



A Descriptive Study on Voice Evaluation of Patients with Adductor Spasmodic Dysphonia who Underwent Thyroplasty Type II



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ABSTRACT

Objective: To Describe the Pre-operative and Post-operative Voice Handicap Index Scores and Praat voice analysis results of patients with Spasmodic Dysphonia who underwent Thyroplasty Type II.

Methodology:

Study Design: Retrospective Cross Sectional
Setting: Tertiary Hospital
Population: 8

Surgical Technique:

Patient placed in supine position with the neck hyper-extended. Several landmarks were identified and marked. Cross hatched markings were then placed on the lines of incision. Incision was then made up to the subplatysmal level. Thyroid cartilage was then exposed and dimensions were measured and recorded (Figure 1). A vertical midline incision on the thyroid cartilage was done using a surgical blade. The thyroid cartilage was then separated with a thyroid cartilage spreader. Intra-operative Voice Calibration (Figure 2) was done to determine ideal inter-thyroidal cartilage gap based on the patient's voice which was assessed subjectively and objectively. The titanium bridges (Figure 3) was anchored to the thyroid cartilage using 2-0 nylon suture placed on the superior (Figure 4) and inferior edge of the plates. After final evaluation of patient's voice the surgical site was closed layer by layer.

Results:

This study included 8 patients with Adductor Spasmodic Dysphonia who underwent Thyroplasty Type II from June 2018 to November 2019. Pre-operatively, the Filipino Voice Handicap Index Scores revealed severe voice handicap index scores (Table 1). On the other hand, post-operatively, the scores revealed mild voice handicap. In addition, pre-operative Praat software (Table 2) revealed high vocal jitters, high vocal shimmers, and low harmonic to noise ratio. In comparison, post-operative voice analysis revealed low jitter percentage, high vocal shimmers, and high harmonic to noise ratio.

Conclusion:

Patients with Adductor Spasmodic Dysphonia were more common in middle-aged female. The Pre-operative Voice Handicap Index scores of patients with Adductor Spasmodic Dysphonia had significant Voice Handicap scores with high vocal jitters, high vocal shimmers, and low harmonic to noise ratio as determined objectively by the Praat software. Patients who underwent Thyroplasty Type II have significantly lower Voice Handicap scores post-operatively. In addition, the Praat software determined that the patients have near normal jitter percentage, non-pathological vocal shimmers, and high harmonic to noise ratio post-operatively.

