DEHISCENCE TREATED WITH NON-RESORBABLE GORE-TEX MEMBRANE - A CASE REPORT.

Kamin S, Ghani SHA. Dehiscence treated with non-resorbable Gore-Tex membrane - a case report. Annal Dent Univ Malaya 1996; 3: 61-64

Salmah Kamin BDS, PhD. *
Sarah H A Ghani BDS, M.Sc. MDORCPS #

* Dept. of Oral medicine, Oral Pathology & Periodontology, Faculty of Dentistry , University of Malaya.

\# Dept. of Children's Dentistry and Orthodontics Faculty of Dentistry, University of Malaya.

* corresponding author

ABSTRACT

Severe gingival recession caused by dehiscence usually present a challenging task to the clinician as any mucogingival surgery without bony regeneration will not prevent the condition from recurring. The procedures of guided tissue regeneration (GTR) which allow regeneration of the lost periodontium may offer some solution to the condition. This paper reports on the use of a non-resorbable GTR membrane to treat an isolated lower incisor gingival recession associated with dehiscence.

Key Words: Guided tissue regeneration (GTR), Gingival recession, dehiscence.

INTRODUCTION

Gingival recession accounts for 5-10% of all attachment loss (1). Recession is defined as a seemingly inflamation-free clinical condition characterised by apical retreat of the facial periodontium. Recession is usually localised to one or several teeth and generalised recession is rare. If the patient's oral hygiene is inadequate, or if the recession reaches the movable oral mucosa, secondary inflammation may occur and eventually pocket formation (periodontitis) may ensue.

The primary factor causing recession is the morphology and anatomy of the dentition. The facial bony plate overlying the root is usually very thin. The complete absence of bone over the facial root surface is referred to as dehiscence. This condition is most frequently observed in incisors, canines and seldom in the molars (except for the mesio-buccal root of maxillary first molars).

A common predisposing factor for the causation of dehiscence is an unfavourable frenum pull from fibres of the frenum that are attached very close to the gingival margin.

GTR procedures have in the last two decades led to significant advances in periodontal wound healing and provided predictable regeneration of the lost periodontium. GTR technique have successfully been used to treat recession-type defect with favourable results (2,3,4). This paper presents the management of a case of severe dehiscence with GTR procedure.

CASE REPORT

A 24 year old female patient with unilateral cleft lip and palate was initially seen at the Combined Cleft Clinic for an assessment. The lip was repaired at six months old and the palate was left unrepaired until adulthood due to lack of parental support for further treatment. The patient then on her own initiative sought treatment. The surgery was successful but she had missed the opportunity of good speech therapy and reasonable occlusal development.

On examination, she presented with problems of severe anterior open bite, increased in facial height and

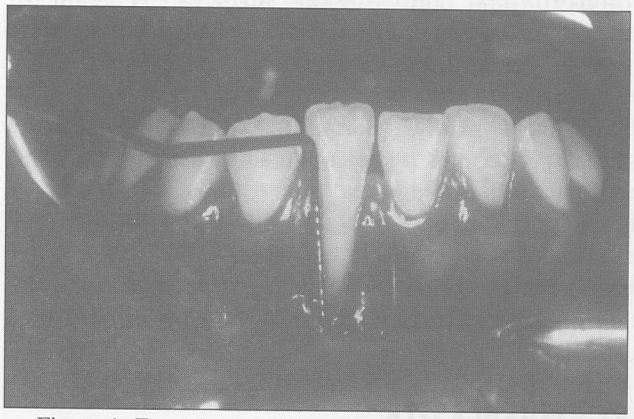

Figure 1. Frontal view: 10 mm recession on lower right central incisor.

Figure 2. Profile view of the dehiscence affecting the lower right central incisor.

Figure 3. Lateral skull radiograph showing the lower right central incisor with no labial bony support.

tipping of upper right lateral incisor into the adjacent cleft region . In the lower arch, clinically she had proclined lower incisors with severe gingival dehiscence on the lower right central incisor with an exposure of 10 mm from the amelocemental junction (Figure 1 & 2) and a pocket at the apical region of the tooth which extended to the mucogingival junction. This was confirmed with lateral skull X-ray where the tooth had erupted labially with little labial bony support (Figure 3). Further examination revealed that the tooth was non-vital and pus exudated from the apical region when the surrounding soft tissue was palpated. The mobility of the tooth was found to be of Grade 2 with no pocketing on the interproximal and lingual surfaces. A team of Periodontist, Orthodontist and Prosthodontist came together for further assessment and management.

A treatment plan was formulated which comprised of :
Initial periodontal treatment (oral hygiene instructions, scaling and polishing)
Root canal therapy
GTR with non-resorbable membrane
Orthodontic aligning and levelling of the occlusion prior to orthognathic surgery to correct the anterior open bite.

