Sutureless cartilage graft laryngotracheal reconstruction using fibrin sealant.

Authors: Kang DR, Leong H, Foss R, Martin P, Brooker CR, Seid AB

Publication Date: 1998

Abstract:

OBJECTIVE: To determine whether fibrin sealant can replace suture as a means of holding a cartilage graft securely in the trachea.

DESIGN: Randomized blinded control study comparing the use of fibrin sealant vs sutures in laryngotracheal reconstruction in ferrets. We compared results at 7 and 30 days.

SUBJECTS: Forty ferrets randomized into 2 groups of 20: fibrin sealant and sutures. Within each group, half were studied at 7 days and the rest at 30 days. No ferrets were withdrawn from study because of adverse effects of the intervention.

INTERVENTION: A carved costal cartilage graft was placed in the anterior cricoid split incision, and was secured with either fibrin sealant or sutures. All animals were extubated after recovery from anesthesia. Specimens were examined grossly and histologically.

RESULTS: All animals survived until humanely killed. The pathologist, unaware of the groupings, measured lumen expansion in millimeters, cartilage graft migration, mucosal in-growth, degree of inflammation, graft integration, and graft viability. The fibrin sealant group had statistically significant ($P<.05$) better results in mucosal in-growth. In no categories was the suture group better than the fibrin sealant group. In comparing 7-day with 30-day results, the 30-day group had significantly

better results in inflammation and graft viability.

CONCLUSIONS: Fibrin sealant can be used in place of sutures with improvement in mucosal growth in costal cartilage laryngotracheal reconstruction in the experimental animal model. Use of fibrin sealant (instead of sutures) may result in less surgical trauma and edema, less surgical time, and faster recovery.