

# 성문암의 레이저 수술

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백 정 환

## Laser Surgery of Glottic Cancer

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### 서 론

1972년 Jako와 Strong은 CO<sub>2</sub> 레이저를 이용하여 성문암을 치료하였다. 1978년 Vaughan은 CO<sub>2</sub> 레이저를 이용하여 성문암을 치료하였다. Thumfart은 transglottic 레이저 수술을 소개하였다. Steinger은 blockwise resection을 소개하였다. Ambrosch은 T3 성문암에 blockwise resection을 소개하였다. Steiner은 blockwise resection을 소개하였다. CO<sub>2</sub> 레이저 수술의 개념

### Blockwise Resection의 개념

135 - 710 50  
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(different carbonization)

(Fig. 1).

가

' blockwise resection '

' en - bloc '

(Fig. 2).<sup>3)</sup>

기본 준비 및 기구

CO<sub>2</sub>

(coagulation necrosis)

micromanipulator

400 mm

200~250 μm

가

, suction tube

가

가

(distending

laryngo - pharyngoscope)

<sup>3)</sup>

grasping

forceps, suction tubes, coagulation forceps, protecting shields, hemo clip

(Fig. 3).



Fig. 1. Different carbonization with CO<sub>2</sub> laser resection between tumor tissue (arrow heads) and normal tissue (arrows).

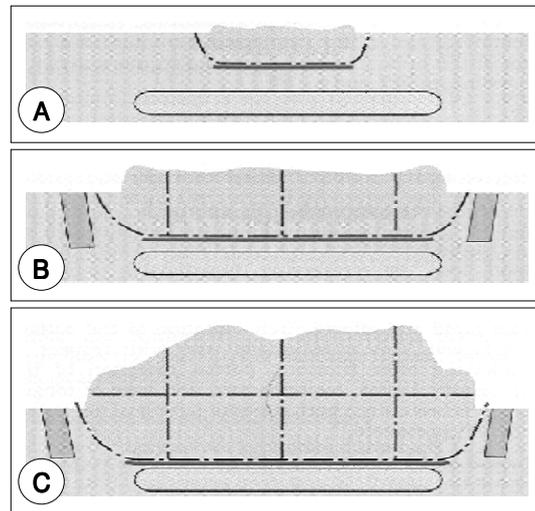
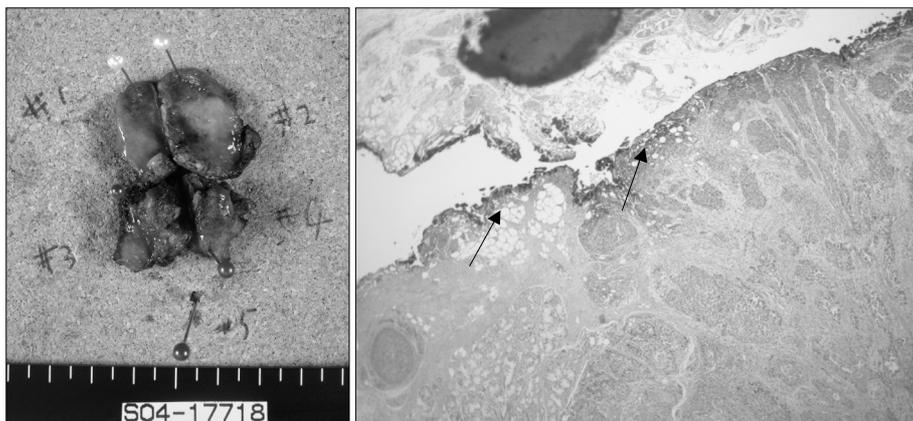


Fig. 2. Examples of the resection technique. A : A small, well-circumscribed tumor is excised en bloc. B : A larger tumor is resected in several pieces. C : In cases of exophytic and/or deeply infiltrating tumors debulking is initially performed in several pieces.



가  
 Jet ventilation  
 2~3 mm suction tip  
 가  
 (deep margin)  
 가  
**수술방법**  
 16~25  
 (Fig. 5).  
 CO<sub>2</sub> (Sharplan 1040) micro-manipulator  
 (incision) superpulse  
 가  
 가  
 가  
 2~6 watts micro-manipulator spot size 0.15~4 mm  
 Steiner en bloc  
 가  
 3~5 blockwise  
 2%  
 mm 5 mm 가  
 1.5~3 mm en

