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**AMNIOTIC FLUID TREATMENT OF VOCAL FOLD INJURY IN AN IN VIVO
RABBIT MODEL**

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ABSTRACT

Hyaluronic acid (HA) injectables are the standard treatment for vocal fold injuries in both clinical and research settings. Results from these measures are not permanent, however, and may vary in effectiveness. Amniotic fluid (AF) has a demonstrated potential for regenerative medicine in many organs, including the vocal folds and airway.

The current study expanded on our pilot work involving treatment of vocal fold wound healing with injectable AF in a rabbit model. The data of rheologic analysis from 60 male New Zealand white rabbit vocal folds were retrospectively analyzed. The rabbits were split into 6 groups of 10 (N=60) and delineated by procedures under general anesthesia and wound healing duration.

Among these, Groups 1 and 2 received vocal fold punch biopsy and immediate treatment of an AF injectable directly into the wound bed. Groups 3 and 4 similarly received vocal fold punch biopsy and immediate treatment of an HA injectable. Groups 5 and 6 acted as controls with a saline injectable treatment delivered immediately following vocal fold punch biopsy. The right vocal fold of each rabbit served as the biopsy punch and injection site, while the left fold served as each animal's individual uninjured control. Groups 1, 3, and 5 were further separated into "acute wound healing" models, with rabbit sacrifice and laryngeal dissection occurring at 4 weeks post-operatively. Groups 2, 4, and 6 were set as "chronic wound healing" models, with rabbit sacrifice and laryngeal dissection occurring at 10 weeks post-operatively.

Rheological analyses were then performed on all 120 vocal folds. The data suggested a potential for AF wound healing over time, with rheological analyses being closer to the controls at 10 weeks post-operatively.