



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

International Journal of Current Research
Vol. 11, Issue, 09, pp.7397-7399, September, 2019

DOI: <https://doi.org/10.24941/ijcr.36777.09.2019>

CASE REPORT

SURGICAL MANAGEMENT OF A THROUGH AND THROUGH LESION USING PLATELET RICH PLASMA: A CASE REPORT

^{1,*}Dr. Ritika Dhamija, ²Dr. Nishant Chauhan, ³Dr. Natasha Saini and ⁴Dr. Bindu Kadian

^{1,2}Department of Conservative dentistry and Endodontics, PGIDS Rohtak, India

^{3,4}Department of Pedodontics and Preventive Dentistry, PGIDS Rohtak, India

ARTICLE INFO

Article History:

Received 12th June, 2019

Received in revised form

18th July, 2019

Accepted 15th August, 2019

Published online 30th September, 2019

Key Words:

Through and through,
Periapical surgery,
PRP.

Copyright©2019, Ritika Dhamija et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Dr. Ritika Dhamija, Dr. Nishant Chauhan, Dr. Natasha Saini and Dr. Bindu Kadian. 2019. "Surgical management of a through and through lesion using platelet rich plasma: A case report", *International Journal of Current Research*, 11, (09), 7397-7399.

ABSTRACT

Introduction: Through and through bony lesions are characterized by erosion of both buccal and palatal/lingual bony plate in relations to the teeth apices. PRP has been used in various fields and proven beneficial in healing. **Case description:** Lack of both buccal and lingual cortical plates was confirmed both clinically and CBCT in the case. Endodontic Microsurgery was performed following modern techniques and the lesions were filled with PRP before closure. A follow up was done at 12 month follow up. **Discussion:** Various studies have demonstrated the role of different GTR techniques in the healing of through and through lesions. PRP being a rich source of growth factors found to enhance healing. However there is a scarce literature on the use of PRP in endodontics. We have assessed the radiographic healing with the use of PRP. **Conclusion:** Our case report has demonstrated both clinical and radiographic success using PRP in through and through defect at the end of 12 months.

INTRODUCTION

Apical surgery has become a standard of care for tooth maintenance if the lesion do not get resolve by orthograde approach. Whether a successful outcome of periapical surgery is achieved can be affected by many factors among which size and location of periapical bone loss are thought to be most considerable. Hirsch *et al.* showed that teeth with apical destruction of > 5 mm had a healing frequency of 39%, while teeth with destruction of ≤ 5 mm exhibited a healing frequency of 55%. Furthermore, if the apical lesion had neither buccal nor lingual walls, complete healing was significantly reduced to 25%. Various modes have been used for regeneration among which autologous products have gain importance now a days. Platelet rich plasma (PRP) is an autologous concentrate of platelets suspended in plasma. It is well known that platelets have many functions beyond that of simple homeostasis. It contains growth factors and bioactive molecules like transforming growth factor beta, bone morphogenic proteins, insulinlike growth factors, and angiogenetic growth factors, which stimulate collagen production, angiogenesis, and cell differentiation, including all the steps involved in wound healing

CASE REPORT

A 24-year-old female patient, in general good health, presented to department of Conservative Dentistry and Endodontics,

PGIDS Rohtak with swelling and pain in the region of lower anterior tooth since last 4-5 months. Radiographic examination (radiovisualgraphy) revealed the presence of a large periradicular lesion of strictly endodontic origin. The right and left central incisor had no vital signs and symptoms (EPT and COLD test), and it was decided to treat it endodontically. Three months later, the non-surgical treatment was classified as failed as symptoms and intermittent swelling of the region continued. Both teeth exhibited an adequate final restoration with no clinical evidence of coronal leakage. No acute symptoms were present. Less than 4 mm of probing depth was detected circumferentially with a periodontal probe. The CT scan revealed the presence of a through-and-through lesion. As a consequence, a periradicular surgical approach of both central incisors using a new GTR technique was decided. Prior to surgery, a consent form was signed from patient. A session of professional oral hygiene instruction was provided. Under local anaesthesia incision is given with no.15 surgical blade. Full thickness mucoperiosteal flap is raised and retracted. Pathology is visualized and removed with sharpened bone currettes and angled periodontal currettes. Pathology is visualized and removed with sharpened bone currettes and angled periodontal currettes. 3mm root tip was resected with 0° - 10° bevel under microscope (10 × 16 magnification). Root end preparation was done by specially designed ultrasonic tip (satelec SC 12 no). Retrograde filling was done with MTA (mineral trioxide aggregate). PRP was prepared with double centrifugation method. Blood was collected in a 10-mL sterile glass tube coated with an anticoagulant (acid citrate dextrose).

