

CHAPTER ONE

INTRODUCTION

Bone and soft tissue regeneration is one of the most interesting issues in many areas of both human and animal dentistry. Regenerative procedures can be successfully applied for the enhancement of alveolar ridges. They are also important for periodontal regeneration. It is necessary to employ methods for enhancing these regenerative procedures. Currently, platelet-rich plasma is one of the latest available procedures.

Platelet-Rich Plasma (PRP) is an easily accessible source of autologous growth factors obtained from a sample of a patient's blood. It is obtained by sequestering and concentrating platelets by gradient density centrifugation. It has been shown to improve the rate of bone formation by 1.62 to 2.18 times that of controls (Marx, 1998).

Platelet-rich plasma (PRP) has been used in many fields of medicine such as orthopedics, neurosurgery, oral and maxillofacial surgery etc in order to accelerate the healing of both soft tissue and bone. Fracture of the mandible of domestic dogs is one of the most frequent cases in veterinary medicine. Normally, the treatment of those fractures is ligature wire to immobilize the mandible at least 6 weeks until the bone healing process is complete. The utilizing of autologous PRP may be an adjunct treatment modality not only to accelerate the healing process but also to enhance the bone regeneration. This helps shorten the immobilization time and minimize some complications of the conventional method. In some rare cases, such as tumor of the bone or some of the bone metabolic diseases, PRP may be also useful to accelerate and promote the bone formation process.

The hypothesis of this study is to explore the potential of PRP whether it can be used locally at the fracture site as an accelerator of the bone regeneration in canine mandible or not.



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