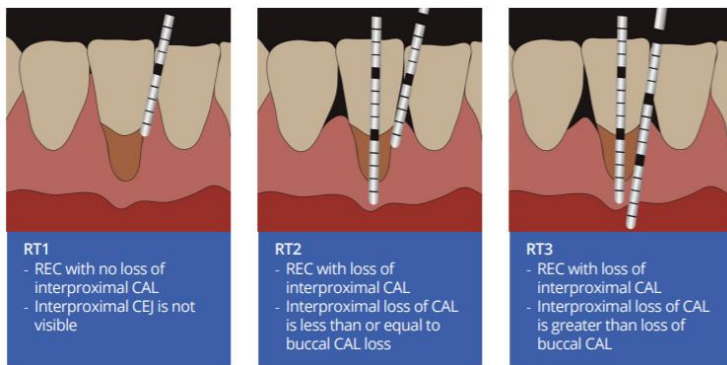


Combined laterally closed and modified coronally advanced tunnel with emdogain and subcutaneous connective tissue grafting.

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Introduction

This 24-year-old female patient presented with recession of the upper canines. The recession defects were occasionally sensitive, however, the main complaint was relating to the appearance and concern regarding progression. Oral hygiene was excellent and there were no apparent traumatic oral hygiene practices or habits. There was no history of orthodontic treatment.



The recession in this case was classified as RT1 based on the absence of interproximal attachment loss. The latest classification described by S Jepsen includes clinical parameters that may affect the management of such cases. (Diagram obtained from Guidance notes from the European Federation of Periodontology. S Jepsen. 2019)

Recession type	Depth	Thickness	Width of keratinised tissue	CEJ presence (A/B)	Step (+/-)
UR3 RT1	5mm	Thin	2mm	A	-
UL3 RT1	5mm	Thin	2mm	A	+

In cases of recession with a RT1 classification there is no loss of interproximal attachment level. This will aid the clinician in determining the prognosis of surgery in these cases. In RT1 cases it is possible and desirable to obtain full coverage. RT2 cases may obtain partial coverage and RT3 cases are not amenable to surgical correction.

Aim

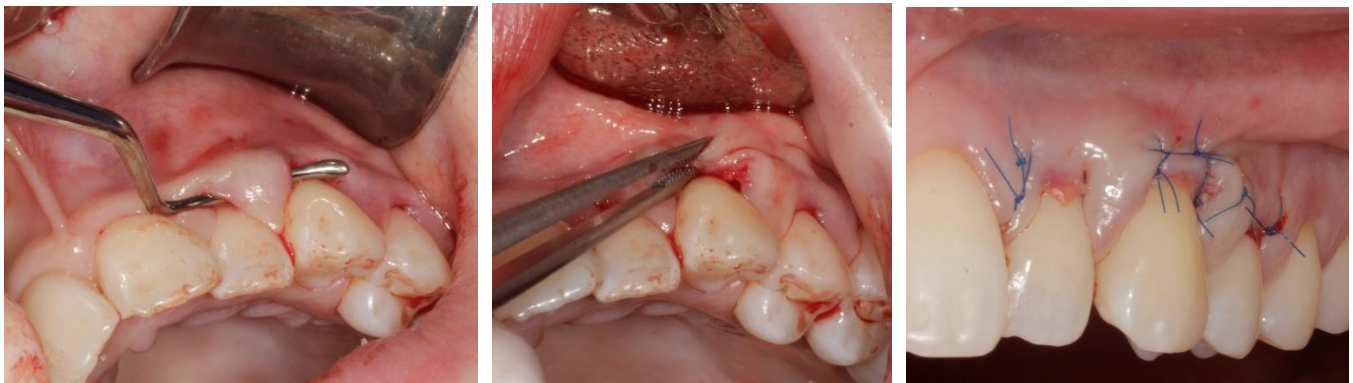
In this case the aims of treatment were to prevent further recession, provide root coverage, alleviate sensitivity, and improve aesthetics. The overall outcome should be suitable for self-performed oral hygiene measures to reduce the risk of relapse.

Surgical approach

A combined laterally closed, modified coronally advanced tunnel approach was used in this case. A single sided flap was used to harvest a subcutaneous connective tissue graft (SCTG) on the ipsilateral side as described by Hürzeler et al.¹ The potential advantage of this technique is that it allows variable thicknesses of grafts to be obtained and no epithelium is removed which allows healing by primary intension.

Initially, ultrasonic scaling of the UL2,3,4 root surfaces was carried out. Intracrevicular incisions with a microblade (SM63) and tunnelling instruments were used to raise flap. Good flap mobility was achieved demonstrated below.

