

Experimental comparison of type of Tissucol dilution and composite mesh (Parietex) for laparoscopic repair of groin and abdominal hernia: observational study conducted in a university laboratory.

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Abstract:

PURPOSE: The primary objective of this observational study was to determine the best possible dilution of fibrin glue (Tissucol) to employ for prosthesis fixing in laparoscopic treatment of abdominal wall defects and, secondly, to assess its feasibility and safety.

MATERIALS AND METHODS: This study was carried out in a university experimental animal laboratory in accordance with all international laws, ethics regulations and quality criteria associated with animal experiments. The tests were carried out on two pigs, using four samples of mesh (Parietex). All meshes were fixed using two different Tissucol dilutions (standard with distilled water and that with calcium chloride). Follow-up evaluations were at 15 days after 30 days, with the latter consisting of traction tests and a biopsy for histological analysis.

RESULTS: No post-operative complications were observed. The collagen-coated polyester meshes showed 0% adhesions, and reperitonealization had ensued after 15 days. We saw no shrinkage or migration of any of the meshes. Histopathological analyses confirmed a greater stability, greater tissue integration and the largest number of fibroblasts in meshes fixed with a 1/10 Tissucol dilution without calcium chloride.

CONCLUSIONS: This observational study using animals showed that the 1/10 standard dilution -

not that with calcium chloride - provided the best fixation and integration and prevented the formation of intraperitoneal adhesions, provided a hydrophilic collagen film-covered mesh was used.