Tissue glue as an adjunct to wound healing in the porcine model.

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Publication Date: 1998

Abstract:

Objective: A prospective animal study of six domestic swine was performed to determine whether fibrin glue (porcine fibrinogen as cryoprecipitate plus commercial bovine thrombin) application in sutured porcine skin incisions could improve tensile wound strength. Methods: Eight pairs of paramedian incisions were made on the back of each animal 3 cm lateral from the midline. The length (5 cm) and depth (1.5 cm) of each incision were exactly the same in each animal. One half of the incisions were closed using interrupted sutures (2-0 Nylon, and one half were closed in the same manner after adding fibrin glue to the wound. All wounds were surgically excised on postoperative day 7. Using a special cutting instrument, the entire incision was harvested and cut into 1 cm strips perpendicular to the incision. All tissues were snap frozen at -60degreeF in a cryobath and stored at -70degreeC. Tensile strength required to disrupt the surgical incision in each tissue strip was measured with an Instron tensiometer. Tensile strength was recorded in pounds per square inch (psi). Results: Two hundred forty-seven specimens were analyzed. The mean tensile force required to disrupt the incisions was 0.13 psi (sd = 0.17 psi). The mean tensile strength for 130 specimens from glued incision was 0.13 psi (sd = 0.166 psi), compared with a mean tensile strength of 0.12 psi (sd = 0.1 psi) for 117 specimens that were not. There was no significant treatment effect based on the mixed linear model (0.87). Conclusion: Fibrin glue does not significantly improve the tensile strength of superficial porcine wounds during the first week after surgery.