

The Citagenix Clinical Report

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Issue 3

Autogenous Bone Graft Harvesting for Implant Dehiscence Defect

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While autogenous bone remains the "Gold Standard" for many implant related hard tissue grafting cases, there remains several drawbacks related to typical harvesting procedures. Patient dependant factors such as anatomical differences limiting access and poor bone quality cannot be controlled, yet there are several tools and techniques available to the dental clinician to help reduce donor site morbidity and surgical harvesting time.

A new handpiece driven device to aid in the harvesting of autogenous bone has been introduced in Canada (RotoGrafter™, Citagenix Inc. Laval, QC). This compact device combines a spring loaded drill with a collection chamber which allows 1cc of particulate bone to be harvested in less than one minute with no hand fatigue.

In the case pictured below, the patient presented with a four-unit bridge that was supported by the second premolar and third molar, which were both unsalvageable (Fig. 1). The bridge was removed, the two teeth were extracted and the site was allowed to heal for six weeks. In this case, no grafting material was used at the time of extraction.

The treatment plan included three endosseous implants to be placed posteriorly to the first premolar to support a fixed prosthesis. At the time of the implant placement surgery, significant horizontal bone loss was observed. Implant sites for

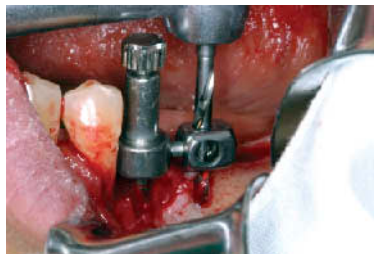
three MIS implants were prepared using the MIS drill guide (Fig. 2). Following this and prior to implant placement, an autogenous bone graft was harvested at the implant surgical site using the RotoGrafter™. It was attached to a 16:1 contra-angle handpiece and the drill speed was set to 1000 RPM. The Rotografter was used to perforate the buccal plate inferior as well as distal to the implant sites, thus allowing bone to be collected without compromising implant placement (Fig. 3-5).

Upon insertion of the three root form implants, dehiscence defects were noted ranging from 2mm to 5mm buccally and coronally around the implants. The 100% autogenous bone graft collected from the RotoGrafter was placed in the deficient areas (Fig. 6). A resorbable collagen membrane (Neomem, Citagenix Inc.) was used to cover the graft site and a tension free suture technique was employed to achieve primary closure (Fig. 7-8).

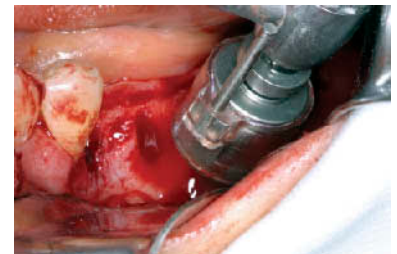
The RotoGrafter™ proved to be an effective way to harvest sufficient quantities of autogenous bone without the need to employ a bone mill or morselizer. It allowed for bone to be harvested in a safe and rapid manner with no hand fatigue, and without creating a secondary surgical site. The device worked well in these circumstances, combining both graft site preparation and graft harvesting in one procedure.



1. Bridge in place before extractions



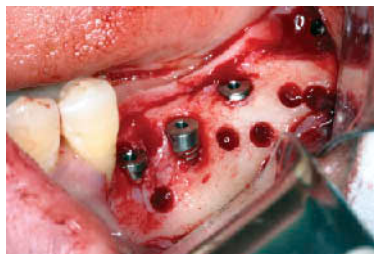
2. Osteotomies using MIS drill guide



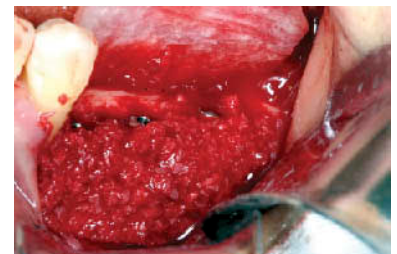
3. Autogenous bone harvesting



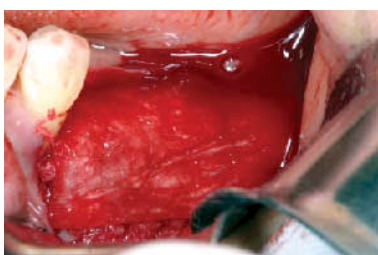
4. RotoGrafter filled with graft



5. Dehiscence defects around implants



6. Autogenous graft in place



7. Collagen membrane to protect grafted bone



8. Tension free primary closure



6. Post-op radiograph