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De-cellularized dermal matrix: An immunocompatible prosthetic for abdominal wall hernioplasty

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Aim: Development of prosthetic materials for the repair of abdominal wall defects has evolved and progressed during the past several years with the ultimate goal of discovering the ideal prosthesis. Nowadays classic polymeric materials, despite providing satisfactory results, have been replaced by materials of natural origin, the latter mainly from animal sources. But cellular grafts may cause immunological reactions due to the presence of histocompatible antigens present on the transplanting cells. These complications can be prevented by use of decellularized matrices and these are the latest alternative in this series.

Methodology: The present study was under taken to evaluate the efficacy of acellular dermal matrix (ADM) as a biological mesh for the repair of abdominal wall hernias bovine calves. ADM was developed from rabbit skin after de-epithelization and decellularisation. Under xylazine sedation and local infiltration analgesia, the abdominal wall hernias were repaired with ADM graft in a group of six bovine calves.

Result: All animals had an uneventful recovery without any clinical signs of recurrence during 4 months follow-up period. Immunological observation via indirect ELISA revealed that there was no significant immune response against the ADM ($P < 0.05$).

Conclusion: Acellular dermal matrix of rabbit origin was found to be a promising biomaterial for the repair of abdominal wall defects.

Keywords: Acellular matrices, biomaterial, hernia repair immune reaction.

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