



Management Of Gingival Recession Using Pin Hole Technique: A Case Report

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	Abstract
	<p>One of the most common periodontal disease is Gingival Recession, which is the apical shift of the gingival margin, results in root surface exposure. Its etiology is multifactorial, including teeth position within the dental arch, bony dehiscence, alveolar mucosa thickness, incorrect toothbrushing, orthodontic treatment, and periodontal disease. With the introduction of minimally invasive surgery, various techniques proposed for managing GR minimize patient morbidity and maximize surgical outcomes. The present case report includes a patient with primary complaint of sensitivity and poor aesthetics in the upper front tooth region. Pin Hole technique was planned and performed. Post-operative healing was uneventful, with significant recession reduction in the length of GR and an increase in the width of the attached gingiva.</p>
CC License CC-BY-NC-SA 4.0	Keywords: Recession coverage, minimally invasive technique, pin-hole technique, GTR membrane

INTRODUCTION:

One of the prevalent cosmetic issues concerning periodontal tissues is gingival recession (GR), which affects nearly all individuals in middle age or older to some extent. GR involves the gradual migration of the gingival margin towards the apex, resulting in the exposure of the tooth root. This condition can be triggered by various factors including periodontal disease, plaque accumulation, inflammation, improper flossing techniques, aggressive tooth brushing, occlusal irregularities, and prominent roots. GR can manifest as localized or generalized recession and may occur with or without loss of attached gingival tissue. Sensitivity can be heightened due to exposed dentin resulting from GR.¹

Numerous perioplastic surgical procedures, such as free gingival graft, laterally repositioned flap, and coronally advanced flap along with their respective modifications, have been recommended for treating gingival recession (GR). Over the past decade, patients' aesthetic preferences and their desire for less invasive procedures have spurred the advancement of minimally invasive techniques.²

Drawing from a similar concept, John Chao introduced a novel minimally invasive approach known as the pinhole surgical technique (PST) in 2012. This technique entails the use of a needle to create a small aperture in the alveolar mucosal tissues. Through this opening, specialized instruments (tunnelling knives TKN1 and TKN2) are employed to gently loosen the gingival tissues and maneuver them to cover the exposed root surface.³ This process entails releasing all muscular and fibrous adhesions until the flap can move upward without tension. As it involves solely adjusting the position of existing gingival tissues upward, PST does not require incisions, does not damage the intrasulcular papillary tissues, necessitate sutures, or lead to postoperative complications. PST presents a promising approach to achieving the periodontal goal of gingival recession coverage.⁴

Guided Tissue Regeneration (GTR) was employed alongside PST to enhance tissue thickness and bolster the new elevated tissue height. GTR operates on the principle of epithelial exclusion or compartmentalization, involving the placement of a barrier membrane between the surgical flap and the root surface.⁷ This membrane serves to impede gingival epithelial cells and connective tissue from disrupting the healing process on the root surface.⁸

CASE REPORT:

One female patient presented at the Department of Periodontology and Implantology, Subharti Dental College & Research Centre, Meerut, 2023, with a chief complaint of sensitivity due to recession in maxillary anterior teeth. Medical history revealed no significant findings.

SURGICAL PROCEDURE:

The treatment plan was explained and informed consent was obtained before treatment, oral prophylaxis was done. Under local anesthesia, pin hole with a needle was made in the base of the vestibule just apical to the recession site in case of a single recession defect (fig.1,2). The diameter of the hole measured around 2–3 mm (fig. 3). A tunnelling knife (TKN 1 and TKN2) (fig. 5) was inserted through the pinhole (fig. 4). The tunnel created through the pinhole was then extended coronally and horizontally to allow for elevation of two adjacent papillae on each side of denuded root(s). The interproximal extension of flap allowed the coronal advancement of the mucogingival complex beyond the cementoamel junction at the defect site. It was then rinsed with irrigating saline and root surface was cleaned. Now the PerioCol®-GTR membrane was placed through the pinhole beneath the tunnel (fig. 6). For stabilization, one coronal composite stop for suture was placed on the crown of the teeth with light-cure composite (fig. 7). 5-0 resorbable sutures were placed. Amoxicillin 500 mg three times a day and a painkiller SOS was advised for three days postoperatively. Patient was refrained from brushing at the surgical site for 4 weeks and was advised 0.2% chlorhexidine mouthwash twice daily for 15 days. The stabilizing suture was removed on the 10th day of surgery.

RESULT:

The healing was uneventful on follow up. As it can be clearly appreciated from the image (Fig. 8), the soft tissue around the site of recession had healed without any sign of erythema. At the same time, there was optimal recession coverage when the patient was followed up at three months.

