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## Splenectomy versus hilar splenic ligation in grade-3 spleen injury (animal model)

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**Introduction & Aim:** The most prevalent method of treating splenic injury is splenectomy. This method is followed by many major postoperative complications. Therefore, less invasive procedures such as splenic angioembolization are introduced. This technique needs appropriate training and a high-tech setting, which is followed by some complications therefore, not all surgeons agree to do this procedure for patients with splenic injury. Splenic artery ligation is another method with not fully understood results. Splenic hilar ligation of main vessels is a non-invasive procedure with similarity to splenectomy with unknown results as well. We aim to evaluate hematologic and immunologic changes and functional state of spleen before and after ligating its main vessels and compare it to splenectomy.

**Materials & Methods:** 30 rats divided into splenectomy and splenic hilar ligation groups. Identical grade 3-spleen injury performed on all rats. Main vessels ligation performed by silk sutures. After 6 weeks, blood samples were obtained and various hematologic and immunologic aspects were measured in their serum. Giemsa stained peripheral blood smears obtained from ligation group and investigated with light microscope. Scintigraphy performed by injecting technetium 99 m in normal and ligated groups.

**Result:** Comparing above-mentioned variables before and after the surgery in splenectomy and ligation group showed statistical significance in all aspects except IgM, C4 and platelets levels in ligation group (P-value: 0.213, 0.059 and 0.649, respectively). Analysis revealed significant deference in post-operative WBC, IgM and C4 levels between splenectomy and ligation group (P-value: <0.001, <0.001 and 0.026, respectively).

**Conclusion:** Splenic hilar ligation of main vessels is an easy way of treating splenic injury in hemodynamically stable patients with less post-operative complications. Therefore, it can be performed by all surgeons in all kind of medical centers. Spleen remains viable and continues its role although some aspects of its function become erupted.