

CURRICULUM VITAE

박 기 남



1998-2004	성균관대학교 의과대학 의학과 졸업
2005-2009	삼성서울병원 이비인후과 전공의
2012-2013	삼성서울병원 이비인후과 두경부외과 임상강사
2013-2014	순천향대학교 부천병원 이비인후과 두경부외과 임상강사
2014-2015	순천향대학교 부천병원 이비인후과 임상조교수
2013-2015	성균관대학교 의과대학 대학원 석사 학위 취득(이비인후과)
2015-현재	순천향대학교 부천병원 이비인후과 조교수 성균관대학교 의과대학 대학원 박사 학위 과정

Comparison of Voice Results according to Absolute Voice Rest Duration after Laryngomicrosurgery for Benign Vocal Fold Diseases: Multicenter Study

(양성 성대 점막 병변의 수술 후 음성 휴식 기간에 따른 음성 결과 비교: 다기관 연구)

Department of Otorhinolaryngology-Head and Neck Surgery, Soonchunhyang University, ¹Bucheon, ⁵Cheonan, ²Inje University, Ilsan Paik, ³Busan Paik, ⁴Sungkyunkwan University, Seoul, Korea
 Ki Nam Park¹, Seung Won Lee¹, Jae Geun Cho², Yoon Kyung So², Dong Geun Lee³, Do Hoon Kim³, Na Yeon Choi⁴, Myung Jin Ban⁵, Jae Hong Park⁵, Young-Ik Son⁴

Background

Absolute voice rest is commonly recommended after laryngomicrosurgery with the intention to promote mucosal healing and minimize scar formation. However, the optimal duration of voice rest is unknown and long period of absolute voice rest can interfere with the return to daily life. Since many physicians apply various voice rest periods, the purpose of this study is to compare the voice results according to absolute rest duration and determine the appropriate voice rest periods.

Study Design

Multicenter retrospective case-control study

Materials and Methods

Total 132 patients who underwent laryngomicrosurgery for benign mucosal vocal fold diseases (vocal nodule, polyp and intracordal cyst) in five different university hospitals were enrolled from May 2016 to Feb 2017. Data regarding clinical characteristics, periods of voice rest, surgeon's experience, surgical findings, stroboscopic examination, GRBAS scale, acoustic analysis, Voice Handicap Index-10 (VHI-10) were collected retrospectively after approval of Institutional Review Board at each hospitals. According to the voice rest

duration (VRD), we divided into two groups with those of ≤ 5 (Group A, N=61) and > 5 (Group B, N=71) days and compared the voice results.

Results

The voice rest duration was 3.7 ± 1.2 days in Group A and 7.2 ± 0.6 in Group B. The proportion of diagnosis was different and 5 vocal nodule cases were only included in Group A. The ratio of over 10-year surgeon's experience and postoperative proton-pump inhibitors (PPI) therapy were higher in Group A. Preoperative voice data did not showed difference between two groups. The change amount of voice test showed no significant difference of GRBAS scale, VHI-10 and voice parameters. However, fundamental frequency (F0) showed increase in group B (7.0 ± 37.7 Hz) as opposed to decrease in group A (-2.3 ± 639.7 Hz) and F0 showed significant change in Group B after adjustment for diagnosis, surgeon's experience and postoperative PPI therapy on linear regression analysis.

Conclusion

According to this results, voice rest within two to five days showed no difference of voice results compared to over 6 days except F0.

Table 1. Baseline characteristics per group

Variable	Total	Group A	Group B	p-value
	(N=132)	(N=61)	(N=71)	
Demographic characteristics				
Age (year)	47.1±13.4	46.3±13.8	47.7±13.2	0.552
Gender				0.468
Male	68 (51.5%)	34 (55.7%)	34 (47.9%)	
Female	64 (48.5%)	27 (44.3%)	37 (52.1%)	
Professional voice use	48 (36.4%)	20 (32.8%)	28 (39.4%)	0.542
Alcohol-drinking	35 (26.5%)	16 (26.2%)	19 (26.8%)	1
Smoking	33 (25.0%)	13 (21.3%)	20 (28.2%)	0.48
Clinical characteristics				
Dianosis				0.015
Vocal nodule	5 (3.8%)	5 (8.2%)	0 (0.0%)	
Vocal polyp	114 (86.4%)	48 (78.7%)	66 (93.0%)	
Intracordal cyst	13 (9.8%)	8 (13.1%)	5 (7.0%)	
History of diabetes	8 (6.1%)	3 (4.9%)	5 (7.0%)	0.725
History of LPR medication	19 (14.4%)	10 (16.4%)	9 (12.7%)	0.72
Preoperative voice therapy	23 (17.4%)	15 (24.6%)	8 (11.3%)	0.075
Preoperative PPI therapy	34 (25.8%)	14 (23.0%)	20 (28.2%)	0.629
Operative characteristics				
Surgeon's experience ≥10 years	71 (53.8%)	39 (63.9%)	32 (45.1%)	0.046
Operative techniques				0.4
Truncation	84 (63.6%)	36 (59.0%)	48 (67.6%)	
Microflap	48 (36.4%)	25 (41.0%)	23 (32.4%)	
Lesion size (mm)	3.1±2.0	2.8±1.1	3.4±2.5	0.956
Lesion on the opposite side	53 (40.2%)	25 (41.0%)	28 (39.4%)	0.998
Ligament exposure	5 (3.8%)	1 (1.6%)	4 (5.6%)	0.459
Non-vibrating portion	7 (5.3%)	1 (1.6%)	6 (8.5%)	0.177
Postoperative PPI therapy	120 (90.9%)	60 (98.4%)	60 (84.5%)	0.014
Voice rest duration (day)	5.6±2.0	3.7±1.2	7.2±0.6	<0.001

