Journal of Oral Implantology – Dental implants have become a reliable, long-term treatment option for restoring proper speech, function and aesthetics of the oral cavity and facial features. However, despite the effectiveness of conventional augmentation procedures, complex cases, such as tumor resections or extreme atrophy, result in considerable patient pain and other comorbidities from slow or incomplete healing. To address this challenge, different bone substitution materials are currently being investigated.

Researchers from the Medical Center of the Goethe University Frankfurt (Germany) recently published a case study
in the
Journal of Oral Implantology
that evaluates the use of a novel augmentation alternative in a former head and neck cancer patient. By using a combination of a xenogenic bone substitute (BO) and platelet-rich fibrin (PRF), they were able to successfully perform an implantation in a severely compromised mandible.

A 61-year-old female with cancer in her mandible was treated by a tumor resection in her jaw as well as neck dissection on both sides, resulting in disfiguration to the lower jaw. After enduring a painful cancer treatment, the patient did not desire another surgery to harvest bone for dental implants and opted instead for using the BO and PRF alternative. The patient's blood was drawn, centrifuged and combined with the BO to fill an anatomy-specific three-dimensional titanium mesh.ÂÂ The titanium "cage" was designed and made from a CT scan generated model of the patient's mandible. The mesh was placed at the involved surgical sight, and then covered with collagen matrix (that had previously been shown to aid in tissue regeneration) plus a final layer of PRF clots were used to cover the matrix.

No complications were observed during the 16-month, full implantation procedure in which six implants were successfully integrated into the mandible. From bone biopsies taken during the implantation procedure, researchers were able to histologically confirm that the combination of BO and PRF created a successful augmentation and is a strong alternative to direct bone harvesting from the patient. The histology also revealed an increased blood flow of the connective tissue, which aided tissue regeneration and new bone formation during

augmentation healing phase.

In this case study, researchers introduce an extremely promising new method of dental reconstruction in treating a severely compromised mandible in a patient recovering from head and neck cancer. More research is necessary to examine the longer-term effects of this procedure on bone regeneration.

Full text of the article, “Individualized Titanium Mesh Combined with Platelet-Rich Fibrin and Deproteinized Bovine Bone: A New Approach for Challenging Augmentation,” *Journal of Oral Implantology* , Vol. 44, No. 5, 2018, is available at http://www.joionline.org/doi/full/10.1563/aaid-joi-D-18-00049

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The *Journal of Oral Implantology* is the official publication of the American Academy of Implant Dentistry and of the American Academy of Implant Prosthodontics. 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, please visit http://www.joionline.org