Application of autologous fibrin glue in assisted wound closure. Clinical and animal studies.

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Abstract:

For evaluating the potential improvement in clinical suture processes by use of 'autologous fibrin glue', clinical patient observations and animal studies were designed. The 'fibrin glue' was initiated by mixing the fibrinogen and factor XIII extracted from host plasma under aseptic conditions. Immediately before application of fibrin glue to the suture region, the extracted bovine thrombin with calcium was then thoroughly mixed with the previously initiated mixture. In animal studies, rat femoral arteries and veins were artificially transected, followed by anastomoses with additional fibrin glue applied to the suture region. Two weeks later, the gross and histological structures of the anastomosed vessels were observed. It was found that the anastomosed site of the vessels were patent without plaque formation in the lumen. In clinical trial, fifty-two cases in different suture conditions were selected and treated with autologous fibrin glue to evaluate their sealing ability. The results indicated that autologous fibrin glue was beneficial in: 1) assisting cessation of severe oozing over the debrided area which had been managed with difficulty by electro-cauterization or ligation; 2) promoting adherence of grafted skin, especially over hard immobilized areas such as the face, neck, scapular region and intricate surface; 3) increasing the sealing, and halting vascular leakage to assist the anastomosis; and 4) eliminating disease transmission. Therefore, autologous fibrin glue is a valuable assisted biological suture material.