

Management of Gingival Recession with Puros Dermis Allograft Tissue: A Case Report

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Abstract: One of the most common esthetic concerns associated with the periodontal tissues is gingival recession. marginal tissue recession is associated with esthetic complaints, thermal and tactile sensitivity, and a tendency toward root caries. A large variety of mucogingival grafting procedures are available palatal anatomy may limit the amount of autogenous tissue that can be harvested, thus limiting the number of procedures that can be performed. Moreover a patient may not desire to have additional tissue transplanted from the palate, due to increased pain and morbidity. This case report demonstrates successfully the use of Puros Dermis Allograft Tissue (PDM) for the treatment miller's class III recession in upper anterior teeth.

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1. Introduction

The American Academy of Periodontology has defined marginal tissue recession as an acquired deformity with the gingival margin being located apical to the cemento-enamel junction (CEJ), resulting in exposed root surface and loss of attached gingiva.¹ Recession has been clinically related to incidence of attachment loss, root caries, hypersensitivity, unaesthetic gingival appearance and cervical wear.²

Many surgical technique proposed for root coverage include connective tissue graft (CTG), free gingival graft (FGG), guided tissue regeneration (GTR) and the coronally advanced flap (CAF)³⁻¹²

Subepithelial connective tissue graft (CTG) technique have been suggested that the gold standard for root coverage procedures, which requires a donor site and a recipient site, leading to greater patient discomfort and increased surgical time. The need for a second surgical procedure to harvest donor tissue is a disadvantage of the CTG because only a limited amount of donor tissue is available for multiple recession defects. Thus, there has been a desire to find a substitute to replace the autogenous donor tissue. As a response, acellular dermal matrix graft (ADM) has been used as a substitute for CTG in root coverage procedures.^{7, 13, 14}

A new material, Puros Dermis Allograft (PDM), was introduced as an acellular dermal allograft for root coverage in the treatment of gingival recession. The allograft retains the natural collagen matrix and mechanical properties of native dermis as a result of the company's proprietary Tutoplast process preserving the collagen matrix and tissue integrity, this process removes the cellular components. Also,

the tissue processing preserves tissue biomechanical properties, while inactivating bacterial, viral, and prion contamination and eliminating antigenicity. The material is packaged in a sterile packet with the absence of residual antibiotics. The rehydration of the PDM is reported by the manufacturer to be only 30 seconds compared to 20 to 30 minutes for ADM.¹⁴

Based on Miller's classification 100% root coverage can be anticipated in class-I and class- II recession. In class – III recession, partial root coverage can be expected. In class – IV recession, root coverage is not anticipated although occasionally it can be obtained.¹⁵ The purpose of this case report is to evaluate the use of PDM for the treatment miller's class III recession.

2. Case Report

A 60 years male free from any medical systemic disease referred to the Department of Periodontics Collage of Dentistry King Abdul-Aziz University Saudi Arabia with chief complaint of progressive recession and hypersensitivity related to the upper anterior teeth. On examination, Miller class III gingival recession was seen in teeth # 11, 21,22 and high frenum attachment between the central incisors (Fig 1,3). After completion of phase I the frenectomy was done by administration of local anesthetic followed by v shape incision to cut the frenal attachment with 15c blade and suture with 5-0 bioabsorbable sutures (Fig 2). Two months later after frenectomy root coverage procedure done as follow after induction of local anesthesia, the exposed root surfaces were carefully planed with curets and ultrasonic instruments.



Fig.1



Fig.2



Fig.3



Fig.4



Fig.5



Fig.6

An intrasulcular incision was made with surgical papilla corresponding to the recessions extending the incision horizontally 3 mm mesially and distally at the level of the cemento-enamel junction (CEJ). Two oblique corono-apical incisions were made extending into alveolar mucosa. A partial thickness flap was raised by sharp dissection. The adjacent papillae were slightly denuded. The exposed root surfaces were treated with PDM (Zimmer Dental Inc,US) that was aseptically rehydrated in sterile saline, according to the manufacturer's instructions. The graft was trimmed to a shape and size designed to cover the root surfaces and the surrounding bone.

The PDM was sutured over the defect with 4-0 chromic gut suture (ethicon inc. a johnson & johnson co.) with sling around teeth (Fig 4). The previously reflected flap was coronally positioned to cover the entire graft. The flap was then sutured into place using non-resorbable 5-0 nylon sutures (ethicon inc. a johnson & johnson co.) by sling and interrupted knot (Fig5). No periodontal dressing was placed. The patient was instructed to discontinue tooth brushing and avoid trauma or pressure at the surgical site. A 0.12% chlorhexidine was prescribed 2 times daily for 3 weeks following surgery, and an anti-inflammatory drug Ibuprofen 600mg (glaxosmithkline.UK) was also prescribed as needed. The sutures were removed from 14 days after surgery. After this period, the patient resumed mechanical tooth cleaning of the treated areas using a soft toothbrush. The patient was recalled for control and prophylaxis after 2 and 4 weeks and every 3 months. The clinical appearances at 1 years show complete root coverage and an good esthetic result (Fig6).

3. Discussion

Many soft tissue procedure have been developed to cover root surfaces and increase zone of

attached gingival.³⁻¹² Supepithelial connective tissue graft technique have been suggested that the gold standard for root coverage procedures. The need for a second surgical procedure to harvest donor tissue is a disadvantage of the CTG because only a limited amount of donor tissue is available for multiple recession defects. Thus, there has been a desire to find a substitute to replace the autogenous donor tissue. As a response, acellular dermal matrix graft (ADM) has been used as a substitute for CTG in root coverage procedures.⁷

Up to our knowledge this is the first case report use The Puros Dermis Allograft Tissue in the treatment of class III recession which show good root coverage with excellent color match. In study by Paul Petrunaro 2007 the author uses the same material in Correction of Iatrogenic Gingival Recession in the Esthetic Zone and he get excellent soft tissue integration.¹⁶ Also, Barker et al found no statistical or clinical difference in the amount of root coverage, probing depth, or keratinized tissue in coronally advanced flaps for root coverage with either of the two acellular dermal matrix material. Both materials were successful in achieving root coverage.¹⁴

Harris et al compared ADM and SCTGs in short-term (12 to 13 weeks) and long-term (48 to 49 months); sites treated with ADM tend to break down with time.¹⁷ But, Hirsch et al showed stable result after 2 years of observation when comparing ADM graft to SCTGs.¹⁸ Woodyard et al. studied the effects of the use of ADM on gingival thickness and root coverage amount compared to coronally positioned flap (CPF) alone and concluded that CPF plus ADM allograft significantly increased the gingival thickness when compared with CPF alone. The coverage of gingival recession was significantly improved with the use of ADM.¹⁹

4. Conclusion

In the presented case the application of Puros Dermis Allograft for gingival augmentation achieved satisfactory result, improved soft tissue condition and treat the patient complain with minimal discomfort for the patient.

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