

Comparative Efficacy of Prolene and Polyester Mesh for the Repair of Abdominal Wall Defect in Pigeons (*Columba livia*)

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Abstract : Abdominal defects are very common in pigeons. A new technique is known as intraabdominal mesh transplant that give better protection for herniorrhaphy. The aim of this study was to determine the performance of hernia mesh. In this study, an efficacy of two synthetic hernia mesh implants viz. conventional Prolene and a lightweight mesh monofilament polyester were assessed for the abdominal wall repair in pigeons. Twenty four healthy pigeons were selected and randomly distributed into three groups, A, B and C (n=8). In all groups, experimental laparotomy was performed; thereafter, abdominal muscles and peritoneum were sutured together, while, a 2 x 2 cm defect was created in the abdominal muscles. For onlay hernioplasty, the hernia mesh (Prolene mesh: group A; Polyester mesh: group B) was implanted over the external oblique muscles of the abdomen. In group C (control), the mesh was not implanted; instead, the laparotomy incision was closed after a herniorrhaphy. Post-operative pain wound healing, adhesion formation, histopathological findings and formation of hematoma, abscess and seroma were assessed as short-term complications. Post-operatively, pain at surgical site was significantly less ($P < 0.001$) in group B (Polyester mesh); wound healing was also significantly better and rapid in group B ($P < 0.05$) than in group A (Prolene mesh). Group B (Polyester mesh) also depicted less than 25% adhesions when assessed on the basis of a Quantitative Modified Diamond scale; a Qualitative Adhesion Tenacity scale also depicted either no adhesions or flimsy adhesions (n=2) in group B (Polyester mesh), in contrast to group A (Prolene), which manifested greater adhesion formation and presence of dense adhesions requiring blunt dissection. There were observed hematoma, seroma and abscess formations in birds treated by Prolene mesh only. Conclusively, the polyester mesh proved superior to the Prolene mesh regarding lesser adhesion, better in wound healing, and no short-term follow-up complications.

Keywords : adhesion, mesh, polyester, prolene

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