Fibrin-glue-reinforced paper patch myringoplasty of large persistent tympanic membrane perforations in the guinea pig.

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Abstract:

Investigators have attempted to simplify and improve myringoplasty. However, techniques have not been applied to large, chronic human tympanic membrane perforations. Fibrin glue has been shown to improve wound strength but has not been significantly utilized in myringoplasty. To evaluate the effectiveness of paper patch myringoplasty reinforced with fibrin glue, 15 guinea pigs underwent repeated myringectomy to form persistent (> 50%) perforations. The right ears were repaired with a paper patch and fibrin glue (treatment group), and the left ears with a paper patch alone (control group). Of 16 surviving ears (9 right and 7 left), only 1, a left ear, failed to heal. In the control group, histology revealed a larger fibrous layer approaching greater total eardrum thickness than in the treatment group. Neither group was significantly different from a normal, nonoperated tympanic membrane in terms of overall thickness. Fibrin glue failed to demonstrate histologic evidence of increased cellular proliferation and possibly hindered growth. High spontaneous healing rates in guinea pigs undermine myringoplasty modeling.