PERIODONTAL TREATMENT USING NON-RESORBABLE GTR

After a successful root canal treatment, a periodontal surgery was performed at the lower incisor region. When both the buccal and lingual flaps were raised and debridement performed, it was found that a perforation had taken place at the apical area of the tooth concerned. This perforation with a diameter of 5 mm was probably due to the chronicity of the infection which had caused localised bone resorption as there was a communication with the oral enviroment through the pocket at the apical region (Figure 4).

Figure 4. Perforation at the apical area of the lower right central incisor.

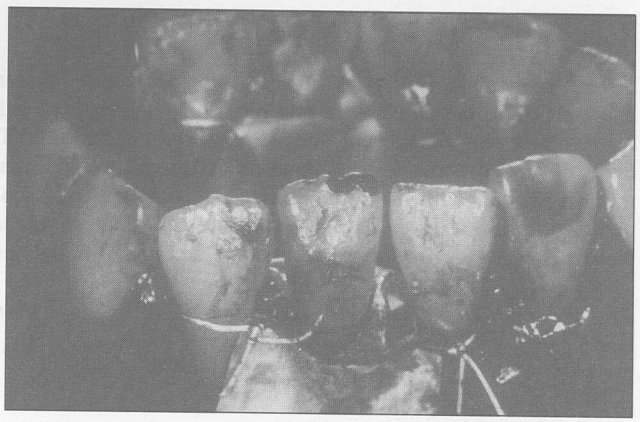

Figure 5. Interproximal Gore-Tex membrane in place.

The presence of this perforation complicated the management. The single tooth Gore-Tex membrane which was initially planned could not be used as the size was too small to cover the defect. It was then decided that an interproximal membrane be used to cover the defects on the buccal and lingual surfaces (Figure 5). Prior to membrane placement, the labial surface of the root concerned was ground down to make it less prominent and levelled with the adjacent teeth in the region. The membrane was trimmed and adapted to the area of defect. Care was taken to ensure that the membrane was resting on bone. After having placed the membrane securedly with anchor sutures, the buccal and lingual flaps were replaced to their original positions with vertical mattress sutures. A periodontal dressing was placed over the surgical site to protect the wound. The patient was discharged after post-operative instructions and an antibiotic prescription and was reviewed weekly for six weeks where healing was uneventful.

After six weeks, a re-entry surgery was performed to remove the non-resorbable membrane. Underneath the

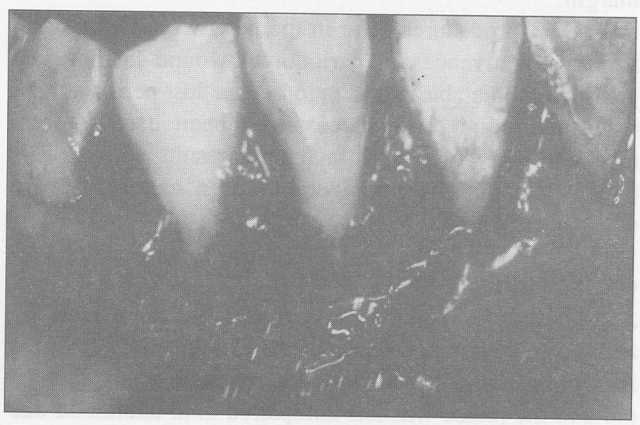

Figure 6. New immature connective tissue covering 75% of the original dehiscence.

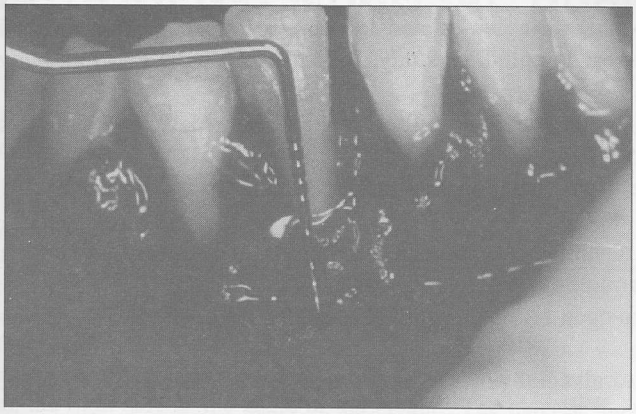

Figure 7. 2 months later. Dehiscence around the lower right central incisor reduced to 50% of its original level.

membrane, there was an abundant immature connective tissues which covered almost 75% of the original dehiscence (Figure 6). These tissues were left with minimal disturbance and flaps were sutured to its original positions.

