



## THYROID SURGERY

### Surgeon-performed laryngeal ultrasound can be used to screen for vocal-cord abnormalities before thyroid surgery

#### BACKGROUND

A possible complication of thyroid surgery is loss or change in voice related to injury to nerves that lead to the vocal cords. These are either the recurrent laryngeal nerve or the superior laryngeal nerve. This complication can be temporary or permanent. The easiest way for a doctor to evaluate the motion of the vocal cords is through examination, either with a mirror through the patient's mouth or by the use of a fiberoptic scope through the patient's nose or mouth. This latter procedure is called a laryngoscopy. A new option is using ultrasound of the voice box to determine if the vocal cords are working normally. This study was designed to evaluate ultrasound as a less invasive screening study for the detection of impaired vocal-cord movement before thyroid or parathyroid surgery.

#### THE FULL ARTICLE TITLE

Cheng SP et al. Preoperative ultrasonography assessment of vocal cord movement during thyroid and parathyroid surgery. *World J Surg* 2012;36:2509-15.

#### SUMMARY OF THE STUDY

Over a 6 month period, the authors evaluated all patients undergoing thyroid or parathyroid surgery. In the first part of the study, all patients were evaluated with both a laryngoscopy and an ultrasound of the voice box. Vocal-cord movement could be assessed with the ultrasound in 82% of 93 patients. In 2 of 93 patients the vocal-cord movement was determined to be abnormal on the ultrasound exam and laryngoscopy revealed impaired motion of one vocal cord in both patients. In the second part of the study, all patients had ultrasound of the voice box and patients with either voice changes or abnormal ultrasound underwent laryngoscopy. Vocal-cord motion

was successfully evaluated in 349 of 415 patients (84%). Four patients with abnormal vocal-cord movement were identified with ultrasound and underwent laryngoscopy showing impaired motion of one vocal cord. For 66 of 415 patients (16%), vocal-cord movement could not be evaluated with ultrasound. Only 45 of these patients went on to laryngoscopy and one patient with impaired vocal-cord motion was identified.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study demonstrates the motion of the vocal cords can be assessed using ultrasound prior to thyroid and parathyroid surgery in many people. In spite of this, laryngoscopy remains the gold standard for assessing the motion and anatomy of the vocal folds. Seeing the vocal cords with a laryngeal mirror and light provides much more information than indirectly examining the vocal cords with an ultrasound. There is no cost associated with a mirror examination. For patients that cannot tolerate a mirror exam, flexible fiberoptic laryngoscopy is well tolerated and also provides much more information about the vocal cords than an ultrasound. For surgeons performing their own ultrasounds, this may be a useful additional technique, but certainly is not a replacement for proper viewing of the vocal cords. The use of ultrasonography to see the vocal cords uses the most expensive possible equipment and provides the least amount of useful information.

— Ronald B. Kuppersmith, MD, FACS

#### ATA THYROID BROCHURE LINKS

Thyroid Surgery: [http://thyroid.org/patients/patient\\_brochures/surgery.html](http://thyroid.org/patients/patient_brochures/surgery.html)

#### ABBREVIATIONS & DEFINITIONS

**Thyroidectomy:** surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

**Laryngoscopy:** any technique to view the motion, anatomy, and function of the vocal cords and laryngeal (voice box) structures.