Vocal fold injection

Joseph C. Sniezek, MD FACS
COL, MC
Tripler Army Medical Center
Medical Lectures:

1. Me
2. You

Injection laryngoplasty

Patient Tolerance of Awake, In-Office Laryngeal Procedures: A Multi-Institutional Perspective

VyVy N. Young, MD; Libby J. Smith, DO; Lucian Sulica, MD; Priya Krishna, MD; Clark A. Rosen, MD

Objectives/Hypothesis: An increasing number of laryngeal procedures are performed in the office. However, little is known about how well these procedures are tolerated and what factors determine success or failure.

Study Design: Prospective collected patient and physician surveys from five surgeons at two institutions describe patient tolerance of awake, in-office laryngeal procedures (AIOLPs).

Methods: There were 154 procedures performed in a 6-month period, including vocal fold injection (VFI) (72%), laser treatment (19%), and transoral esophagoscopy (3%). Average duration of procedure was 13 ± 8 minutes.

Results: Patients reported an average of 37 of 160 on a discomfort scale, with 0 representing no discomfort and 100 representing maximal discomfort. Ninety-three percent of patients would undergo another procedure, and 96% would recommend AIOLPs to other patients. Procedural care was completed successfully in 92%. Most common surgeon-reported difficulties included copious secretions and uncontrolled gag reflex. Procedures that involved such difficulties had a significantly lower rate of procedure completion, 73% vs. 96%, \( P = .001 \). High preprocedure anxiety did not adversely impact patient comfort or procedure completion rate. There was no difference in discomfort scores based on VFI approach or patient familiarity with AIOLPs. There was a significant difference in discomfort score between patients with successful first-approach VFI and those who required a change in VFI approach, 36.0 vs. 61.5, respectively, \( P = .003 \). The rate of requiring a second and third VFI approach was 4.6% and 2.3%, respectively.

Conclusions: This study encompasses multiple diagnoses, procedures, VFI techniques, and methods of anesthesia. AIOLPs are exceptionally well tolerated by patients, resulting in extremely high completion and satisfaction rates.

Key Words: larynx, vocal cord, injection, patient tolerance.

Level of Evidence: 4.

Sniezek’s single

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5 patients:

2/5 successful injection laryngoplasty in office

2/5 unsuccessful with procedure done subsequently in OR

1/5 ran away claiming voice was fine

Medialization Thyroplasty

injection  medialization
Vocal fold injection

1. When
2. What
3. How
4. Why

When

1. Vocal fold paresis/paralysis
2. Vocal fold scar
3. VF atrophy
4. Trial injection
When NOT to inject

Large posterior glottic gap

What

1. Gelfoam
2. Collagen (cymetra)
3. Fat
4. Radiesse voice gel
5. Radiesse
Gelfoam
1. Lasts only 6 weeks
2. Requires mixing/prep
3. Must use 18g needle to inject

Cymetra
- Micronized cadaveric dermis
- Infection transmission risk?
- Lots of mixing
Fat injection to vocal fold

- liposuction or open harvest
- rinse with 1-2 liters of saline
- soak in insulin (100 unit vial) for 5 minutes
- inject lateral and deep
- overinject by 30%-50%
- Bruning syringe

Radiesse Voice

- spherules of calcium hydroxylapatite
- suspended in aqueous gel
- can pass through 27 g needle (attached needle is 24 g)
- forms a scaffolding for tissue ingrowth
Radiesse Voice
Vocal handicap index scores

How
-first injection posterior lateral
-second inject (if necessary) at lateral mid-TVC
-inject 5 mm deep (needle mark)
-inject slowly
-good injection shows infraglottic augmentation first

Laryngoscope, 119:1033-1041, 2009
How

- overinject 10-20%
- over-injecting anteriorly leads to strained voice

Office vs. OR injection

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Office
Avoid general anesthesia
Need good local anesthesia
- local
- topical

OR
GETA with ETT
Spontaneous ventilation
Office-based injection-techniques

Trans-thyroid Cartilage

- Topicalize nasal cavity and larynx
- Spinal needle through thyroid cartilage at TVC level
- Inject under NP scope guidance

Office-based injection-techniques

Trans-thyrohyoid membrane

- 1.5 inch 23 or 25 g needle
- Angle can be a challenge
- Need local and topical anesthetic
Office-based injection-techniques

Trans-cricothyroid membrane

- Stay submucosal (avoid topical anesthesia)
- Direct needle up and laterally (1.5 inch)
- Difficult to determine needle location

Current Practice in Injection Augmentation of the Vocal Folds: Indications, Treatment Principles, Techniques, and Complications

Lucian Sulica, MD; Clark A. Rosen, MD; Gregory N. Postma, MD; Blake Simpson, MD; Milan Amin, MD; Mark Coury, MD; Albert Monti, MD

Laryngoscope, 120:319–325, 2010

-50% in office, 50% in OR

- Success and complication rate the same

- In office: trans-cricothyroid most common
OR Injections

ETT is a problem

OR injection with spontaneous ventilation

- recommend pediatrics anesthesiologist
- topicalize larynx with 4% lidocaine
- microscope or telescope

Photos courtesy of Dr. Ben Cable
Vocal fold injection Conclusions

1. When (paresis, VF scar, atrophy, trial)
2. What (Radiesse)
3. How (office injection vs. spontaneous ventilation in OR)
4. good anesthesia is the key