

# **Protection of colonic anastomosis with platelet-rich plasma gel in the open abdomen.**

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## **Abstract:**

**Background** Although evidence for colonic anastomosis in the damage control abdomen continues to accumulate, anastomotic leak is common and associated with greater morbidity. The purposes of our study was to evaluate the effect of platelet-rich plasma (PRP) gel on the healing of colon anastomosis and anastomotic strength in the open abdomen. **Methods** PRP was prepared by enriching whole blood platelet concentration from healthy rat. In the rodent model, standard colonic anastomoses followed by closure of abdomen (Control; n = 10) and anastomoses followed by open abdomen (OA; n = 10) were compared to PRP-sealed anastomoses in open abdomen (OA + PRP; n = 10). One week after surgery, body weight, anastomotic bursting pressure, hydroxyproline concentration, and histology of anastomotic tissue were evaluated. **Results** All rats survived surgery and had no signs of anastomotic leakage. Compared with the control and PRP group, OA group exhibited a significant decrease in body weight, anastomotic bursting pressure, hydroxyproline concentration, and collagen deposition. No significant difference was detected in these variables between the PRP group and the control group. **Conclusion** PRP gel application prevented delayed anastomotic wound healing after open abdomen, which suggested that anastomotic sealing with PRP gel might improve outcome of colonic injuries in the setting of open abdomen. © 2014 Elsevier Ltd.