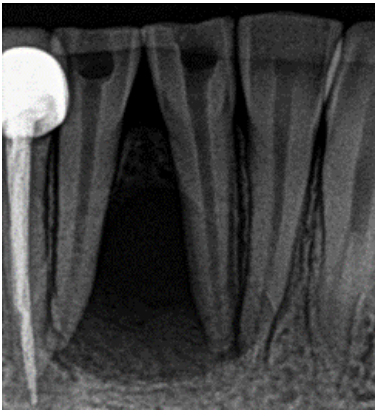


Fig. 1. Preoperative radiograph

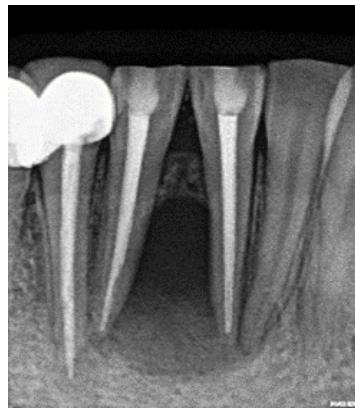


Fig. 2. Post obturation radiograph

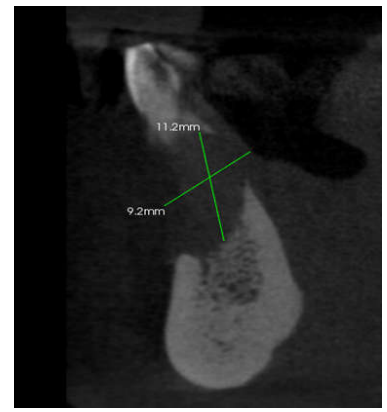


Fig. 3. Saggital view cbct

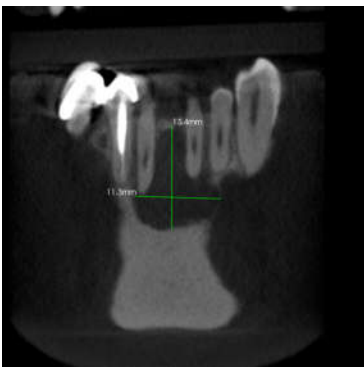


Fig. 4. Coronal view cbct



Fig 5. Intraoperative photo after raising flap



Fig. 6. Retrograde filling with MTA



Fig. 7. Platelet rich plasma (prp) in the lesion



Fig. 9. Flap sutured back with 4-0 silk

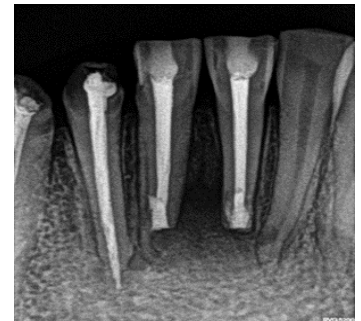


Fig. 10. 1 Month post op radiograph



Fig. 11. 12 month post op radiograph

Whole blood was initially centrifuged (2,400 rpm for 10 minutes) to separate PRP and platelet-poor plasma (PPP) portions from the red blood cell fraction. PRP and PPP portions were again centrifuged (3,600 rpm for 15 minutes) to separate the PRP from the PPP. Fifteen minutes before use of the PRP in surgical procedures, the PRP was rapidly thawed, and a coagulated preparation of 0.3 mL of PRP was obtained by its combination with 0.1 g of sodium alginate. Within a few minutes, the PRP preparation assumed a sticky gel consistency. Then, the PRP was carried and packed into the defect to the level of defect walls. Before closure activated PRP was placed in the bony lesion. Flap was repositioned with 4-0 black silk suture. Post op instructions were given to the patient. Patient was followed up till 1 year and no clinical signs or symptoms were present at the end of 1 year. Radiographically lesion was completely healed.

