Dental Implants for Woodwind Players

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New York, New York

An unfortunate accident

My left front tooth dropped unceremoniously into my lap as Dr. Chris Davis pulled out a chunk of rubber steering wheel imbedded in my upper gum. Sixty miles away, a performance of Brahms *First Symphony* began with the mysterious absence of a principal oboist.

That morning, I had pulled out of my parents' North Carolina driveway and headed toward the Eastern Music Festival. Three blocks later, my VW beetle was totaled, driven dead center into a utility pole by a violent sneeze. Blood was splattered everywhere, the hard rubber steering wheel splintered and the clutch twisted into an unlikely shape. Excruciating pain began to be overtaken by shock, and I struggled out of the car and lay in the grass beside the suburban street. Cars stopping, a gruff man's voice, the crackle of a CB radio, a housewife into whose property I had hurled instructing that I not be moved, finally the whine of the ambulance barely entered my consciousness. I was seventeen years old and had not been wearing my seat belt.

Though my injuries appeared serious, I was keep in the emergency room for twelve hours and released with a full-body bruise, scars where the bits of steering wheel had been removed from my chest, a fractured nose and rib and a very badly sprained ankle. Later, I was wheeled up to the dental clinic to repair the damage to my mouth. At 35 miles per hour, the force of the crash had propelled the bucket seat and my face directly into the steering wheel. Fortunately, I had not lost the tooth at the accident scene; the more quickly it is reimplanted, or avulsed, the greater the likelihood of its "taking" permanently. If the tooth is out of its socket for 30 minutes or less, tissue doesn't change and the ligaments can grow back within a period of 8 to 10 weeks. As the tooth fell out of my gum, Dr. Davis quickly picked it up, reinserted it and fashioned a splint of wire bonded to the individual teeth with clear bonding composite, also stitching up the gash in the gum tissue. The lower teeth were chipped and loose, and he installed a similar splint and applied bonding material to the gaps. My face was swollen, my mouth would not even close, and I was unable to play for a month. There was a possibility that the tooth might stay reimplanted forever, or if the reimplantation was unsuccessful, I would need a bridge. The practice of implant surgery was in its infancy; only in the last 8 years or so would I have seriously considered a dental implant.

Extracting the tooth and determining treatment

Eighteen years later, the tooth left my mouth permanently. New York prosthodontist Richard Smith braced himself against the chair, pulling and easing until it was extracted. More painful was the oboe solo from Brandenburg #1 on the Muzak, which distracted me from the creaking sounds of tooth dislodging from jaw. I had experienced a high degree of bone loss, as bone shrinks after a tooth extraction, therefore he inserted synthetic grafting material. He then sewed the socket shut and popped in a removable "flipper tooth" device which I would wear for three months. With the most beautiful smile I'd had in eighteen years, I was back at work in the solo oboe chair of the Broadway production of *Miss Saigon* only two days later.

At the time of the accident, a root canal had been performed, a procedure in which the shriveled and dead nerve is cleaned out through the top of the tooth and the space filled with inert material. Fifteen years later the root was "eating" the tooth from the inside out, a condition known as root resorption. The tooth was loose, there was an infected abscess, and nothing could be done to save it. I had been experiencing discomfort, inflammation and recurring sinus problems as a result of the infection raging in my head.

Seeking appropriate professionals

Clearly, something had to be done soon, but I was determined to consult the finest specialists; it is difficult and time-consuming to research this. I collected names from friends in New York, but was unhappy with the lack of understanding I received about my playing concerns. I then consulted my childhood orthodontist, who is now chancellor of the School of Public Health at the University of NC at Chapel Hill, one of the finest dental schools in the US. He put me in touch with Harvard periodontist David Paquette, who was then a visiting scholar at UNC, who in turn led me to Dr. Dennis Tarnow, founder and chairman of the Department of Implant Surgery at New York University, and his associate, prosthodontist Dr. Richard Smith. Looking over my records and x-rays, Smith and Tarnow came up with what I had already determined to be the ideal treatment for my situation.

Of primary importance was the reputation and excellence of these dentists, and I was not disappointed. Not only is Dr. Tarnow a professor of periodontics and prosthodontics at the New York University Dental School, he is also on the staff of the New York Hospital Medical Center, the New York

Veterans' Hospital and the New York Eye, Ear and Throat Hospital. He serves on the editorial board of 5 different journals, has authored 20 research papers and contributed chapters to 5 books, develops and patents periodontal devices and procedures and is an innovative voice in implant dentistry. I needed sensitivity about playing during the two-year duration of the process, and the doctors were very accommodating about making a temporary bonded bridge and adjusting my flipper tooth for comfort; I even played my oboe in the office on several occasions.

