Injection laryngoplasty with hyaluronic acid for unilateral vocal cord paralysis. Randomised controlled trial comparing two different particle sizes.

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**Background**

Unilateral vocal cord paralysis (UVCP) results in weak, breathy voice due to inability to close the vocal cords completely (Figure 1a). Injection laryngoplasty (IL) can improve glottic closure by medialising the paralysed vocal cord (Figure 1b).

**Objective**

To determine if particle size affects durability of medialisation in patients undergoing IL with hyaluronic acid (HA) for UVCP.

**Hypothesis**

Larger particle-size HA persists longer after injection to produce a more durable vocal result.

**Study Design**

Prospective randomized controlled single-blind trial.

**Methods**

Patients underwent IL with Restylane (small particle-size HA) or Perlane (large particle-size HA). Injections were performed trans-cutaneously in the outpatient clinic. The Voice Handicap Index (VHI) at 6 months post injection was the primary outcome measure. Secondary outcomes included videostroboscopic findings, and objective acoustic and aerodynamic measures.

**Results**

17 patients (8 Restylane, 9 Perlane) were available for follow up at 6 months. Normalised VHI scores at 6 months after IL were significantly lower in the Perlane group compared to the Restylane group when not adjusted for age and sex (p=0.027) (Figure 2). After adjustment the difference was not significant (p=0.053) but the Perlane group trended towards lower normalised VHI scores.

**Conclusions**

The findings support the hypothesis that the larger particle-size of Perlane makes this material more durable than Restylane for IL. This material may be considered for temporary medialisation in patients with UVCP in whom medium term improvement of at least six months is desirable. The trans-cutaneous route can be used safely in the office setting in non anti-coagulated patients.