

# Comparison of Intraperitoneal Adhesion Level Post-Repair Abdominal Wall Defect Resulted From Pedicle Omental Flap-Polypropylene Mesh and Physiomesh<sup>®</sup> in Wistar Rats

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## Abstract

**Background.** Abdominal wall defect are often complex not amenable to primary closure. The primary objectives of abdominal wall reconstructions are to protect abdominal contents and provide functional support. Intraperitoneal onlay Polypropylene mesh (PPM) singly repair for abdominal defect has many potential risks, including adhesion that cause intestinal obstruction, fistula formation, thus increasing morbidity and cost of care. Physiomesh, one of mechanical prosthetic, has been tested as an antiadherent intraperitoneal layer in animal with excellent and promising outcomes; however, it is expensive to store and remains problems in Indonesia. In contrast, Omentum flap is biological material option with cost-effective and good availability in combination with PPM to achieve the objectives of reconstruction.

**Purpose.** The aim was to compare the degrees of intraperitoneal adhesions between combination Pedicle Omentum Flap-PPM and physiomesh.

**Method.** This prospective, randomized post-test only control group trial was done in wistar rats. Thirty-six rats were randomized into two groups. In the first group, Pedicle Omentum flap and polypropylene mesh were placed in intraabdominal space. In the second, physiomeses were used. Adhesions were assessed macroscopically, while the portion of the abdominal wall was then resected for histological testing.

**Results.** No significant difference between two groups In Microscopically. An average score of intraperitoneal adhesions was significantly lower in the group with Omentum Flap-polypropylene mesh compared with Physiomesh In Macroscopically

**Conclusions.** Used of Omentum Flap -polypropylene mesh and Physiomesh as a physical barrier to lower the incidence of intraperitoneal adhesions after laparotomy in rats votes by Federer macroscopic adhesion and proven scoring system significantly microscopically. There is significant difference of the level of intraperitoneal adhesions, better in Omental grup, making use Omentum flap-Polypropylene mesh prosthesis can be considered as an alternative in the reconstruction of the abdominal wall through advanced clinical research.

**Keywords :** Intraperitoneal adhesion, Pedicle Omental flap-polypropylene mesh, Physiomesh