SOCKET REGENERATION BY PLATELET RICH FIBRIN- A PROSPECTIVE CLINICAL STUDY
Dr. Snehalatha Narvekar, Dr. Shweta Bhayade, Dr. Nishad Gawali, Dr. Sapnil Gaidhankar

ABSTRACT
Socket regeneration by Platelet Rich Fibrin (PRF) was done with an aim of assessing the efficacy of Platelet Rich Fibrin in bone regeneration of third molar socket. Total of 20 patients were included in the study. Subjects underwent surgical dis-impaction of mandibular 3rd molars under local anaesthesia. Socket is filled with Platelet rich fibrin prepared by centrifugation of patient’s own blood. The bone regeneration assessed radiographically using orthopentamogram at post-operative interval of 3 weeks, 6 weeks, and 10 weeks. It can concluded that with PRF represents a simple and effective means of accelerating new bone growth in a variety of oral and dental applications without the disadvantages of barrier membranes, non-vital graft materials or exogenous thrombin associated with other systems.

Key words: Platelet rich fibrin, Socket Regeneration, Bone Regeneration, Bone Density, Healing.

Correspondence:
Dr. Snehalatha Narvekar
Senior lecturer, Department of Oral and Maxillofacial Surgery,
Nanded Rural dental college and Research centre, Nanded.
Email Id – dr.sneha009@gmail.com
Phone No - 9743003073
INTRODUCTION

Healing in third molar extraction is by secondary intention and has its own intraoperative and postoperative events. Emphasis is given to enhance the soft tissue and hard tissue healing process so as to achieve faster and predictable healing and to reduce post-operative complications. Preservation of alveolar bone height is of paramount importance following extraction of a tooth, for better strength and rehabilitation. Schropp showed a ridge width loss of 50% over a 12-month period with two thirds of the loss occurring in the first three months following tooth removal with dimensional change between 5 to 7 mm. The importance of optimum bone healing in third molar sockets has led to the use of different materials to promote or facilitate faster healing. The ideal graft maintains the space of the extraction socket during healing while acting as a scaffold for new bone formation. Recently platelet derived growth factors has shown promising results in promoting healing of extraction socket. Platelet rich Fibrin is a new class, has shown beneficial results in healing of wound in various tissues of human body. Socket Regeneration by Platelet rich fibrin after third molar extraction is performed keeping the basis that protecting the wound and regenerating bone will likely be the standard of care for all extractions.

AIM AND OBJECTIVES:

To evaluate the efficacy of Platelet Rich Fibrin in bone healing following removal of mandibular third molars.

MATERIAL AND METHODS:

A clinical study on total of 20 patients with impacted third molar between the age group of 18-45 year was done. Patients indicated to remove third molars and fit to undergo the surgery were included.
Post-operative bone healing was evaluated using digital Orthopantomograph since the use of RVG censor and IOPA film did not yield complete view of 3\textsuperscript{rd} molars in some cases. To make it uniform digital OPG was taken in all cases at duration of 3\textsuperscript{rd} week, 6\textsuperscript{th} week and 10\textsuperscript{th} week respectively. The bone density was calculated using Grey scale histogram(Figure 4).6

RESULTS :
In the present study the density of bone was assessed at an interval of 3\textsuperscript{rd} week, 6\textsuperscript{th} week and 10\textsuperscript{th} week(Figure 5,5a,5b,5c,5d). The density was calculated on digital OPG using the grey scale histogram. The healing was satisfactory.

Comparison of different time intervals with respect to bone density in PRF by statistically done by paired t test. Mean bone density at 3\textsuperscript{rd} week, 6\textsuperscript{th} week and 10\textsuperscript{th} week was 110.30, 92.80, and 125.80 respectively(Figure 6). Mean bone density was compared using Chi-square test(Table 1). Evaluation of the effect of platelet rich fibrin matrix at different intervals postoperatively showed that the process of ossification started early and filled with osseous bone after four weeks without any foreign body reaction adversely affecting the amount of bone formation.
DISCUSSION:

Healing of any wound entails a complex interplay of varied cells and a complex array of growth factors. Bone presents unique connective tissue healing, involving cellular regeneration and the production of a mineral matrix rather than just collagen deposition\(^1\). PRF is a matrix of autologous fibrin with large quantity of platelets and leukocyte cytokines\(^7\).

Bone density is an important factor to assess the bone healing. The bone tends to follow a sequential path of maturation. In the present study the density of bone was assessed at an interval of 3 week, 6 week and 10 week. The density was calculated on...
Evaluation of the effect of platelet rich fibrin matrix at different intervals postoperatively showed that the process of ossification started early and filled with osseous bone after four weeks, this result was coincide with Dohan et al.,2006 who found the use of PRF reduced the healing time and brought to a faster bone regeneration. According to Wu et al. 2012 Jun In vitro study PRF is capable of increasing osteoblast attachment, proliferation, and simultaneously up regulating collagen-related protein production. These actions in combination would effectively promote bone regeneration.

The prolonged presence of growth factors in the healing sites may be the most significant factor that causes the much more rapid healing in the extraction sockets grafted with PRF. There may be other benefits when PRF is used alone, (1) Decreased time required to perform the socket preservation procedure. (2) Elimination of complications and a reduction in ridge dimensions (3)

“Better quality” of bone in healed extraction sites grafted with PRF (4) possibly less bone resorption and therefore more ridge width and height after healing

CONCLUSION:

From the analysis of the result PRF as a graft material, the healing process is more rapid and does not have an associated foreign body reaction adversely affecting the amount of bone formation. Platelet rich fibrin is a suitable alternative to allograft as Platelet rich fibrin has simplified processing and lesser hypersensitive reaction. PRF may represent a simple and effective means of accelerating new bone growth in a variety of oral and dental applications without the disadvantages of barrier membranes, non-vital graft materials or exogenous thrombin associated with other systems. However a study with larger sample size and other evaluating parameters has to be undertaken to arrive on conclusion.

REFERENCES:

7. Athraa Y. Alhijazi B.D.S., M.Sc., and Ph.D. (1) Siba A. Mohammed:


Authors Information
1. Dr. Snehalata Narvekar. Sr.Lecturer Department of Oral & Maxillofacial Surgery. Nanded Rural Dental college and Research Centre, Nanded

2. Dr. Shweta Bhayade. Sr.Lecturer Department of Pedodontics and Preventive Dentistry. Nanded Rural Dental college and Research Centre, Nanded.

3. Dr. Nishad Gawali. Sr.Lecturer Department of Public Health Dentistry. Nanded Rural Dental college and Research Centre, Nanded

4. Dr. Sapnil Gaidhankar. Sr.Lecturer Department of Periodontology and Implantology. Nanded Rural Dental college and Research Centre, Nanded.

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