The Effect of different treatment modalities on healing of furcation perforation in dogs teeth

Thesis

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بسم الله الرحمن الرحيم

"وَقَالَ رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ"

صدق الله العظيم

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Introduction

Root perforation is a mechanical or pathological communication between the supporting periodontal apparatus of the tooth and the root canal system.(1) This communication compromises the health of the periradicular tissues and threatens the viability of the tooth.(2) Perforations are regarded as serious complications in dental practice and pose a number of diagnostic and management problems.

Different treatment protocols have been proposed for the repair of perforations. These include both surgical and non-surgical approaches. Regeneration and tissue engineering techniques were recently proposed for the repair of such defects.

The healing potential of periodontium (cementum, periodontal ligament and bone) after root perforation depends on the regulation of multiple interacting signaling pathways. Signaling molecules playing an important role in the self-repair process can also be liberated in pathologic conditions. To help promote endodontic tissue regeneration, the local application of growth factors and host modulating agents is being used to maximize the body's healing potential. Transforming growth factor (TGF)–b has been implicated in the differentiation of odontoblast-like cells and in pulp tissue repair in vivo. A novel platelet-derived growth factor (PDGF) isoform, might be involved in the pathogenesis of periodontal lesions.

Recently, platelet-rich plasma (PRP) has shown clinical success in enhancing endodontic regeneration for periapical inflammatory lesion.

However the long-term predictability remains questionable, and its anticipated benefits are moderate.

Platelet-rich fibrin (PRF) protocol, a simple and free technique developed in France by Choukroun,[3] is a second-generation platelet concentrate that allows one to obtain fibrin membranes enriched with platelets and growth factors that might enhance the healing potential of both soft and hard tissues. Recently, studies have demonstrated that the PRF membrane has a very significant slow sustained release of many key growth factors for at least 1 week and up to 28 days, which means that PRF could release growth factors with its own biological scaffold for wound healing process.