebar). “This instrument allows us to extract a tooth without hurting any surrounding bone,” he says. “It enables us to break the fiber around the tooth, but not the bone.”

ANESTHESIA UPDATE

Lately, one area of emphasis for oral surgery residents is learning airway rescue management, says Morton Rosenberg, D.M.D., a professor of oral and maxillofacial surgery and the head of the division of anesthesia and pain control at Tufts University School of Dental Medicine. “We are teaching advanced techniques in immediately recognizing and treating airway problems, and integrating new monitoring devices for aid in early detection.

“We also are focusing on the potential interactions between the increasing number of medications patients are taking and what oral surgeons administer,” Dr. Rosenberg says. “There are hundreds of drugs now to be considered.”

Looking forward, Dr. Rosenberg says oral surgery anesthesia training will improve with use of high-fidelity human simulation technology, including “robots” that have heart rates and blood pressures and breathe like humans. “These \$50,000 to \$60,000 educational tools are invaluable for teaching emergency management and crisis management in a team approach.

“We train students in the whole spectrum of pain and anxiety, from local anesthetic through general anesthesia, so that they will then discuss the options with patients and, depending on conditions, choose the best approach for the procedure,” says Dr. Rosenberg.

BISPHOSPHONATES AND BONE

An issue currently in front of your oral surgeon brethren is the connection between osteonecrosis of the jaw (ONJ), a morbid condition, and bisphosphonate use. Bisphosphonates are a class of drugs that inhibit the activities and functions of osteoclasts (bone-resorbing cells) and perturb the differentiation of osteoblasts (bone-forming cells). Intravenous bisphosphonates are primarily used to treat bone erosion and hypercalcemia associated with bone metastasis, Paget’s disease and multiple myeloma.

Oral bisphosphonates are used to prevent bone loss and are prescribed for patients with osteoporosis or osteopenia. First reports surfaced in 2003 suggesting an association of ONJ with bisphosphonate use. But whether bisphosphonates are causal to the development of ONJ remains to be determined. These medications suppress the actions of osteoclasts and thereby reduce bone resorption and increase bone density. Patients with ONJ present with painful, exposed and necrotic bone, which may occur following dental procedures or spontaneously, and involving predominantly the mandible. These lesions are nonhealing or slow to heal, and

often complicated by secondary infection. Therefore, this is a significant clinical problem of potentially broad health impact, yet with complete lack of etiological and sufficiently powered epidemiological studies.

Dr. Guttenberg gave his opinion on the subject in an editorial in the December 2008 *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics Journal*. His comments included:

“Although dental educators continually stress to their students the importance of recognizing that the mouth and its contents are merely a part of the entire patient we treat, this important lesson is sometimes overlooked once a diploma is hung on the office wall and the pressures of private practice start to mount. During the past few years, the mouth-body interaction has been prominently brought into focus in the dental and medical world, as well as within the lay community by widespread reports of the relationship between periodontal disease and low-birth-weight premature births, coronary heart disease, cerebrovascular disorders and kidney maladies, to mention a few.

“Serious side effects have been shown to be induced by both intravenous as well as the oral forms of this class of drugs. During the past seven years, osteonecrosis of the maxilla and mandible has been reported to the Food and Drug Administration in more than 4,000 patients taking bisphosphonates. Most of these cases were a consequence of intravenous bisphosphonates.

“So, it is appropriate to query: ‘Where do we go from here?’ On the one hand, we have diseases that require treatment [cancers of the bone or metastatic to it and loss of bone mass]. On the other hand, there are commonly used medications that seemed to help but are now shown to cause infrequently encountered, but seriously morbid, side effects.

“Perhaps we should be even more proactive with our medical colleagues and suggest that all dental infection be eliminated and the need for invasive dental procedures be eliminated for the near and intermediate future. In addition, the bisphosphonate infusion should be delayed for at least one month until all invasive dental procedures have healed. And finally, patients should be seen by their dentist for evaluation every four months once therapy is initiated. Preventive dental treatment works to decrease the incidence of jaw osteonecrosis and should be stressed to our medical colleagues.

“Perhaps the future will bring us new drugs or techniques to treat the bone-wasting diseases mentioned on these pages that will spare patients the morbidity associated with those currently available. Until that time comes, the dental and medical communities must join in helping to prevent and to initiate early identification and treatment of this potentially widespread destructive condition whose incidence is rapidly expanding.”

Eric Schroder is a freelance writer in Harrisburg, PA. He was the editor of the practice management magazine Dental Management from 1986 through 1990, and can be reached at schroder2010@comcast.net. ■