Unilateral vocal fold paralysis (UVFP) is a common disorder seen in the practice of otolaryngology. Incomplete vocal fold adduction in UVFP may cause formation of a constant glottal gap, which is usually associated with hoarseness of voice and aspiration during swallowing. The question most frequently asked by patients with UVFP is whether laryngeal function will return to normal. Predicting the prognosis of UVFP is also important for physicians to decide the appropriate method or time for surgical intervention. The office-based laryngeal electromyography (LEMG) was introduced in 1944 by Weldon and colleagues and advanced substantially in the 1990s by Faaborg-Andersen, Butchal, and others. Information about spontaneous activity, motor unit morphology, and motor unit recruitment obtained from LEMG has been used by several authors to evaluate nerve function obtained from TA muscle were used to predict prognosis of UVFP. TA muscle was approached by inserting a needle through the cricothyroid ligament approximately 0.5 cm from its midline. The needle was then angled superiorly 30° to 45° to an approximate depth of 1.2 cm. The position of the needle was validated by asking the patient to say a sustained vowel /i/ with the absence of activation during respiration and neck flexion. The outcome measurement of vocal fold motion (Fig. 2) was done with flexible laryngoscopy after 36 months from symptom onset. These criteria gave patients at least 3 months (ranging from 3 to 5 months) follow up duration to observe the predictive ability of LEMG in this time window.

The relationship among dichotomized categorical data including gender, laterality and ethnicity of UVFP, FIBs, PSWs, and polyphasic MUPs to the outcome measurements of vocal fold motion was analyzed by using Chi-square analyses. Mann-Whitney U tests were performed on continuous data such as age, duration after symptom onset, and RR%. We also used logistic regression to model the primary outcome of vocal fold motion. P values less than 0.05 were considered significant. (Fig 3)

Methods and Materials

From Nov. 2004 to Jun. 2006, medical records of 30 patients diagnosed as idiopathic or iatrogenic UVFP who received LEMG between 3 weeks and 6 months from the onset of symptoms were retrospectively reviewed after institutional review board approval was obtained. The office-based LEMG (Fig. 1) was all performed by the first author, a laryngologist familiar with the anatomy of intrinsic laryngeal muscles. The LEMG findings were all interpreted by the second author; a neurologist with 15 years experience in electromyography. All LEMG examinations were performed by a machine (Cadwell Sierra 2000A, Cadwell Laboratories, Inc., 909 North Kellogg Street, Kennewick, Washington, 99336) with a computer-based electromyographic system. The cricothyrotomy (CT) muscle anesthetized with 1% lidocaine without local anesthesia, while only the signals representing recurrent laryngeal nerve function obtained from TA muscle were used to predict prognosis of UVFP. TA muscle was approached by inserting a needle through the cricothyroid ligament approximately 0.5 cm from the midline. The needle was then angled superiorly 30° to 45° to an approximate depth of 1.2 cm. The position of the needle was validated by asking the patient to say a sustained vowel /i/ with the absence of activation during respiration and neck flexion. The outcome measurement of vocal fold motion (Fig. 2) was done with flexible laryngoscopy after 36 months from symptom onset. These criteria gave patients at least 3 months (ranging from 3 to 5 months) follow up duration to observe the predictive ability of LEMG in this time window.

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