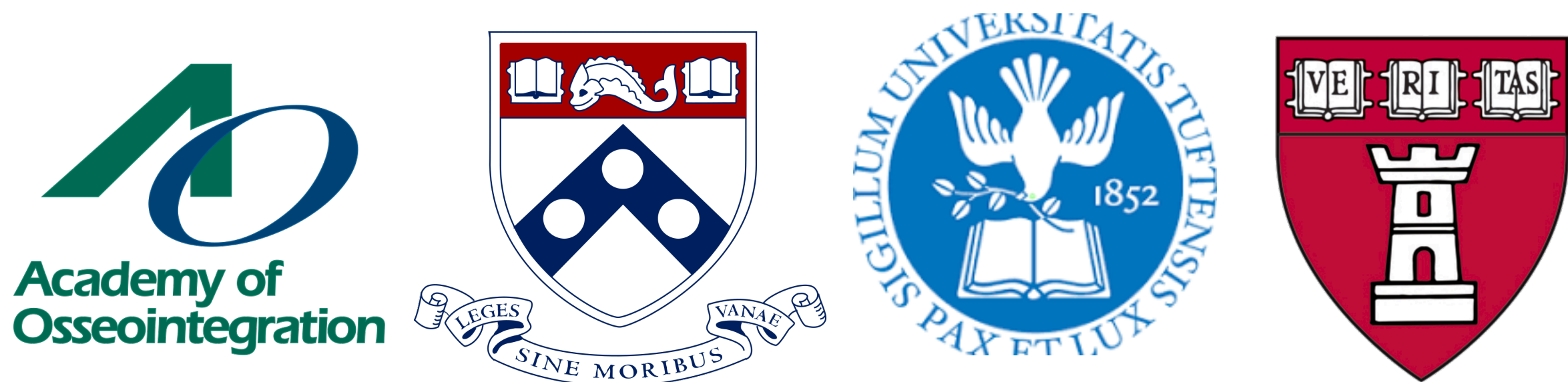




The Open Healing Approach Applied to a Piscine Graft Biomaterial: A Clinical Case Series

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ABSTRACT

After tooth extraction, various structural alterations may take place, potentially resulting in bone loss.¹ Roughly half of bone loss in the buccolingual direction has been documented within the first year subsequent to tooth extraction.² Surgical techniques and the use of various biomaterials have been suggested to prevent alveolar ridge deficiency.³ The preservation of alveolar ridge width and height is typically achieved through the common practice of performing an alveolar ridge preservation (ARP) procedure, ensuring an ideal foundation for the placement of dental implants.⁴ ARP techniques can help sustain appropriate soft-tissue contours at the location of extraction site, thus contributing to esthetic goals as well.⁵ The process of ARP incorporates the application of hard-tissue biomaterials, like bone grafts - hydrated with different solutions/biologics, and frequently involves the utilization of soft-tissue biomaterials, such as membranes. Employing a barrier membrane or a collagen maxtrix within the ARP procedures enables the retention of the blood clot/graft material, by facilitating the regeneration of bone and soft tissue.⁶ Diverse synthetic and naturally derived membranes have been developed, offered as non-resorbable or resorbable form. This case series describes a novel piscine resorbable membrane (Figure 1) used as a matrix during the ARP procedures. The piscine resorbable membrane has been previously reported as a soft tissue alternative in the correction of various mucogingival deformities.⁷

