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DENTISTRY
ORTHOPAEDICS
NEUROSURGERY
AESTHETIC MEDICINE

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Synthetic bone substitutes
Based on bio-mimetic nano-structured hydroxyapatite; available in dense granules, porous chips, injectable paste, and moldable crunch in a wide range of sizes. Produced by Tiss'You.

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Absorbable collagen membrane
Made from highly pure type I atelocollagen of equine origin, produced by Tiss'You.

Post-extraction sockets
Guided Bone Regeneration

31 patients
26-66 years

Bone defects
Surgical cleaning, bone filling, and membrane application

Up to 6 months
of follow-up

Probing depths and X-rays
outcomes

Background

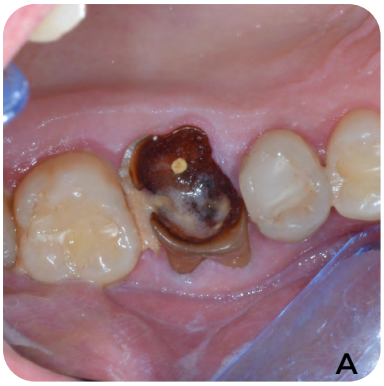
Regenerative therapy in dentistry involves the replacement and/or regeneration of oral tissues altered as a result of disease or injury. Furthermore, traumatic extraction has also been associated with additional loss of bone. In the healing phase after extraction, alveolar bone undergoes additional atrophy as a result of the natural remodelling process. This begins immediately after extraction and may result in up to 50 % resorption of the alveolar ridge with impact on dental implant placement.

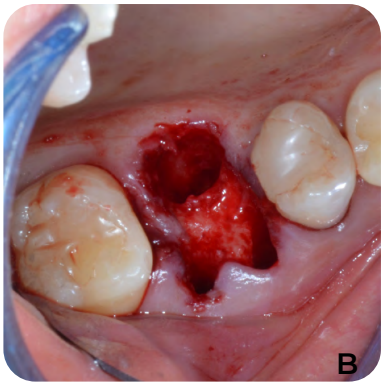
Post-extractive socket preservation procedures aim to prevent alveolar ridge atrophy and maintain adequate dimensions of bone in order to facilitate implant placement. Here we report the clinical results of a guided bone regeneneration strategy tackled with a synthetic biomimetic nanostructured hydroxyapatite, and an absorbable equine-derived collagen membrane.

Methods

In this prospective study, we aimed to comprehensively address the treatment outcomes for post-extractive sockets in 31 patients. The chosen intervention encompassed a multi-faceted approach involving meticulous surgical cleaning, augmentation with synthetic bone substitutes (Tiss'You), and the utilization of an absorbable collagen membrane (Tiss'You). The membrane was securely affixed using a criss-cross suture technique applied to the mucosal flaps. A photographic section showing the treatment protocol is available in the next page.

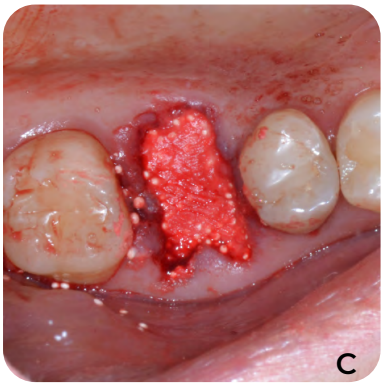
Primary objective was to assess bone remodeling by measuring probing depths at various distances (central, medial, distal, lingual/palatine, and vestibular) at baseline, 3 months, and 6 months. X-ray images were also obtained at these time points to further understand changes in bone density and structure.

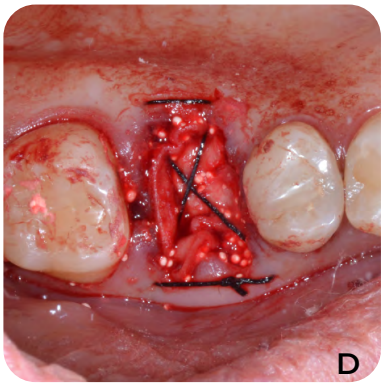




A. Defect before tooth extraction.

B. Post-extraction site and surgical cleaning.





C. Bone filling with synthetic nanostructured hydroxyapatite*.

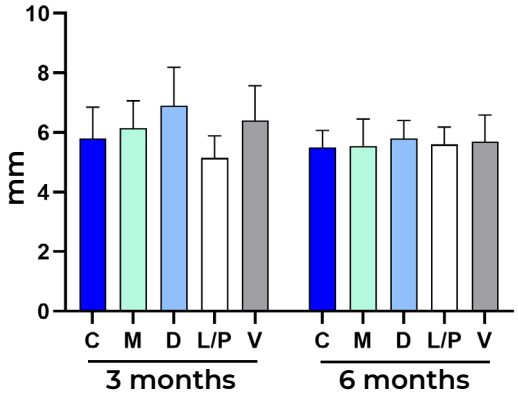
D. Collagen membrane application†.

** either dense granules, porous chips, injectable paste, or mouldable crunch*

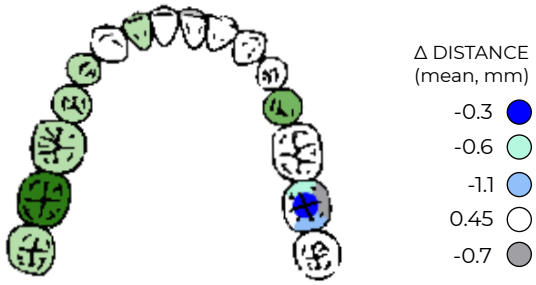
† the membrane is held with a criss-cross suture of the mucosal flaps

Results

The study revealed no adverse effects, ensuring the safety of the treatment. Post-operative pain averaged 3.2 ± 1.1 at 15 days, demonstrating manageable discomfort. Encouragingly, no patients reported pain at the 3 and 6-month follow-ups. Additionally, early-stage soft tissue healing was observed and confirmed at 3 months, while X-Rays indicated successful bone regeneration at 3 and 6 months. Probing depths consistently affirmed optimal bone regeneration throughout the study duration.



Probing in central **(C)**, medial **(M)**, distal **(D)**, lingual/palatin **(L/P)**, and vestibular **(V)** sites.



Graphic representation of **(left)** treated teeth prevalence (darker stands for higher number of sites) and **(right)** mean distance change in probing sites between 3 and 6 months.