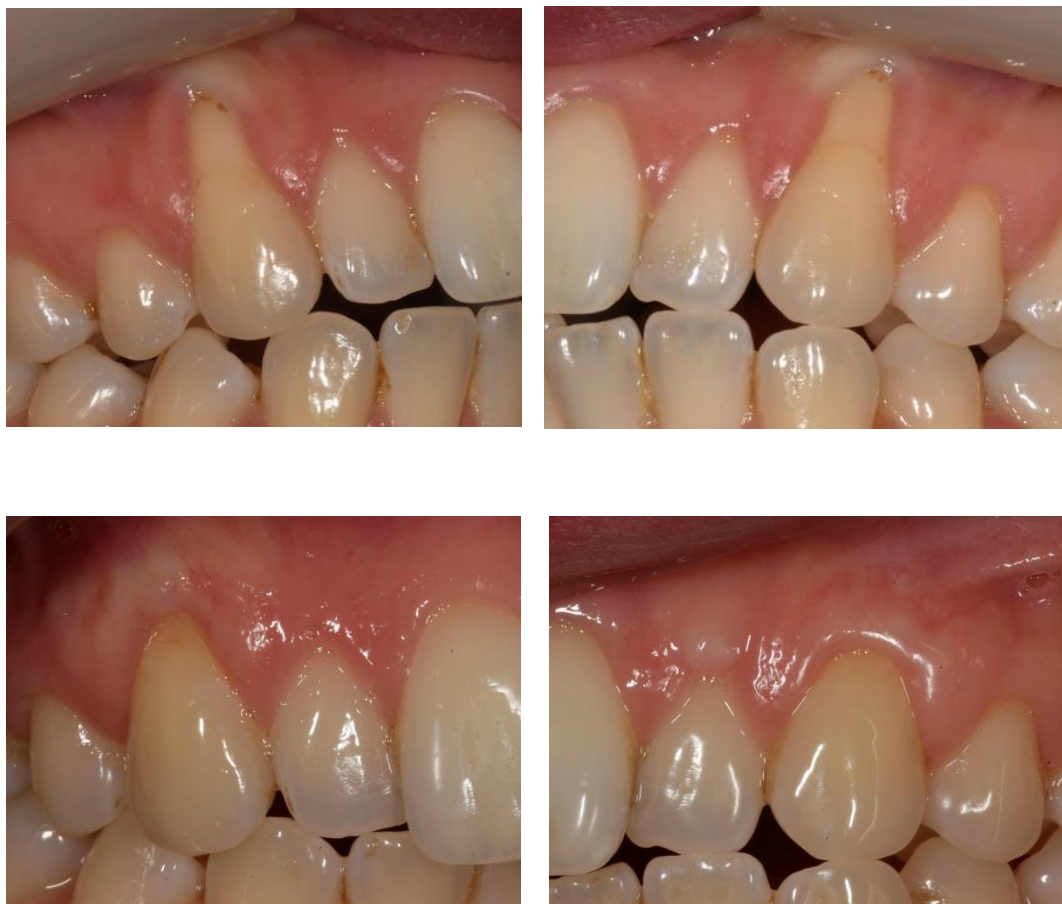
Once the SCTG was harvested it was placed in EMD (Emdogain). The donor site was closed with modified compression mattress suture (5-0 serafast). The root surface was prepared with 24% EDTA gel for 2 minutes (Pref gel). Emdogain was then applied to the root surface. The SCTG was secured over the recession using simple and sling sutures (6-0 seralon). The sutures were removed at 2 weeks.



Outcome



The above images demonstrate before and after results of the case. There was 100% root coverage UL3 and 80% (4/5mm) root coverage UR3. The UL3 is shown 6months post-surgery and the UR3 is 3 months post-surgery. A harmonious result was achieved with high patient satisfaction.



There is a small cervical wear defect UR3 which could be restored to improve the appearance further. There has been some slight bunching of the tissue around the UL2 which will remodel over time.

Discussion

The aetiology of recession in this case is largely unknown. There is mild buccal positioning of the roots within the alveolus. It is likely there was a natural buccal bony dehiscence after final facial and dental growth. Previous photographs offered by the patient revealed that the recession had occurred within the last 2-3 years. Other factors that may have played a role is tooth brushing trauma and a naturally thin biotype.

Zuhr et al found root coverage percentage of single recession defects to be 98% for tunnel procedures compared to 71% for 3-sided coronally advanced flaps.² Although there is no accepted consensus on the ideal technique, the use of an autogenous connective tissue graft in conjunction with a Coronally Advanced Flap (CAF) appears to be more stable than CAF alone over 5 years³ and the most predictable.⁴ The use of microsurgical instruments and loupe magnification was utilised which has favourable outcomes when compared to conventional macrosurgical techniques.⁵

The result of this case at 3 months is comparable to that cited in the literature. One complication of this technique can be bunching of the tissue which can leave the coronally advanced flap uneven.

Alternative approaches would be a 3-sided coronally advanced flap with or without a connective tissue graft or a laterally rotated pedicle flap. While these techniques have favourable reported success rates it is the tunnel approach which avoids relieving incisions. Relieving incisions can result in unpredictable scarring. In addition, the later of these techniques requires partial healing by secondary intension.

Sculean et al describes the laterally closed tunnel for treatment of deep isolated mandibular recession defects.⁶ In this case the approach has been to coronally advance the flap and laterally close with specific suturing techniques described in this case series. An advantage of laterally closing the flap is to minimise the sulcal depth reduction and avoid excessive bunching of the flap in single recession defects. This case series demonstrated excellent results with the technique resulting in 96% mean root coverage.⁶

There is limited clinical evidence to support the use of additional enamel matrix derivative (emdogain) in conjunction with connective tissue grafting. However, animal studies have demonstrated more favourable wound healing and true regeneration with emdogain use to treat recession defects when compared to connective tissue grafting alone.⁷

Multiple factors will contribute to a successful outcome which in this case included good oral hygiene, highly motivated patient, medically fit and well, non-smoker, no interdental attachment loss, minimal cervical wear and remaining keratinised mucosa. The position of the teeth relative to the alveolar ridge, high smile line, width and depth of the recession were considered risk factors for a sub-optimal outcome.

A reflection of this case is the need to ensure suitable patient selection and good clinical skills to carry out the technically demanding procedure. This is a long procedure with multiple surgical sites, increased morbidity and multiple local anaesthetic injections. If the patient will not tolerate the procedure or the clinician is not able to provide the procedure predictably, an alternative technique may be required which may be associated with an overall lower recession coverage.

References

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