Research Question
Does vocal fold augmentation in patients with vocal fold atrophy improve voice?

Introduction
Vocal fold atrophy is a common cause of dysphonia in the elderly. Results of surgical and behavioral treatments are variable. Vocal fold augmentation (either injection or framework surgery) is presumed to result in symptomatic improvement, especially in voice. However, this assumption remains incompletely studied to date.

Methods and Materials
- Retrospective review 2009-2014
- Inclusion:
  - Primary diagnosis of vocal fold atrophy
  - At least 1 surgical procedure to augment the vocal folds
- Data collected:
  - VHI-10 scores
  - Patient perception of vocal effort [Direct Magnitude Estimation (DME)]
  - Audio-Perceptual measures of overall severity of sentences from the CAPE-V protocol
  - Acoustic measures [Cepstral Spectral Index of Dysphonia (CSID)]
  - Good response to augmentation defined as change in VHI-10 score > -5

Results
- 55 patients underwent 80 augmentation procedures
- Procedures included 56 Prolaryn gel™ (Gel); 10 lipoinjection; 7 GoreTex medialization laryngoplasty (GML); 7 Calcium hydroxyapatite (CaHA)
- Gel improved VHI-10, DME, overall severity
- Lipoinjection improved VHI-10 and overall severity
- GML improved in overall severity
- No improvements observed for CaHA
- CSID did not change following any type of augmentation

Discussion
- Vocal fold augmentation resulted in statistically significant improvements in VHI-10, DME, and overall severity of sound.
- Prolaryn gel™ injection resulted in statistically significant improvements in all of these measures.
- Lipoinjection and GML had the highest rates of good response to injection and improved some voice outcome measures.
- Yet to be determined if physiological results differ between vocal fold injection and laryngeal framework surgery.
- CaHA had the lowest rate of good response to injection and did not improve in any voice outcome measures. However, small numbers preclude definitive conclusions.

Conclusions
1. Vocal fold augmentation may be a useful tool in some patients with vocal fold atrophy, but results remain variable.
2. Prolaryn gel™ injection resulted in statistically significant, favorable voice outcomes.
3. A larger cohort is required to definitively assess other augmentation methods including lipoinjection, GML, and CaHA.
4. Choice of augmentation material likely matters, although more research is required to confirm.

References