The patient was reviewed at two and four weeks later where healing was uneventful. Two months later the dehiscence was reduced to 50% of its original value measuring 5-6mm from the amelocemental junction (Figure 7). Two years after the procedure, the oral hygiene had deterioted with plaque deposits around the brackets but the dehiscence appeared stable at 50% its original value with no pocketing on the labial surface of the tooth and the gingival tissue was strongly adherent to the underlying bone and the root of the tooth. The mobility of the tooth has greatly reduced .

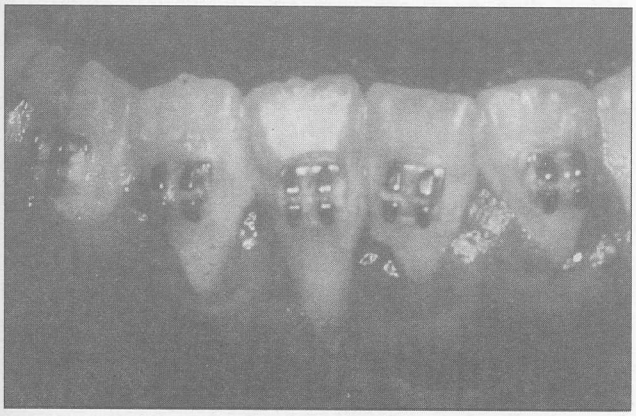

Figure 8. 2 years later. Dehiscence around the lower right central incisor was found to be stable at 50% of its original level.

DISCUSSION

The management of severe recession on the labial aspect of the lower right central incisor was presented. At the start of the treatment the success of the procedure was uncertain. This was due to the severity of the dehiscence, tooth mobility, non-vitality and other occlusal problems. In fact an alternative plan of extracting the lower right central incisor was suggested followed by an orthodontic treatment which will lessen the length of the overall treatment but the patient was highly motivated and wanted the tooth saved. Therefore, the use of non-resorbable Gore-Tex membrane was performed.

The predisposing factor to this severe dehiscence was most likely to be due to thin alveolar coverage because of the labially positioned tooth. The labial surface of mandibular incisors are frequently involved (5,6,7,8). Machtei (9) and Mazeland (10) found greater degree of recession in anterior teeth of teenagers with anterior open bite. This was thought to be attributed to the greater virulence of dehydrated plaque in those with incompetent lips. Some may also be due to the fact that these teeth have erupted further labial than controls in an attempt to close the anterior open bite, so exposing greater crown height (7,9,10).

A non-resorbable Gore-tex membrane was used to treat this case mainly because it was the only GTR membrane available at that time. It would be preferable if it was treated using a resorbable membrane as this would not necessitate a re-entry surgery which is bound to cause more gingival tissue disturbance compared to a single procedure.

The long term result, however ,was satisfactory as the 50% reduction in recession was stable for up to two years (Figure 8). The gingival tissue had healed completely and was strongly adherent to the root surface where there was no residual pocketing present. The oral hygiene could be improved and the patient was cautioned about the condition. At present she has completed pre-surgical orthodontic treatment and is ready for orthognathic surgery.

REFERENCES

1. Rateitschak KH & EM, Wolf HF, Hassell TM. Colour Atlas of Periodontology. Thieme, 1985; 81.
2. Gottlow J, Karring T, Nyman S. Guided Tissue Regeneration Following Treatment of Recession- Type Defects in the Monkey. Journal of Periodontology. 1990; 61: 680-85.
3. Tinti C, Vincenzi G, Cortellini P, Prato GP, Clauser C. Guided Tissue Regeneration in the treatment of human facial recession. A 12-case report. Periodontol, 1992; 63: 554-60.
4. Gottlow J, Nyman S, Karring T. Maintenance of new attachment gained through guided Tissue Regeneration. Clin Periodontol. 1992; 19: 315-7.

5. Andlin- Sobocki A, Bodin L. Dimensional alterations of the gingiva related to changes of facial/ lingual tooth position in the permanent anterior teeth of childen. A 2-year longitudinal study. Journal of Clinical Peridontology, 1993; 20: 219-24.
6. Ericcson I, Lindhe J. Recession in sites with inadequate width of the keratinised gingiva: an experimental study in the dog. Journal of Clinical Periodontology 1984; 11: 95-103.
7. Wingard CE , .Bowers GM. The effect on facial bone from facial tipping of incisors in monkeys. Journal of Periodontology 1976;47:450-4.
8. Younes SA , El Angbawi MF. Gingival recession in the mandibular central incisor Region of Saudi schoolchildren aged 10-15 years. Community Dentistry and Oral Epidemiology 1983; 11: 246-9.
9. Machtei E E, Zubery Y, Bimstein E, Becker A. Anterior open bite and gingival recession in children and adolescents. Int Dent Journal, 1990;40: 369-73.
10. Mazeland GRJ. The mucogingival complex in relation to alveolar process height and lower anterior face height. Periodonl Res 1980;15:345-52.