JOI: Removal of exposed titanium mesh leads to more successful dental implants

Implant dentistry practitioners are increasingly seeing more difficult cases of implantation in which they must first overcome insufficient bone volume within the upper and lower jaw. These types of difficult cases have led to new surgical techniques, such as utilizing titanium mesh to assist in guided-bone regeneration.

While this technique can lead to a successful implant procedure, the use of titanium mesh has been known to cause complications in some patients.

Researchers from Loma Linda University, King Saud University (Saudi Arabia) and Imam Abdulrahman Bin Faisal University (Saudi Arabia) recently published a study in the Journal of Oral Implantology that introduces a new method for treating exposed titanium mesh. Through four case studies, the researchers show that by removing the exposed titanium mesh and leaving the remainder to continue the regenerative process, dental implantation can be more effective and successful.

Between 2015 and 2017, four patients were treated with titanium mesh. The patients were between the ages of 27 and 50, and each had two previously failed bone regenerative procedures.

In all four cases, the surgical technique used to incorporate the titanium mesh with the bone graft was the same; however, each patient received a different type of material or membrane to cover the titanium mesh. Each patient also experienced a different rate of mesh exposure, ranging from one to six weeks post-operation. The exposed mesh was removed between four and 10 weeks after exposure occurred. The remaining titanium mesh was removed approximately six months after insertion and one to two months prior to dental implantation.

In all four cases, the researchers found that by removing the exposed titanium mesh and allowing the rest to remain, the bone volume reached a level that was adequate for dental implants. Another benefit of exposure removal was the creation of a more hygienic space for the implant. Caring for areas with exposed mesh caused difficulty and discomfort for patients, compromising the integrity of the regenerative site.

“The removal of the exposed part seemingly did not have a negative effect clinically on bone integration in the final volume of the augmented bone, and allowed for easier hygiene maintenance by the patient,” said researcher Dr. Aladdin J. Al-Ardah.

The researchers acknowledge that their technique has been successful and helps ensure proper bone regeneration and hygiene maintenance for dental implant surgery, but that further analyses are necessary. Before this technique can be carried out in routine dentistry, more clinical research with a greater number of patients is needed.


About Journal of Oral Implantology

It is dedicated to providing valuable information to general dentists, oral surgeons, prosthodontists, periodontists, scientists, clinicians, laboratory owners and technicians, manufacturers and educators. The JOI distinguishes itself as the first and oldest journal in the world devoted exclusively to implant dentistry. For more information about the journal or society, visit www.joionline.org.

Dr. Kenji Higuchi selected as 11th Nobel Biocare Brånemark Osseointegration Award winner

By AO Staff

Dr. Kenji W. Higuchi, an oral and maxillofacial surgeon from Spokane, Wash., is the 11th recipient of the Nobel Biocare Brånemark Osseointegration Award.

This annual award bestowed by the Osseointegration Foundation (OF), the philanthropic arm of the Academy of Osseointegration (AO), honors an individual whose impact on implant dentistry is exemplary in any or all of the foundation’s mission categories: research, education and charitable causes. The award is made possible by a grant from Nobel Biocare.

“I am deeply honored. This is especially gratifying because of my close and long-term relationship with Professor Brånemark. It is personally meaningful to be recognized by the Osseointegration Foundation for past involvement in research, education and humanitarian service, as all these activities have been of central importance throughout my career while providing patient-centered care,” Higuchi said.

OF President Dr. Edward Sevetz presented the award to Higuchi during the opening symposium of the academy’s 2018 annual meeting in Los Angeles.

“Dr. Higuchi’s professional and personal experiences and characteristics qualify him for being a role model for anyone in the dental health-care field.

Almost 40 years ago, he developed a close working relationship with the discoverer of osseointegration, Swedish orthopedic surgeon Per-Ingvar Brånemark. Dr. Higuchi worked side-by-side with Professor Brånemark and became one of the earliest surgeons in the U.S. to recognize the breakthrough of osseointegration and how it would vastly improve the quality of the lives of patients,” Sevetz said. “Dr. Higuchi annually took time out of his own private practice to coordinate professional training sessions to ‘raise the bar’ of those wishing to help patients in their own locales.”

Higuchi is a diplomate of the American Board of Oral and Maxillofacial Surgery. His private practice (Drs. Higuchi and Skinner PS) emphasizes reconstructive oral and maxillofacial surgery. Since 1984, he has been the director of the Spokane Center for Tissue Integrated Reconstruction. Since 2007, Higuchi and Professor John Brunski, Stanford University, have been the principals in OsseoConception LLC.

He completed his undergraduate studies at the University of Wisconsin, his DDS from Marquette University School of Dentistry and served four years on active duty in the U.S. Army, including an internship at Letterman General Hospital at the Presidio in San Francisco. He obtained his residency with a master’s of science in oral and maxillofacial surgery at University Hospitals at the University of Iowa and has held past full-time and adjunct academic appointments at that institution. From 1986-2018, Higuchi participated in 10 separate multi-center prospective clinical trials.

“With his humanitarian heart, science-oriented mind and openly-friendly personality, Dr. Higuchi is an exemplary role model to all of us on how to lead our professional and personal lives,” Sevetz concluded.

Dr. Kenji W. Higuchi, center, was presented with the Nobel Biocare Brånemark Osseointegration award by outgoing AO President Dr. Michael Norton, left, and Dr. Edward Sevetz at the recent AO Annual Meeting. Photo/Provided by AO