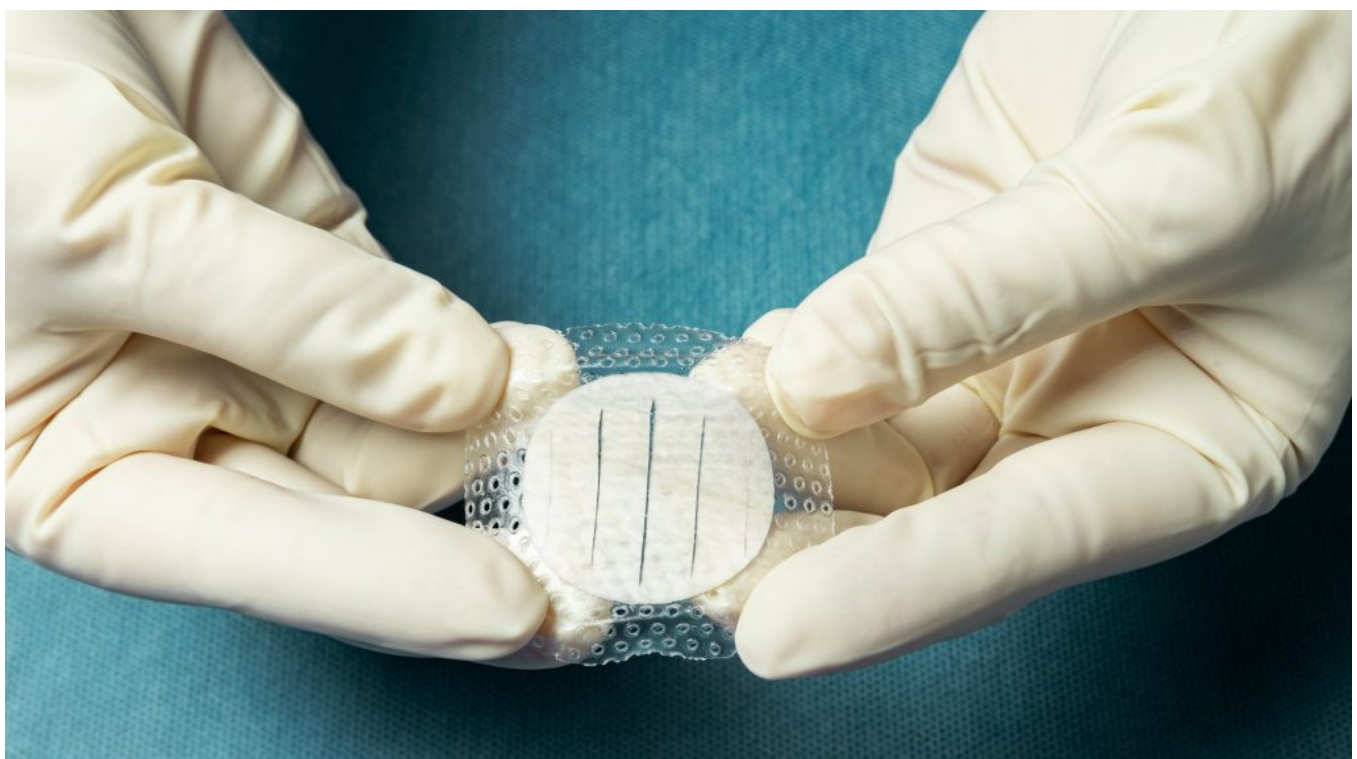


Figure 1. Piscine Resorbable Membrane (Kerecis, Iceland).

CASE REPORTS

Current evidence reports on the use of the piscine graft as a soft tissue alternative to correct mucogingival deformities, including recession, lack of keratinized tissue and aberrant frenum attachment. This case series displays two cases (Figure 2 and 3) where both patients presented with non-restorable teeth (#2 and #14) that required extraction and ARP procedure for potential future implant placement. In both cases, ARP procedure was performed which included atraumatic extraction, degranulation, assessment of the socket, use of a bone graft material, and a piscine origin resorbable membrane.

Patient 1: 53 year-old female presented with a chief complaint: "My tooth fractured and I need to have it extracted, as I am planning to get an implant."

Patient 2: 71 year-old female presented with a chief complaint: "I have had a root canal, but my tooth now has caries under the gum and my dentist recommended extraction, possible implant."

CASE 1

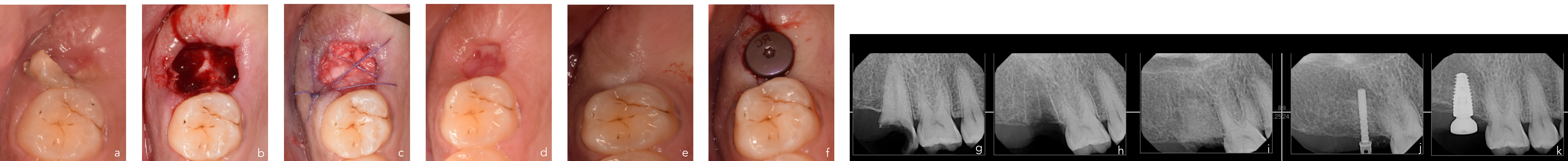


Figure 2. Overview of a clinical scenario - treatment of tooth #2; (a) pre-operative view (b) extraction socket (c) bone graft material, piscine resorbable membrane, and suturing (d) 2 weeks follow-up (e) 20 weeks follow-up (f) implant placement 1 year post-op ARP procedure (g) pre-operative radiographic image (h) extraction radiographic image (i) ARP radiographic image (j) implant angulation radiographic image (k) implant placement radiographic image.

CASE 2



Figure 3. Overview of a clinical scenario - treatment of tooth #14, with a compromised buccal wall; (a) pre-operative view (b) extraction (c) bone graft material, piscine resorbable membrane, and suturing (d) 2 weeks follow-up (e) 6 weeks follow-up (f) implant placement 6 months post-op ARP procedure (g) pre-operative radiographic image (h) extraction radiographic image (i) ARP radiographic image (j) implant angulation radiographic image (k) implant placement radiographic image.

DISCUSSION

While higher level of evidence studies are available for the use of piscine graft to correct mucogingival deformities, to the authors knowledge this is the first case series for the use of ARP. Healing was uneventful in both clinical scenarios and the patients reported no major pain or discomfort. Furthermore, given the piscine origin of the matrix, none of the patients reported any smell and/or fish taste. Both ARP sites presented with adequate soft tissue healing and keratinized tissue thickness during the healing and maturation. The CBCT evaluation conducted at minimum of 5 months following ARP, revealed full radiographic bone regeneration. No supplementary procedures for hard-tissue or soft tissue augmentation were necessary during the implant placement phase, as shown in the radiographic images above.

CONCLUSIONS

The current case series presents the use of a piscine resorbable membrane as an alternative solution for the ARP procedures. Future prospective or randomized controlled clinical trials need to be conducted to increase the external validity of the current findings.

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REFERENCES

