

Case Report: Don't forget your raincoat... Foreign body or neoplasm?



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BACKGROUND

Barrier membranes are frequently used to direct bone regeneration for dental implants and halt the migration of epithelial cells into the regenerating site. Non-resorbable membranes such as Gore-Tex ePTFE became standard for bone regeneration in the 1990s.¹ Non-resorbable membranes have excellent longevity, but require a second surgery to remove the membrane and are more prone to dehiscence and infection.²

CLINICAL DETAILS AND HISTORY

- 1991 Diagnosed with ameloblastoma right maxilla. Partial maxillectomy from UR1 to UR5 to level floor of nose. Split skin graft from right thigh to line cavity. Gutta percha obturator for healing. Obturator constructed.
- 1993 Discomfort under nose - biopsy - chronic inflammation.
- 1995 GA grafting deficit, 2 mucosal flaps, oral and nasal closure. Iliac crest graft stabilised with titanium plate and screws.
Flap breakdown - resutured.
Flap breakdown over graft - rotational flap to close oronasal fistula.
Infection around titanium plate, GA plate removal.
GA grafting deficit with iliac crest graft OAF.
GA packing antrum, fistula left open.
GA grafting deficit with iliac crest.
- 1999 Biopsy UR incisor region - granulation tissue.
- 2000 Three Branemark implants placed, flaps thinned. 13mm UR2, 7mm UR4, 11.5mm UR6. Healing screw over UR2 and UR4 with Gore-Tex membrane. UR6 implant failed to integrate. UR2 implant buried and unused. UR4 implant utilised for magnetic retention of RPD.
GA repair and resuturing of palate, failed mucosal coverage. Full thickness mucosal graft from right buccal mucosa.
- 2005 Discomfort UR1 region. Denture eased.
- 2013 Low-grade discomfort upper right region. OMFS repeat CT - no evidence recurrence, benign inflammatory changes.
- 2013 Referred to School of Dentistry Prosthodontics department for ongoing care and review area of discomfort.
- 2014 NSPT of utilised implant UR4 - peri-implant mucositis.
- 2016 Routine restorations replaced upper left molars.
- 2017 Discussed with patient option of uncovering implant for improved RPD function. Ongoing discomfort in region.
- 2018 Exophytic lesion developed. Referred to oral surgery. Exploration unveiled ?foreign body - 14 x 9mm piece of heavily colonised Gore-tex® membrane.
Symptoms resolved.
- 2019 Bar retained RPD constructed, patient delighted with outcome.

PRESENTING COMPLAINT

A 63-year-old gentleman was referred from an Oral and Maxillofacial unit to the Prosthodontics department for ongoing care. He reported numerous complications since an ameloblastoma resection in 1991. His primary complaint was ongoing low-grade discomfort from his upper right incisor region for many years, but investigations and reviews simply indicated inflammation. His current implant retained partial denture was functional but retention relied primarily on one implant.

MEDICAL HISTORY

- Early onset Parkinsons
- Asthma
- Pernicious anaemia
- Osteoarthritis of hips

DENTAL HISTORY

- Maxillary ameloblastoma resected in 1991.
- 2000 prosthodontic rehabilitation with implants.
- Referred to Prosthodontics 2013 for ongoing maintenance and review.

SOCIAL HISTORY

- Never-smoker
- Occasional alcohol



2018 MANAGEMENT - ORAL SURGERY



CLINICAL FINDINGS

An exophytic lesion had developed. This appeared erythematous, inflamed and was very tender to palpate. The patient was advised this required surgical exploration and referred to Oral Surgery.

HISTOPATHOLOGY

- Specimen consists of a flat piece of thin fabric measuring 14x9 mm with a thickness of less than 1mm.
- Histological examination shows a laminated acellular membrane overrun by bacterial colonies.
- The features are those of a foreign body resembling a Gore-Tex membrane, perhaps placed to assist healing following periodontal surgery.

2019 PROSTHODONTIC MANAGEMENT - IMPLANT BAR RETAINED REMOVABLE PARTIAL DENTURE



The UR2 Branemark implant was uncovered and a bar constructed to adjoin with the UR4 implant. A locator-retained cobalt chrome removable partial denture was constructed with a skeletal design to replace the upper right quadrant and UL6. Rest seats were placed on the UL1 cingulum, UL5 distal and UL7 mesial.

The patient now had a highly retentive denture which maximised the benefit of both implants alongside conventional clasps of natural teeth. No further discomfort was reported.

DISCUSSION

This case demonstrates the long pathway a patient with a benign tumour can endure. The defect took multiple surgeries over years to repair. The rehabilitation phase with dental implants can improve quality of life. Unfortunately complications arose requiring further surgery and ultimately only one of three implants were utilised. There was ongoing vague discomfort in the coming years, investigations such as CT scans were inconclusive - indicating benign inflammatory changes.

Eighteen years later a concerning exophytic lesion developed, which ultimately unveiled the origin of the discomfort. A section of Gore-Tex membrane for guided bone regeneration had been in-situ adjacent to the UR2 implant since 2000. This created a focal point for chronic infection. The foreign body was removed, and the implant was then utilised for a bar retained prosthesis offering improved retention, stability and quality of life for the patient.

CONCLUSION

When non-resorbable membranes are placed the second surgical intervention for removal of the membrane should be scheduled, typically in the range of 3-9 months post-augmentation.¹ Membrane exposure is a recognised complication that permits a communication of bacteria into the surgical site, risking infection and bone loss.³ Expanded PTFE membranes, such as GoreTex, are porous in nature; therefore are at an increased risk to infection in comparison to dense PTFE.³

Resorbable collagen membranes are increasingly used, offering comparable outcomes to non-resorbable membranes.²

They have numerous advantages: no removal procedure required, improved bio-compatibility and soft-tissue healing.² They do however have relatively inferior mechanical properties which must be negotiated to avoid collapse.

The radiolucent nature of Gore-Tex contributed to a protracted period consisting of waves of low-grade discomfort and infection with an unknown cause. This case highlighted the difficulties in diagnosing a foreign body without exploratory surgery, particularly when paper-based notes from different hospitals are not readily available.

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3. Rathnayake N, Tadjikovi B, Rahman B, Zifropoulos GG. Clinical applications and outcomes of non-resorbable polytetrafluoroethylene (PTFE) membranes in guided bone regeneration. Review. J Int Dent Med Res. 2019;6(1):26-32. Implants Res. 2014;25(7):859-66. (Basel). 2020;13(3):1-16. controlled clinical trial. Clin Oral Implants Res. 2014;25(7):859-66.