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Treatment of a Traumatic Oral Laceration Case in a Kitten

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Research Article

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ABSTRACT

The study consists of a 3.5-month-old female kitten brought to our clinic with the complaint of wide damaged tissue in the mouth area. After the clinical examination of the patient, Platelet-Rich Plasma (PRP) treatment was decided and applied to the large wound identified on the lip, gingiva and hard palate. In this study, the clinical results of PRP application on wound healing in this patient for whom surgical treatment was not suitable are presented.

Keywords: Gingiva, Kitten, Lip, Palate, PRP, Wound

Bir Yavru Kedide Travmatik Oral Laserasyon Olgusunun Tedavisi

ÖZ

Çalışmanın materyalini, ağız bölgesinde maddi kayıplı yara şikayeti ile kliniğimize getirilen 3,5 aylık yaştaki dişi yavru kedi oluşturmaktadır. Hastanın klinik muayenesi sonrasında; dudak, diş eti ve sert damakta belirlenen geniş yaraya Trombositten Zengin Plazma (PRP) yapılmasına karar verildi ve uygulandı. Bu çalışmada, cerrahi tedavinin uygun olmadığı hastaya, PRP uygulanmasının yara iyileşmesindeki klinik sonuçları sunulmuştur.

Süreç

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Anahtar Kelimeler: Damak, Diş Eti, Dudak, PRP, Yara, Kedi

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Introduction

The use and research of the Platelet Rich Plasma (PRP) has been very popular for the treatment of many diseases on human and veterinary medicine. The application of this simple, versatile and inexpensive biomaterial was initially used to achieve positive results in humans with alveolar maxillar defects and shed clinical light on many areas of human and veterinary medicine. Currently, PRP has been routinely used worldwide by vets in various fields such as dermatology, ophthalmology and sports medicine based upon its regenerative, anti-inflammatory and bacteriostatic characteristics (Etulain, 2018; Anitua ve ark., 2021; Perego, ve ark., 2022). PRP can be used as a monotherapy or as an adjuvant therapy agent for the treatment of corneal ulcers and erosions, keratoconjunctivitis sicca, wounds (alkali, burns, chronic), cutaneous ulcers, acute traumatic bone fractures, tendinopathies, joint pathologies, osteoarthritis and abdominal wall defects. It is also widely applied as a mesenchymal stem cell carrier for transplantation into bone defects (Feigin and Shope, 2019; El Halaby ve ark., 2020).

Growth factors in PRP plays a crucial role in enhancing local angiogenesis, regulation of cellular activity, migration of stem cells into the injury site, proliferation and differentiation of different stem cells and accumulation of matrix proteins that contribute to tissue regeneration (El Halaby ve ark., 2020). It has been shown that platelets, especially with the growth factors they contain, are of fundamental importance in hemostasis and healing. Platelet-derived growth factors (PDGFs) are the most well-known growth factors in wound healing and have potent mitogenic effects on fibroblasts and smooth

muscle cells at all stages of wound healing. PRP is obtained by centrifuging autologous blood at a certain cycle.

Case Presentation

The study consists of a 3.5-month-old, 0.90 kilogram female kitten brought to Aydın Adnan Menderes University, Faculty of Veterinary Medicine Research and Practice Animal Hospital, Surgery Department with the complaint of soft tissue wounds. In the anamnesis, it was stated that the patient was found and brought from the street. In the clinical examination, a wound with soft tissue loss and infection were detected on the lip, gingiva and palate (Fig. 1). The patient was anesthetized with Xylasin (1 mg/kg, im, Vetaxyl, Vet-Agro, Poland) and Ketamine (10 mg/kg, im, Keta-control, Mefar İlaç Sanayii A.Ş, Istanbul, Turkey). The wound was debrided, and Crystalin spray (Natural Health Products, Turkey) was used for disinfection. Amoxicillin and clavulanic acid (8.75 mg/kg, subcutan, Synulox Injectable Suspension, Haupt Pharma Italy,) was used for 7 days.

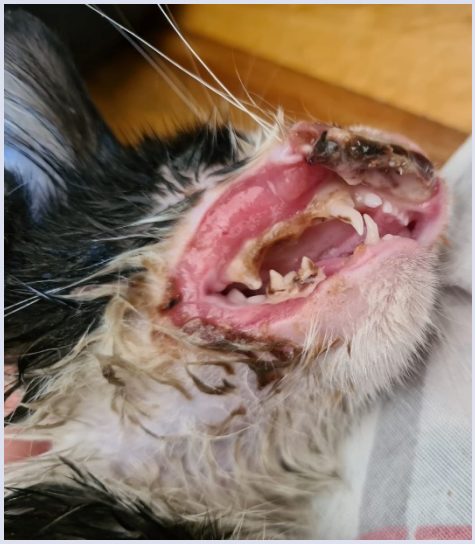

Figure 1. Patient before the treatment

Preparation of the PRP

From the vena cephalica of the patient, 6 ml of blood was taken into a blood tube containing EDTA (VACUETTE® TUBE 3 ml K3E K3EDTA, Greiner Bio-One) with a 21 G cannula. Then, the blood samples were centrifuged at 3000 rpm/10 min. The second centrifugation was carried out at 3000 rpm/10 min after the plasma and buffy coat layers were transferred to Eppendorf tubes with a micropipette. PRP was applied to the wound area with an insulin injector 1 week apart until fully recovered (Fig. 2).

Discussion

In various clinical studies on animals and humans, platelets have been shown to play an important role in the wound healing process when applied topically. PRP not only accelerates the healing process by releasing growth factors from platelets, but also provides an anti-inflammatory environment in the wound area. The antimicrobial properties are shown by inhibiting growth of various microorganisms (Aminkov ve ark., 2016). In a study it was found that PRP has improved the quality of healing by producing organized collagen bundles and by accelerating epithelial differentiation (Carter ve ark., 2003). Whereas, another study reported that PRP slowed down wound healing significantly (less exuberant granulation tissue) but no significant differences in histological variables were revealed between PRP treated and untreated wounds (Monteiro ve ark., 2009). The patient's wound area was not suitable for plastic surgery, so PRP was preferred. There are many different preparation techniques with this purpose (Altuntaş ve ark., 2014; Cengiz ve ark., 2018; Machado ve ark., 2022). A similar method was used in the presented case report. Loss of soft tissue in the lip prevented the patient's mouth from closing completely and that was solved as a result of the treatment. Oral lacerations affect patient's food and water intake, so these patients should be treated as soon as possible (Chan, 2009).

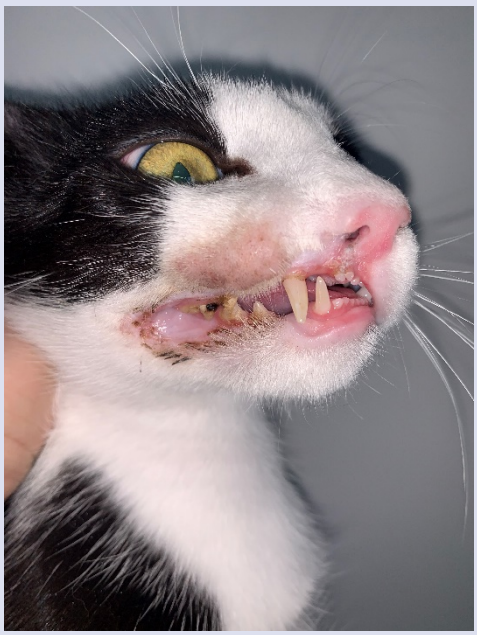

Figure 2. Patient at the end of the treatment

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