Table 2. Preoperative voice data

Variable	Total	Group A	Group B	p-value
	(N=132)	(N=61)	(N=71)	
Preoperative measurements				
GRBAS scale	5.2±1.9	5.4±2.0	5.1±1.9	0.357
VHI-10	16.3±9.6	17.0±8.8	15.7±10.2	0.382
MPT	9.5±4.3	9.1±3.3	9.8±5.0	0.688
F0	136.4±54.1	141.1±56.6	132.4±51.8	0.359
Jitter (%)	2.8±2.5	2.8±2.9	2.7±2.1	0.717
Shimmer (%)	8.5±10.5	9.9±14.7	7.2±4.0	0.68
NHR	0.3±1.3	0.2±0.2	0.4±1.8	0.809

Table 3. Linear regression analysis for change amount of voice test of Group B compared to Group A

	Group B (vs. Group A)					
	Crude B (95% CI)	p-value	Adjusted B (95% CI)*	p-value	Adjusted B (95% CI) †	p-value
Δ GRBAS	0.18 (-0.53 to 0.88)	0.617	-0.01 (-0.76 to 0.73)	0.968	-0.2 (-0.93 to 0.54)	0.596
Δ VHI-10	-1.02 (-4.09 to 2.05)	0.511	-2.5 (-5.56 to 0.57)	0.11	-2.32 (-5.43 to 0.8)	0.143
Δ MPT	-0.32 (-1.73 to 1.09)	0.655	-0.44 (-1.95 to 1.07)	0.565	-0.53 (-2.06 to 1.01)	0.498
Δ F0	9.25 (-4.08 to 22.59)	0.172	14.45 (0.56 to 28.33)	0.042	15.3 (1.2 to 29.4)	0.034
Δ Jitter (%)	0.91 (0.02 to 1.79)	0.045	0.8 (-0.14 to 1.74)	0.094	0.69 (-0.25 to 1.64)	0.15
Δ Shimmer (%)	3.77 (0.02 to 7.51)	0.049	3.72 (-0.27 to 7.71)	0.067	3.5 (-0.55 to 7.55)	0.09
Δ NHR	-0.16 (-0.61 to 0.29)	0.477	-0.23 (-0.71 to 0.25)	0.345	-0.24 (-0.72 to 0.25)	0.334

B: regression coefficient.

*Adjusted for diagnosis and surgeon's experience.

†Adjusted for diagnosis, surgeon's experience, and postoperative PPI therapy.

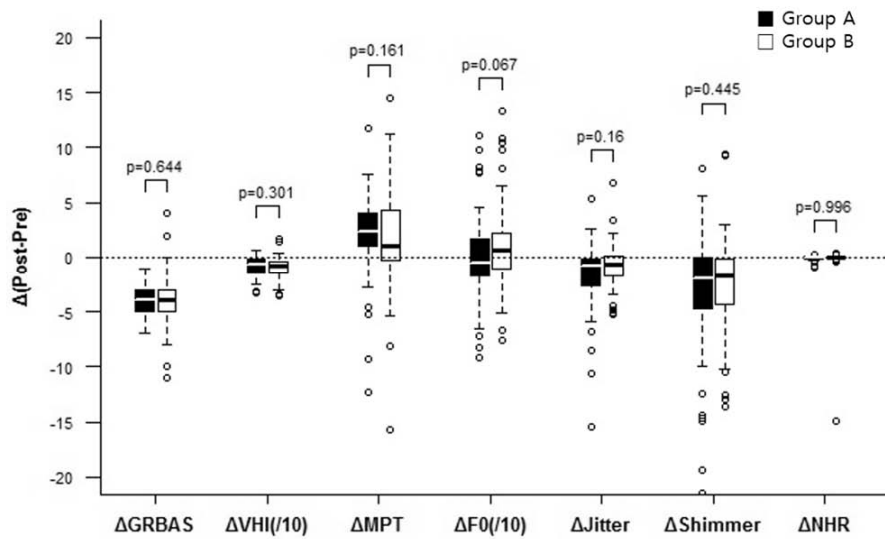


Figure 1. Change amount of voice test per group. There were no significant difference of voice parameters.