Treatment options

Several periodontists steered me in the direction of a conventional bridge instead of an implant, but this is an inferior choice in most cases for a wind player, as the tooth is not actually anchored in the jaw like a natural tooth. In contrast, a bridge is a false tooth which "floats" over gum tissues and requires cutting down adjacent teeth. It is more difficult to floss and clean teeth attached to a bridge, and the patient may therefore experience further decay. There is also the issue of resorption, or the slow dissolving of bone after an accidental or planned extraction. When an implant is placed in the bone, it functions like a natural tooth to strengthen that bone, but the absence of contact with the bone in the case of a bridge can lead to further resorption, something affecting adjacent teeth. However, a bridge may be a good choice if adjacent teeth needs crowns, as it saves those teeth from being reshaped. We decided on an implant, a synthetic bone graft, special temporary prosthetic devices and extensive gum surgery. (Figure 1)

A three-month healing period passed after the tooth extraction, and Dr. Tarnow performed the first of two implant surgeries. After checking to confirm that the bone graft was strong enough to withstand drilling, he created a tiny channel in the jawbone, installed a titanium screw which serves as an artificial root form (titanium is biologically compatible with surrounding tissues) and sutured the incision. (Figure 2) The permanent artificial tooth would eventually be attached to a post which screws into this implant. Total time of surgery was 7 minutes.

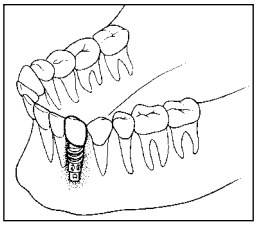

Figure 1.
Single tooth implant.

Temporary dental prostheses for wind players

Once again, I was able to play professionally two days after the surgery, but through this phase, I was anchoring the removable "flipper tooth" to my palate with denture adhesive. This removable denture looks much like an orthodontic retainer, but instead of a wire, its feature is an artificial tooth. Custom made in advance, matched to the individual's tooth size and color, the device is comfortable and natural looking when properly made. Playing the oboe with this prosthesis takes some adjustment, but the difference was not extreme. I found myself tiring easily because much of the embouchure pressure was transferred to the roof of my mouth instead of to the spot where there was once a tooth. Two weeks after the implant surgery, I returned for a more sophisticated bonded bridge, a customized tooth with metal wings on either side which are cemented to the back of the two teeth abutting the implant site. This bridge is non-destructive and temporary. Still I tired easily, but now the pressure was distributed to the surrounding teeth and not to my palate; this was closer to the natural state of affairs. The bonded bridge is not commonly used in conjunction with implant surgery, but it is crucial for a wind player; it feels nearly like a natural tooth. However, it is more easily pulled loose, as I found with a plate of "dinosaur ribs" on barbecue night at a local restaurant! We planned a nine-month interval to allow the bone to attach, or osseointegrate, to the implant, though for patients without a bone graft, the healing time can be as brief as four to six months. I lived and played happily with the bonded bridge for this time; I was quiet about my dental odyssey and my colleagues were not aware of any change in my playing.

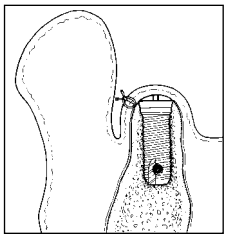

Figure 2.
Placing the implant into the jawbone.

Nine months later, the second stage of surgery reopened the implant site in the gum. A small metal post, or healing collar, was attached to the implant, projecting through the gum in order to leave a permanent opening in the tissue to attach the replacement tooth, or crown. (Figure 3) My bonded bridge was recemented and I was again playing in two days.

Three months after the second implant surgery, most patients are ready to receive their permanent crown, (Figure 4) but I needed periodontal surgery to correct the gum recession above the site. First, Dr. Tarnow used a technique called a coronally positioned flap, in which the gum is incised and pulled down much as one pulls down a window shade. Gum tissues adheres to natural teeth, but not to artificial ones, so I needed yet a more radical technique. Two months later, Dr. Tarnow performed a constructive tissue graft, excising tissue from the roof of my mouth and attaching it directly on top of the site to "plump out" the gum in the area. Though I now had considerably more tissue, the gum still receded, and several months later he repeated the original and less

invasive gum surgery. This third gum treatment was completely successful.

