

## Easy Step by Step Approach of Alveolar Ridge Splitting by Using Mini-Plate

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In order for successful implant treatment to occur, several sufficient conditions related to the alveolar bone in the area to be treated are crucial. One of the important conditions is bone width. When evaluating the alveolar bone for implant placement, it is often observed that even with sufficient vertical available bone height, there can be a thin alveolar ridge that lacks adequate thickness in the bucco-lingual direction.

One of the various methods to increase the thickness of the alveolar bone that has horizontal bone loss is the ridge splitting technique.

Generally, the complex guided bone regeneration (GBR) method involves adding graft materials outside the buccal plate, which results in very slow and incomplete osteogenesis.

In contrast, the ridge splitting technique creates a perfect contained defect by forming a bucco-lingual plate. The bilateral cortical plates act as an optimal barrier membrane, facilitating complete osteogenesis, making it a simple, safe, and effective method for expanding the width of atrophic alveolar ridges, which has been utilized for a long time.

However, the existing alveolar ridge splitting and expansion technique comes with challenges such as crestal bone malfracture and separation of the buccal bone plate during the procedure, leading many dentists to avoid this surgical method out of concern.

Having performed ridge splitting for an extended period, I have also experienced marginal bone fractures when attempting to excessively expand the ridge without achieving a definitive corticotomy. Additionally, I have observed the cortical bone plate detaching when attempting to place implants simultaneously with ridge splitting or when trying to exceed the limits of greenstick fractures in numerous cases.

If these issues could be addressed easily, the alveolar ridge splitting technique would be recognized as a straightforward bone expansion method by many dentists, rather than a challenging surgical procedure.

Over the years of employing the alveolar ridge splitting technique, I have experimented with various approaches. The first was to initially perform an osteotomy and then utilize the fact that complete ossification does not occur within 6 to 8 weeks to easily induce a greenstick fracture. This would allow for further expansion of the alveolar ridge, securing adequate thickness of the alveolar bone for safe implant placement, which I termed the staged alveolar ridge splitting technique.

Second, while the staged alveolar ridge splitting technique proved to be effective, its drawback was that multiple surgeries were required, and complete elimination of the risks of crestal bone malfracture or separation of the buccal bone plate was challenging.

To counter these shortcomings, I later adopted the use of mini-plates and mini-screws, which simplified the surgical process and demonstrated excellent clinical results across many cases. This presentation aims to explain the basic techniques for effectively using mini-plates and mini-screws during alveolar ridge splitting and to help convey clinical outcomes through numerous case presentations.

## Profile

- \* Graduated from Wonkwang University School of Dentistry and Graduate School
- \* Adjunct Professor in Oral Medicine at Wonkwang University School of Dentistry
- \* Recognized as an Outstanding Implant Clinician by the Korean Academy of Implant Dentistry (KAID)
- \* Active Member and Associate Fellow of the American Academy of Implant Dentistry (AAID)
- \* Present, the Chief Dentist and Director of Oh HeuiYung Dental Clinic