Vertical Bone Augmentation Using Fibrin Glue and Titanium Mesh

Prof. Young Deok Chee

At present, prosthetic restoration using the implant on the site of tooth loss is widely performed, and for successful implant surgery, a sufficient amount of bone is needed on the implant site. However, if long time has passed since tooth extraction due to severe periodontitis or trauma, the defect or recession of alveolar bone occurs, which makes the implant difficult, and thus various types of alveolar bone regeneration is required. In addition, for the long-term good and stable prognosis of the implant, an appropriate amount of good quality bone is needed around the implant. Nyman et al. introduced guided tissue regeneration, which uses a barrier membrane on the defect site in periodontal treatment, and as its application, guided bone regeneration, bone augmentation for the placement of an implant, has been introduced and widely used.

Thus, in order to place an implant on a bone defect site, bone augmentation is needed, and among these methods, guided bone regeneration is the most well-known. Other methods include alveolar ridge splitting and block bone graft. Guided bone regeneration is simple compared to other bone augmentation, and thus it is often used when bone graft is needed for the implant. Guided bone regeneration (GBR) is a surgical method that creates a space with a membrane around the bone with the insufficient height and width, and thus induces the differentiation and migration of cells with an ability to form the bone in the residual bone tissue, eventually to regenerate the bone. However, it is difficult to maintain the shape with guided bone regeneration when bone augmentation is performed on the site where bone defect occurs vertically, and thus, sometimes a tissue adhesive is additionally used to shape the graft material into a lump to fit the bone defect site.

Furthermore, when it is difficult to maintain the shape only with a tissue adhesive in bone augmentation, a titanium reinforced Gore-Tex membrane or titanium mesh that maintains the space three-dimensionally and the shape of the membrane as desired can be used for bone augmentation on the horizontal and vertical defect sites. Tissue adhesives or titanium reinforced Gore-Tex membranes are not sufficient for reliable space maintenance, and it is more advantageous for bone augmentation to use titanium mesh to maintain the desired shape and restore the defected bone shape. it was difficult to perform bone augmentation for patients due to the occurrence of horizontal and vertical bone defects. Thus, bone augmentation using guided bone regeneration with titanium mesh was performed to form a sufficient amount of bone, and then implants were placed. This led to good outcomes.

Profile
* DDS: Wonkwang University, School of Dentistry
* PhD: Wonkwang University, Graduate school
* Professor at School of Dentistry, Wonkwang University.
* Specialist of Oral and Maxillofacial Surgery in the Republic of Korea
* Member of The Korean academy of oral & maxillofacial implantology
* President of Korean academy of infection control in dentistry