Implant surgery can be completed in as brief a period as 8 months, or in my complex case, it may last for 2 years. The time involved is largely dependent on which of the 4 types of facial bone you possess (they vary in density and strength, much like oak or balsa wood), as the implant needs to interact with the bone before the stress of tooth and crown are placed on it.

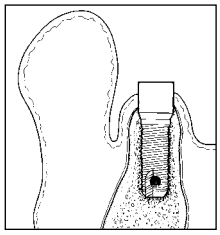

Figure 3.
Attaching the post to the implant.

Bone loss is also a factor, and bone may be built up by a variety of methods, to the extreme of changing the placement of the sinus cavity in order to increase the graft area. In grafting, natural bone, synthetic grafting material or a membrane which later dissolves away are added to the site as a scaffold and the bone is allowed to regenerate and calcify. This is sometimes needed in order to ensure a strong anchor for the implant. Generally, healing time for the upper jaw is slightly lengthier than for the lower.

Dr. Tarnow has taken impressions of my teeth at several points along the way, but he is of the theory that it is best for a wind player to replace the tooth straight and symmetrically unless it was extremely misshapen or misaligned. I have played the oboe for 26 years with an overbite, with conventional orthodontia, with the post-accident splints, with the protruding and ultimately loose front tooth which resulted, with the temporary prostheses described, and finally with a beautifully shaped straight tooth which matches the others. It has never taken more than a week or two to completely adjust, though other people may have different experiences. Tarnow recommends that wind players have impressions taken; he can recreate the original dental configuration.

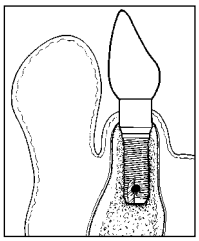

Figure 4.
Replacement tooth attached to the post.

In case of tooth loss

If you do have the misfortune of losing a tooth in an accident, find the tooth, try to replace it in the socket; if this is impossible, put it in ice-cold water or milk in order to keep the ligament cells vital. Get to a dentist or emergency room immediately, there is a chance it can be saved and periodontal surgery can be avoided. If many teeth are lost as a result of oral disease or accident, it is now possible to line an entire mouth with implants. This is done by making and fastening an overdenture to the support of two or three implants with a ball and cap attachment or to an O-ring.

Take the time to consult with many dentists and choose carefully. Much information is available through the Internet and dental schools, be well-informed about what is available. I may have seen 20 dentists before I chose, and then I'd learned so much that the choice was obvious. Find the best implant specialist and prosthodontist you can, this is of greater importance than a dentist who plays a wind instrument, though if the finest dentist you can find happens to be a musician, all the better. Implants can be redone, but it's clearly better to do it once, and right. A percussionist I know was careless with his choice of both periodontist and prosthodontist and ended up with a bridge (which is usually less expensive) and a crown which bely a certain lack of artistry. The prosthodontist molds the shape and color of that tooth, so choose wisely. Something that feels or looks unnatural is a burden.

I wish I'd never had that accident. I wish I'd worn my seat belt. (I have ever since). But I was fortunate, the tooth reimplanted itself, I was under the care of fine dentists that night and found superlative specialists when the time came to replace it. For the duration of the implant procedure, I continued to play full time in New York City, including symphonic, recording, solo, opera, ballet and theater playing. The cooperation of my dentists averted the tragedy I'd expected.

A postscript

At 8 a.m. on July 13, 1977, I drove into a utility pole and knocked out the electricity of a small North Carolina neighborhood. At 6 p.m., five hundred miles away, New York City experienced its worst power blackout ever.

Resources

The American Academy of Periodontology
Suite 800, 737 North Michigan Avenue
Chicago, IL 60611-2690
(312) 573-3225
New York University Dental School
http://www.nyu.edu/Dental/index.html
Implant Dentistry of Washington
http://www.seattle-implants.com
Kentucky Dental Implant Center
http://www.won.net/%7Eimplant/
World Center for Dental Implantology
http://www.enexus.com/dental-implant/
Dental Implant Web Page
http://www.dental-implants.com/
University of North Carolina Dental School
http://www.dent.unc.edu/