

Fibrin glue vasal anastomosis compared to conventional sutured vasovasostomy in the rat.

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Abstract:

Vasectomy reversal has become a frequently performed surgical procedure with best results obtained with the use of the operating microscope and microsurgical technique. The present study was undertaken to evaluate the use of fibrin glue ("Tisseel", Immuno U.S., Inc.) for vasovasostomy and to compare this technique to conventional sutured vasovasostomy. Utilizing 60 male Sprague Dawley rats, a conventional two layered sutured anastomosis of vasovasostomy (30 rats) was compared to a fibrin glue technique of vasal anastomosis (30 rats). The fibrin glue technique was performed with two transmural sutures, was unstented, and utilized the biological glue to seal the anastomosis. The contralateral vas of each animal underwent vasectomy and reapproximation of unligated ends so that the rate of spontaneous recanalization could be accessed. Rats were sacrificed at 24 hours, one week, four weeks, and three months postvasovasostomy. The vasal specimens were evaluated for gross patency, presence and size of sperm granuloma, mean flow rates at varying infusion pressures, tensile strength measurements and histologic studies. Combining the one and three month groups, a similar patency rate was obtained by either technique; 83% (n = 18) for the sutured group, and 90% (n = 21) for the fibrin glue group. The rate of spontaneous recanalization of the contralateral vasa in the one and three month animals was 8% (n = 38). The mean flow rates obtained at high and low infusion pressures were not statistically different for the two techniques. The tensile strength of the glue anastomosis averaged 78% of the tensile strength achieved by the conventional sutured technique. The incidence of sperm granuloma after vasovasostomy was 28% for the fibrin glue group and 61% for the sutured group. Additionally,

67% of granulomas were small (less than 3 mm.) in the glue group, compared to only 36% in the sutured group. Histology revealed similar morphological changes in the area of anastomosis with either technique. Operative time for sutured vasovasostomy averaged 24 minutes, compared to an average of 11 minutes for the glue assisted vasovasostomy. The use of fibrin glue allowed the performance of a sperm tight patent anastomosis that had the advantages of reduced incidence of sperm granuloma formation, reduced operative time, and less microsurgical skill required to perform the anastomosis.