

## **35. STUDYING THE EFFECT OF SONOGRAPHIC LANDMARKS IMAGED ON TRANSCUTANEOUS LARYNGEAL ULTRASONOGRAPHY ON PERIOPERATIVE VOCAL CORD ASSESSMENT**

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**INTRODUCTION:** Transcutaneous laryngeal ultrasound [TLUSG] is a non-invasive way of assessing vocal cord [VC] function. During examination, the assessor often looks at 3 sonographic landmarks [namely, false VC [FC], true VC [TC] and arytenoids [AR]] to ascertain VC movement. However, it is unclear among these landmarks, which one provides the most reliable VC assessment as not all patients would have all three landmarks identified on the same examination. We postulated that perhaps finding all three sonographic landmarks may further improve diagnostic accuracy. To address these questions, we prospectively evaluated consecutive patients over two institutions.

**METHODS:** One assessor from each institution performed all TLUSG examinations within the institution. To standardize interpretation, a workshop was organized between two institutions before the study. During each examination, each assessor was required to identify all three landmarks if possible and their findings were later validated by direct laryngoscopy [DL]. VC palsy [VCP] was defined as decreased or no movement in  $\geq 1$  VC on DL or TLUSG. Rate of VC visualization was compared between two institutions and accuracy between the three landmarks was compared.

**RESULTS:** One-hundred and nineteen patients from Institution 1 and 127 patients from Institution 2 were analyzed. One patient from Institution 1 had preoperative VCP while 10 [8.4%] and 9 [7.1%] had postoperative VCP from institutions 1 and 2, respectively. Both institutions had comparable rate of VC visualization [91.6% and 92.1%, p=ns] and had 100% sensitivity and negative predictive value on postoperative TLUSG. The rate of FC, TC and AR visualization were 92.3%, 34.9% and 88.6%, respectively. The sensitivity, specificity and diagnostic accuracy between the three sonographic landmarks were comparable and the proportion of true-positives, false-positives and true-negatives were comparable between identifying 1 or 2 landmarks and all 3 landmarks [p>0.05].

**CONCLUSION:** Given the high [>90%] but comparable VC visualization rate between the two institutions, our study confirmed the technique of TLUSG is readily reproducible as a non-invasive perioperative VC assessment. Regardless of which of the 3 landmarks, each landmark appeared to have similar diagnostic accuracy. Finding all 3 landmarks does not necessarily improve the diagnostic accuracy and identifying any one landmark is sufficient.