

## Preoperative Ultrasonography Assessment of Vocal Cord Movement during Thyroid and Parathyroid Surgery: Reply

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We thank Sabaretnam et al. for their interest in our article titled “Preoperative ultrasonography assessment of vocal cord movement during thyroid and parathyroid surgery” [1, 2]. Most countries have no restrictions on who can perform thyroid and neck ultrasonography (US); therefore, with increased accessibility of high-resolution US machines, thyroid US is being performed more commonly by endocrinologists and endocrine surgeons. In fact, endocrinologists and endocrine surgeons worldwide are now being encouraged and trained to adopt this technology, and surgeon-performed US-guided fine-needle aspiration (FNA) in the clinical setting has an accuracy rate comparable to or better than rates reported by radiologists [3].

There are social and economic differences in medical care between Asian and Western countries. In Japan, postoperative surveillance is conducted by surgeons themselves [4]. At our institution in Taiwan, neck US and US-guided FNA are performed by endocrinologists and endocrine surgeons without radiologist referral. Nonetheless, assessment of vascular anomalies and vocal cord movement is included only in the preoperative evaluation done by endocrine surgeons. In our experience, looking for the bifurcation of the right common carotid and right

subclavian arteries takes less than one minute. When the “Y sign” cannot be identified with the 5- to 12-MHz linear probe, we do not switch to the 3.5-MHz convex probe [5]. We simply document this finding to alert ourselves (operating surgeons) to the possibility of a nonrecurrent laryngeal nerve.

We and other groups have shown that US is a good alternative tool with which to evaluate vocal cord movement [2, 6]. Compared with US, laryngoscopy has the advantages of assessing other parameters, such as mucus/secretion pooling, mucosal pliability, vascularity, vocal cord edges, and supraglottic activity. However, laryngoscopy is invasive and carries small risks of nosebleed, adverse reactions to the anesthetic, and vasovagal reaction. During the video-endoscopic or video-stroboscopic examination, the patient is commonly asked to perform a series of vocal tasks to allow the surgeon optimal observation of vocal cord movement. The tasks include rest breathing, deep breathing, easy cough or throat clear, laryngeal diadochokinesis, “ee” followed by a quick sniff, whistling, and sentences and/or conversation, as needed [7, 8].

From a practical point of view, our goal is to detect frank vocal cord paralysis. We stop US evaluation when symmetrically abductive and adductive motion of both vocal cords is observed. This is easily achieved with the patient breathing at rest. When necessary, the patient is instructed to phonate, then breathe. A variety of maneuvers is not used because extensive maneuvers are more time-consuming and tend to decrease probe stability. It is theoretically possible that subtle movement abnormalities may be missed by US evaluation.

At the beginning of our study, we instructed the patient to phonate a sustained “ee” sound at his/her most comfortable pitch and loudness. Vibratory parameters were quantified. However, because of technical limitations,

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attempts to reliably and reproducibly determine sonographic measurements were unsuccessful.

Voice alteration after thyroidectomy is an important patient concern [9]. Postoperative laryngeal examination is necessary to audit surgical outcome accurately. It would be of great interest to know the validity of US assessment of vocal cord movement in the postoperative setting. We found that the wound and dressings would interfere with US examination in the immediate postoperative period, but US could reliably evaluate vocal cord movement 1 week after surgery (unpublished observations). Because the frequency of vocal cord palsy is influenced by the timing of the postoperative examination [10], the role of postoperative US assessment needs further prospective validation.

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