DISCUSSION

It is generally thought that endodontic lesions, even with large periapical radiolucencies, can heal or regress after complete removal of the intracanal irritants by conventional endodontic treatment alone. However, additional surgery may be required if nonsurgical root canal therapy is unsuccessful in resolving the periradicular pathosis. Guided tissue regeneration has been applied through various modes-barrier membranes, bone replacement analogues or combination. Recently use of autologous products have started emerging alternative to other GTR methods. The benefits from the adjunctive use of an osseous graft in periapical surgery are controversial. Tobon et al demonstrated that the combined use of bone grafting material in GTR procedures enhanced periapical tissue regeneration, whereas Britain et al and von Arx et al showed no additional effects. An autologous material that possesses a high concentration of biologic mediators may give added benefit to its presence by improving the rate of wound healing and reducing the cost of additional materials. Autologous PRP has shown to enhance wound healing in different organ systems and to improve the osseous wound healing both quality and quantity. Our case report has demonstrated successful resolution of clinical sign and symptoms as well as improved radiographic healing using platelet rich plasma in through and through defects

REFERENCES

Apaydin ES., Torabinejad M. 2004. The effect of calcium sulfate on hard-tissue healing after periradicular surgery. *J Endod.*, 30:17-20.

Baek SH., Kim S. 2001. Bone repair of experimentally induced through-and-through defects by Gore-Tex, Guidor, and Vicryl in ferrets: a pilot study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.*, 91:710-14.

Barkhordar RA., Meyer JR. 1986. Histologic evaluation of a human periapical defect after implantation with tricalcium phosphate. *Oral Surg Oral Med Oral Pathol.*, 61:201-6.

Beck-Coon RJ., Newton CW., Kafrawy AH. 1991. An in vivo study of the use of a nonresorbableceramic hydroxyapatite as an alloplastic graft material in periapical surgery. *Oral Surg Oral Med Oral Pathol.*, 71:483-8.

Dahlin C., Linde A. 1990. Gottlow J, Nyman S. Healing of maxillary and mandibular bone defects using a membrane technique: An experimental study in monkey. *Scand J Plast Reconstr Surg Hand Surg.*, 24:13-19.

Dahlin C., Lindhe A., Gottlow J., Nyman S. 1988. Healing of bone defects by guided tissue regeneration. *Plast Reconstr Surg.*, 81:672-76.

Dietrich T., Zunker P., Dietrich D., Bernimoulin J. 2003. Periapical and periodontal healing after Osseous grafting and guided tissue regeneration treatment of apicomarginal defects in periradicular surgery: results after 12 months. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.*, 2003;95:474-82.

Garrett K., Kerr M., Hartwell G., O'sullivan S., Mayer P. 2002. The effect of a bioresorbable matrix barrier in endodontic surgery on the rate of periapical healing: an in vivo study. *J Endod.*, 28:503-6.

Hirsch JM., Ahlstrom U., Henrikson PA., Heyden G., Peterson LE. 1979. Periapical surgery. *Int J Oral Surg.*, 8:173-85.

Lin L., Chen MY., Ricucci D., Rosenberg P. 2010. Guided tissue regeneration in periapical surgery. *J Endod.*, 36:618-25.

Maguire H., Torabinejad M., McKendry D., McMilan P., Simon GH. 1998. Effects of resorbable membrane placement and human osteogenic protein-1 on hard tissue healing after periradicular surgery in cats. *J Endod.*, 24:720-5.

Marin-Botero ML., Dominguez-Mejia JS., Arismendi-Echavarría JA., Jaramillo M, Florez- Moreno GA., Tobon SI. et. 2006. Healing response Of apicomarginal defects to two guided tissue regeneration techniques in periradicular surgery: a double-blind, randomized clinical trial. *Int Endod J.*, 39:368-77.

Murashima Y., Yoshikawa G., Wadachi R., Sawada N., Suda H. 2002. Calcium sulphate as a bone substitute for various osseous defects in conjunction with apicectomy. *Int Endod J.*, 35:768-74.

Pecora G, Kim S, Celletti R, Davarpanah M. The guided tissue regeneration principle in endodontic surgery: one-year postoperative results of large periapical lesions. *IntEndod J.*, 1995;28:41-6.

Pecora G., De Leonardis D., Ibrahim N., Bovi M., Cornelini R. 2001. The use of calcium sulphate in the surgical treatment of a 'through and through' periradicular lesion. *Int Endod J.*, 34:189-97.

Taschieri S., Del Fabbro M., Testori T., Salta M., Weinstien R. 2008. Efficacy of guided tissue regeneration in the management of through-and-through lesions following surgical endodontics: a preliminary study. *Int J Periodontics Restorative Dent.*, 28:265-71.