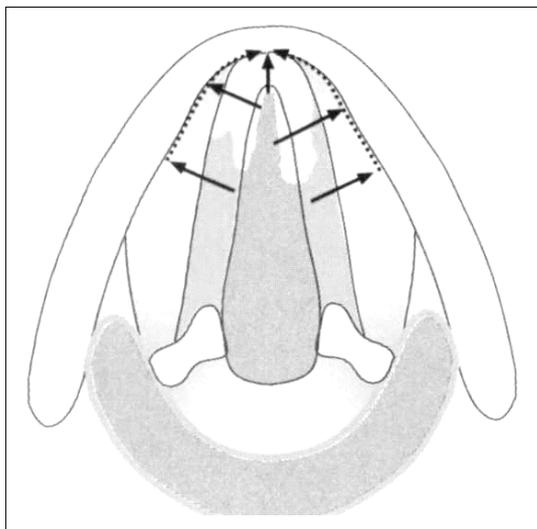


**Fig. 5.** Mapping of the surgical specimens after blocwise resection. Resection margin was painted with green dye (arrows).

bloc , T1b glottic tumor without anterior commissure involvement  
 blockwise (Fig. 2). ex-  
 Circumscribed early lesion(Tis, T1)of the midcord 가  
 (exci- T1b glottic tumor with anterior commissure involvement  
 sion) , T1b 가  
 propria가 superficial lamina 가  
 2~3 mm dissector round knife  
 (Fig. 7).<sup>2)</sup>  
 T2 glottic tumor with normal cord mobility  
 blockwise resec-  
 tion inte-  
 rarytenoid area  
 Large T1a glottic tumor  
 T2 glottic tumor with impaired cord mobility or T3 fixed tumor  
 Blockwise resection 가  
 가 가 , 가  
 (Fig. 6).



**Fig. 6.** A : Drawing of cut surface through the right vocal cord tumor. B, C : Glottic cancer (T1a) before and after laser resection.



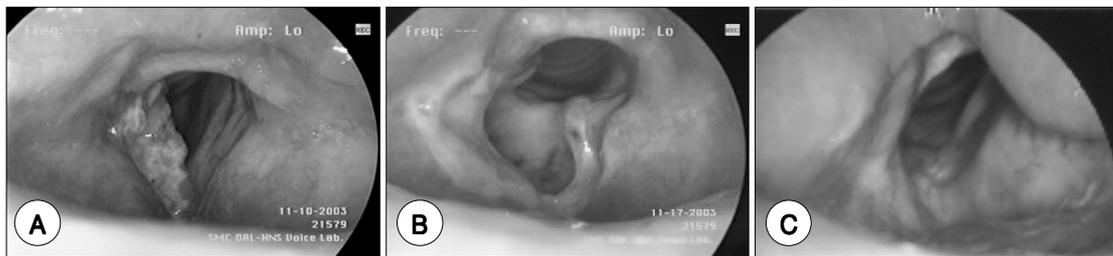
**Fig. 7.** Drawing of resection of T1b glottic tumor. Resection of the perichondrium of the thyroid cartilage is necessary.

body 가 vocal process  
(Fig. 8).

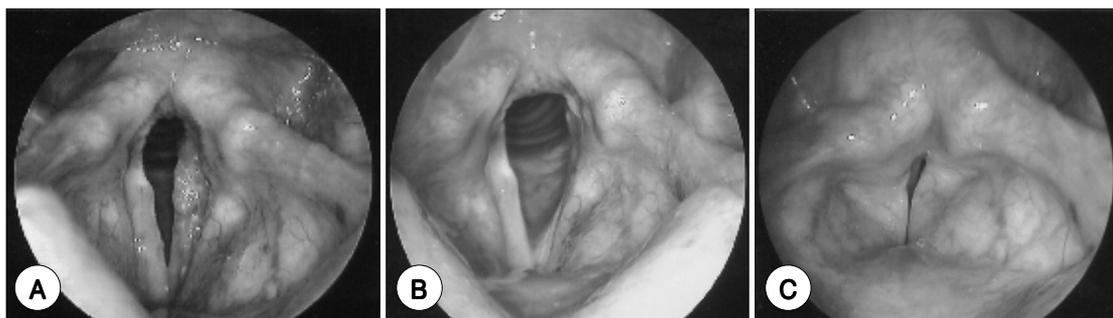
**술후 경과 및 관리**

3 가 2~  
가

(Fig. 9).



**Fig. 8.** Laser resection of T3 glottic cancer. A : Preoperative view. B : Resection of the right vocal fold, part of vocal process, anterior commissure, anterior subglottis and anterior part of left vocal fold was done. C : Postoperative view.



**Fig. 9.** Postoperative compensatory contracture of false vocal folds was observed. A : Preoperative view. B : Postoperative view during inspiration. C : Postoperative view during 'e' phonation.

fibrin exudate

1990

1600

80~100%, 92~100%

thick fibrin exudate

가

가 (Fig. 10).