DISCUSSION:

A research investigation carried out over a period of six months, utilizing a minimally invasive procedure that has garnered significant attention due to its minimal patient morbidity and outcomes. Also, it gives promising results in treatment of miller's class I and II recession defects.⁵ The rationale behind using this novel surgical technique is that it is minimally invasive approach, scalpel usage is restricted to pinholes with no damage to intrasulcular tissues, does not require any sutures, minimal postoperative complications such as bleeding, pain, and better healing due to minimal manipulation of soft tissue by Agarwal et al.²

Mostafa et al⁴ reported that PST is a promising modality that reaches the periodontist ambition for GR defects. This technique by John Chao reverses GR without using Donor grafts, flap elevation or sutures. It ensures the

patients comfort and satisfaction.

Long-term outcomes following treatment of RT 1 multiple adjacent GRs using PST was evaluated. The result indicated statistically and clinically significant complete root coverage.⁶ The results indicated that using collagen matrix in conjunction with the Chao Technique could be successfully used as an alternative to connective tissue grafts, with the advantage of avoiding the discomfort and morbidity of connective tissue harvesting.

Available data from recent literature indicate that tunnel technique is a highly effective and predictable procedure in the treatment of multiple GR defects. The result indicate that the prescribed treatment approach may lead to predictable root coverage.

Ashraf et al⁹ stated that GTR could be favorably employed to regenerate lost periodontal tissues. GTR involves the use of barrier membranes that exclude gingival fibroblasts and epithelium from the healing site thus allowing the granulation tissue derived from the periodontal ligament to repopulate the space adjacent to the denuded root surface.

CONCLUSION:

From the present case report, it can be concluded that PST is a promising modality that reaches the periodontal ambition for the GR defects. Also, use of specialized instruments TKN1 & TKN2 has provided successful outcome in treatment of GR defects. The minimally invasive technique has an added advantage of decreased tissue trauma, enhanced wound healing and adequate blood supply. Also, excellent clinical results have been achieved with the use of collagen membrane.

Limitations of the PST include it is technique sensitive, the patient must be on a soft food restricted diet for multiple weeks post-surgery, and the technique has its best success when early to moderate recession cases are treated.¹⁰ Advanced recession cases (with bone loss and gum tissue loss) are not indicated with traditional PST, but there are case series in the literature that have used PST in combination with both hard and soft- tissue grafts and that have had success with advanced recession defects (Miller class III and class IV recession).

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FIGURES:



Fig. 1 Pre – operative View irt 24



Fig. 2 Pre – operative Recession Width



Fig. 3 Pin hole of diameter of 2-3 mm



Fig. 4 Tunnelling done with TKN1 &TKN2

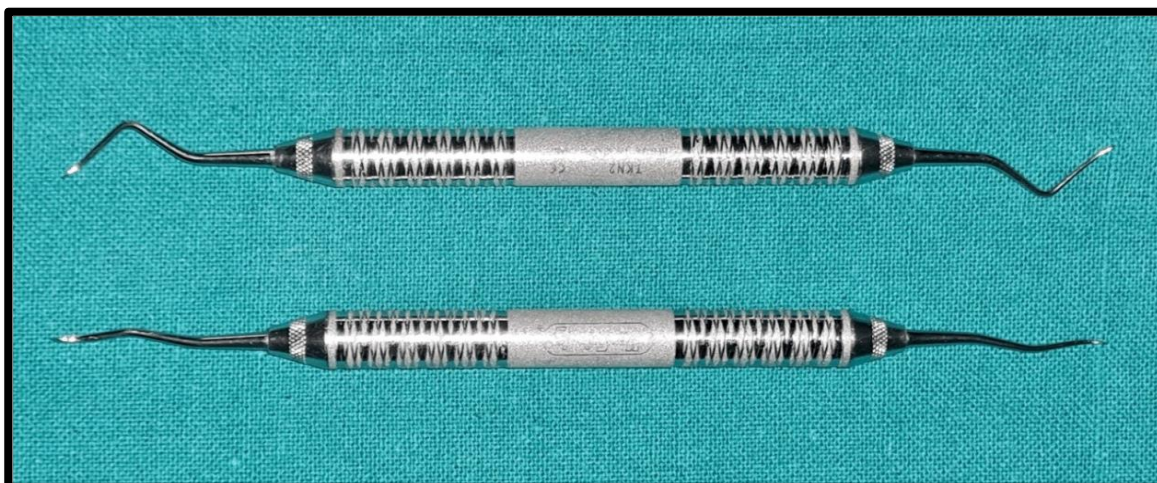


Fig. 5 Tunnelling knives TKN1 & TKN2

Available online at: <https://jazindia.com>



Fig. 6 PerioCol®-GTR membrane was placed



Fig. 7 Coronal composite stop for suture



Fig.8 3 month post operative view