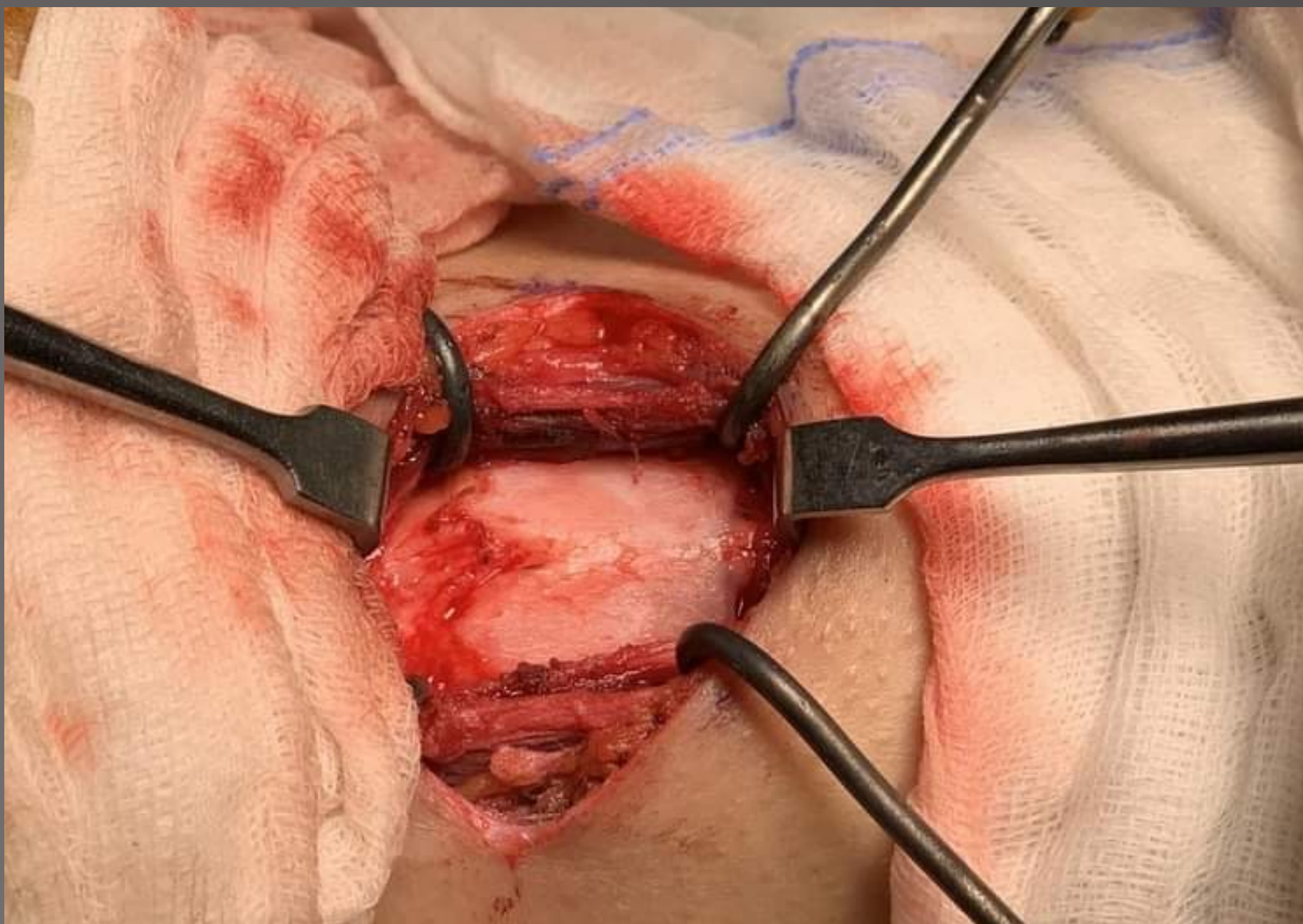


Figure 1. Exposure of Thyroid Cartilage

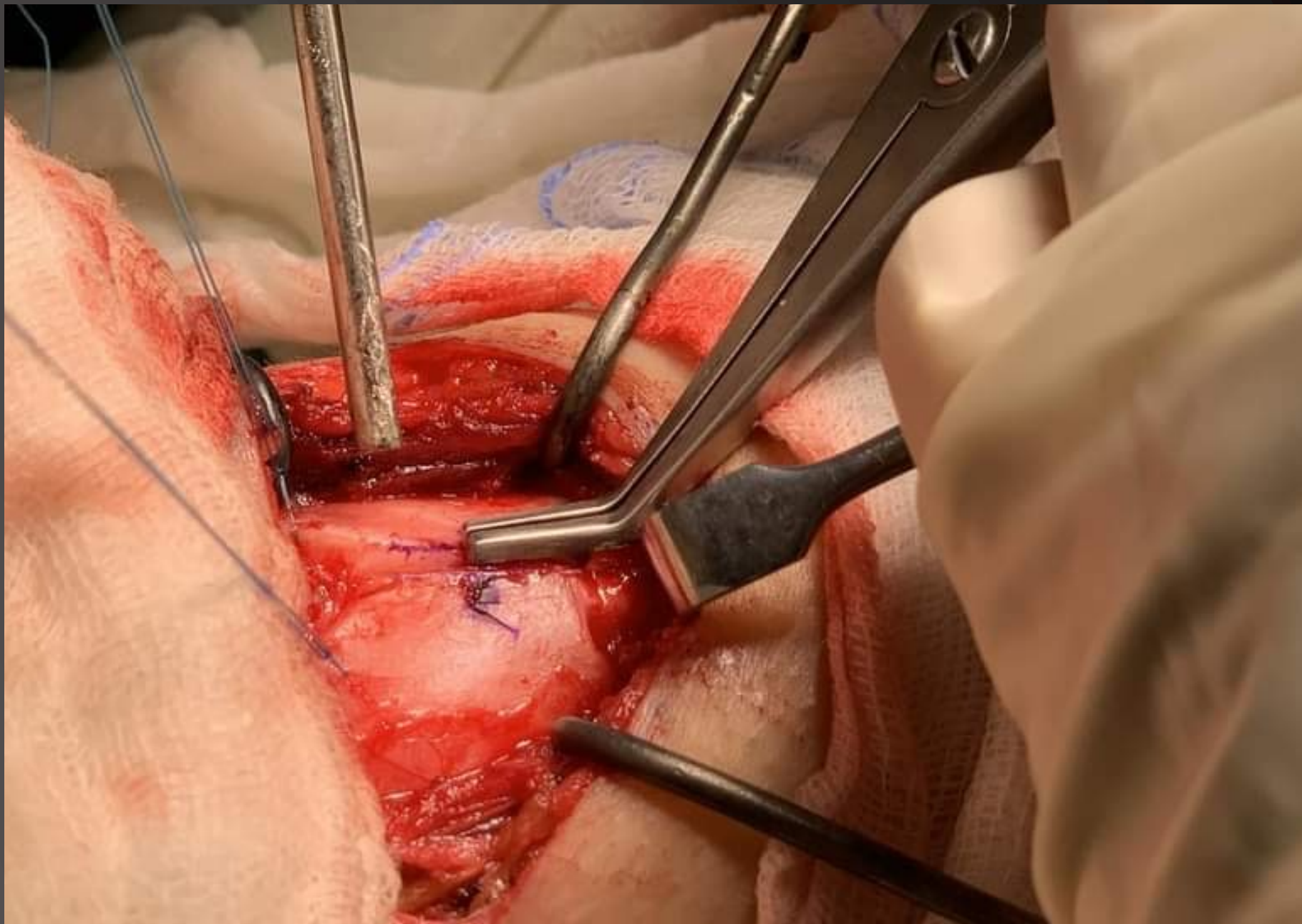


Figure 2. Calibration of Voice using Thyroid Cartilage Spreader



Figure 3. Isshiki Titanium Bridges

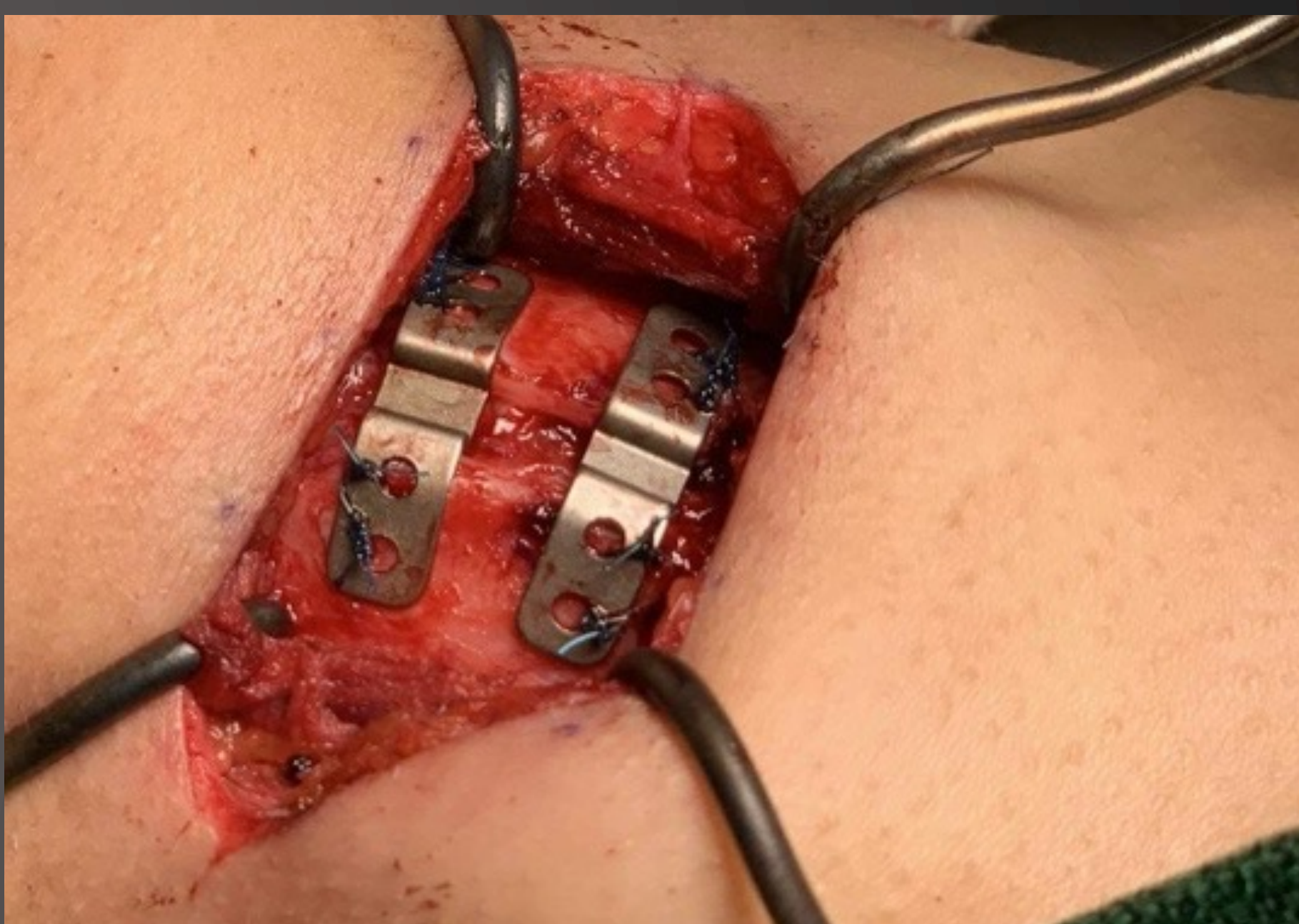


Figure 4. Anchoring of Isshiki Titanium Bridges

Table 1: Voice Handicap Index Scores

Domain	Pre-operative	Post-operative
Functional	25	7
Physical	31	5
Emotional	22	5
Total	78	18

0-30: Low amount of handicap
31-60: Moderate amount of handicap
61-120: Significant amount of handicap

Table 2: Praat Voice Evaluation

Parameter	Pre-operative	Post-operative
Jitter	6.6%	1.3%
Shimmer	13%	10.5%
Harmonic-to-Noise Ratio	5 dB	9 dB

0.5% - 1%: Normal Jitter
<3% Vocal Shimmer: Pathological
<7 dB Harmonic-to-Noise Ratio: Dysphonia