

**Republic of Iraq  
Ministry of Higher Education  
And Scientific Research  
University of Baghdad  
College of Dentistry**



**Clinical and Histomorphometric evaluation of the Effects of  
Platelet-Poor Plasma, and Platelet-Rich Plasma, on the  
Healing of Extraction Sockets with Buccal Dehiscence (an  
experimental study in animal models)**

A Thesis

Submitted to the Council of the College of Dentistry at the  
University of Baghdad in Partial Fulfilment of the Requirements  
for the Degree of Master of Science in Oral and Maxillofacial  
Surgery

BY

**Alaa Abbas Mahdi**  
B.D.S.

Supervised by  
Assistant Professor  
Sahar Shakir Al-Adili  
B.D.S., M.Sc.  
Oral and maxillofacial surgery

**2020 A.D.**

**1441 A.H.**

## ***Abstract***

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**Background:** Considerable alveolar bone loss occurs following tooth extraction. This bone resorption can compromise dental implant procedure and has a negative effect on long term success of the implant and subsequent prosthesis, for this reason, the concept of socket preservation techniques was introduced.

**Aims of study:** To evaluate the effect of platelets poor plasma (PPP) and platelets rich plasma (PRP) on preservation of alveolar width in extraction site with buccal dehiscence, and to evaluate the effect of PPP and PRP on the amount of new bone formation in extraction site after one and two months' duration.

**Subjects and method:** six-pointer dogs were selected for this study. The alveolar width was measured before extraction at a point 3 mm below the top of alveolar crest by using Vernier caliper, after flap reflection 3mm buccal dehiscence was created with trephine bur. Then the mandibular third premolar was extracted bilaterally, this result in 24 extraction sockets. The extraction sites were randomly assigned to three groups: PPP, PRP and control. The experiment was designed to permit examination of extraction site after one and two months.

Then measurement of the alveolar width reduction after one and two months at a point 3mm below the top of alveolar crest by using Vernier caliper and histomorphometric evaluation of alveolar width at three levels. Level A, B and C which located at 1,2,3 mm respectively apical to alveolar crest. Furthermore, the amount of new bone formed in the extraction socket was measured histomorphometrically and expresses as a percentage of area that occupied by new bone and bone marrow.

**Results:** there was no statistically significant difference in mean of alveolar width resorption and histomorphometric value of alveolar width between the three groups after one and two months, while the mean value

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of the amount of new bone formed in extraction socket was significantly higher in PRP group after one month but it failed to have long term effect after two months. PPP has a higher mean value of the amount of new bone formation compared to the control group after one and two months but it was not statistically significant.

**Conclusions:** This study showed that PRP increases the amount of new bone formation in the extraction socket after one month but it failed to have long term effects after two months. PPP has no statistically significant effect on the amount of new bone formation in the extraction socket after one and two months. regarding the horizontal bone loss and alveolar bone width, it was not a statistically significant difference between all groups.