### 레이저 성대절제술의 장점

### 치료성적

Eckel Thumfart

110 T1, T2

67 9%, 100% <sup>8)</sup>

<sup>2)</sup> Eckel

96.7%, 85.8%,

91.72%, , Ambrosch T3

70 68% 62%

5 <sup>4)</sup> Pearson

T1, T2a

, T2b, T3, T4 22.7%

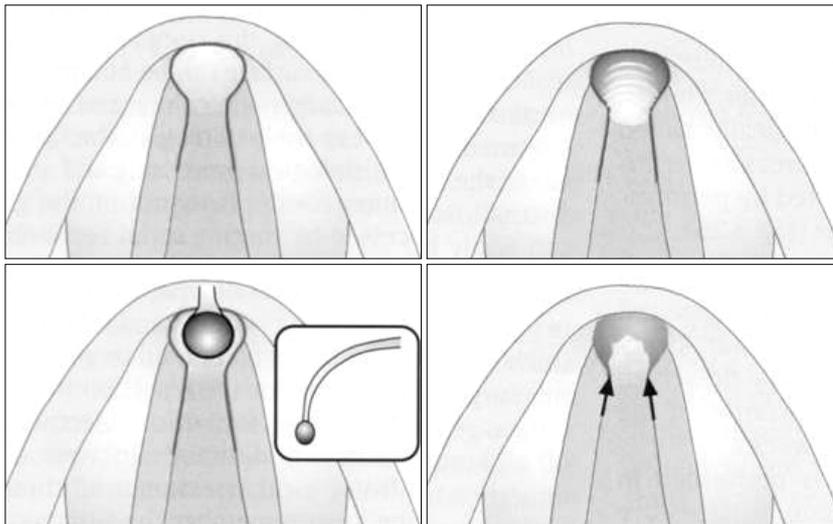
Eckel 2.4%

가 가

(Table 1).

### 레이저 성대절제술의 단점 및 합병증

가



**Fig. 10.** Prevention of anterior web : swabbing with mitomycin soaked cotton around anterior commissure regularly to remove the thick fibrin exudate.

가 .  
 가 .<sup>9)</sup> .  
 ,  
 ,  
 blockwise ,  
 ,  
 가 , 가 ,  
 ,  
 가 ,  
 4% ,  
 ,  
 suction tube coagulation forcep  
 (median and lateral glos-  
 soepiglottic fold) 가  
 (hemoclip) ,  
 ,  
 가 , 2  
 ,  
 .<sup>5)</sup> 가  
 ,  
 (steroid inhaler) , 42 88 ,  
 ,  
 .<sup>3)</sup> ,

**Table 1.** Attractive features of transoral laser microresection

Excellent local control of the primary cancer
Least chance of imposing overtreatment
Best chance of recovering normal swallowing
A serviceable voice
Reliable staging information
Fewest days to complete treatment of the primary cancer
Better chance of avoiding a tracheotomy
In the event of failure, all treatment options remain possible
In the event of a second primary, all treatment options remain possible

**결 론**

Tis, T1, T2

T3

**성균관대의대 삼성서울병원  
레이저 성문암 수술경험**

1995	2004	61 ( 54
	9 )	61
		52
		9
		4 , 57 ,
		64

**Table 2.** TNM staging according to AJCC classification (2002)

	T1a	T1b	T2	T3	Total
Glottic ca. (N0)	35	8	8	1	52
Recurred Glottic ca (N0)	6	0	1	2	9
Total	41	8	9	3	61

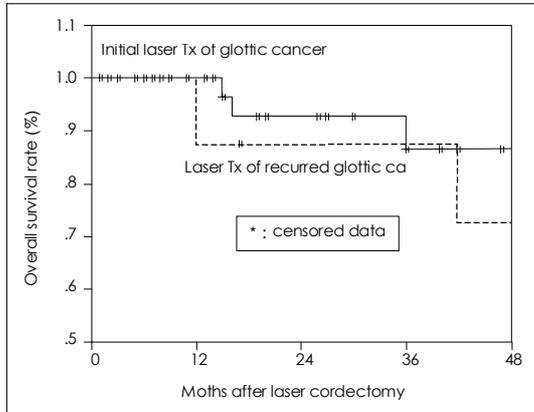


Fig. 11. Overall 3 year survival (Kaplan-meier method).

matoid cancer)

(Table 2).

가 1  
1  
92.3%(48/52)  
T1a 94.3%  
(33/35), T1b 87.5%(7/8), T2 87.5%(7/8)  
52 4 (7.7%)  
21.8 (3~58  
) anterior commissure

(Fisher's exact test  $p > 0.05$ )

4 1  
3  
1

1, 2,  
1 80%(4/52)  
52 3  
66.6, 3 86.7%  
9 2  
65.9, 3 72.9%  
(Kaplan - Meier method,  
Log rank test,  $p > 0.05$ ) (Fig. 11).

중심 단어 : Laser surgery · Glottic cancer.

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