A Modified Frontolateral Partial Laryngectomy with Laryngeal Framework Reconstruction, the Voice Outcomes Better: preliminary report

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INTRODUCTION
Endoscopic resection and radiotherapy are organ-preservation strategies for glottic cancer because of the high local control and quality of voice after the therapy. However, frontolateral partial laryngectomy is still needed in some cases. This procedure has the complication of hoarseness. Therefore, we applied the theories of laryngeal framework surgery to partial laryngectomy with reconstruction using strap muscles and skin flap in order to improve postoperative voice qualities.

METHODS AND MATERIALS

Patients:
We performed a novel modified frontolateral partial laryngectomy in three selected cases (rT1a, T3 cases) in 2012. We also compared the results to the seven patients (T3 or T2 cases) with conventional frontolateral partial laryngectomy between 2007 and 2011. All patients were radiation therapy (RT) failure or poor RT responders.

Voice Evaluation
We evaluated the patient’s voice with GRBAS, maximum phonation time (MPT), pitch perturbation (PPQ), amplitude perturbation quotient (APQ), noise to harmonic ratio (NHR). The GRBAS scale was classified according to the Japan Society of Logopedics and Phoniatrics.

Surgical procedure
A novel modified frontolateral partial laryngectomy: Frontolateral vertical partial laryngectomy with tumor-free margin was performed via laryngofissure approach. After tumor resection, approximation laryngoplasty was performed using sternothyroid muscle flap that was inserted into posterior dead space to gain better contact of the posterior vocal fold on the reconstructed vocal ridge. After these procedures, a reverted sternohyoid muscle placed inside the preserved outer perichondrium to reduce dead space and externally medialize cervical skin flap, which shaped new vocal fold.

RESULTS
No recurrence was observed in any case. No aspiration and laryngeal stenosis were observed in any case. The reconstructive vocal folds were in good shapes in modified method cases. (Fig.10, 12)

DISCUSSION & CONCLUSIONS
Primary treatments for glottic cancer are endoscopic laser surgical resection or RT, radiochemotherapy (CRT). Non-responders or poor responders for the RT, CRT are selected surgery. The frontolateral partial laryngectomy is used for organ preservation salvaged surgery after RT or CRT. This conventional procedure has the complication of voice quality, especially hoarseness after surgery. This modified frontolateral partial laryngectomy can get adequate glottic closure during phonation in order to obtain a good voice quality after glottic reconstruction.

REFERENCES

Table 1. Patients and post operative GRBAS scale. T; according to 2010 TNM