

Supraglottic laryngectomy: Treatment results of two different operation methods

B. Čizmarević, V. Didanović, A. Munda, D. Becner and F. Cundrič

Department of Otolaryngology & Cervicofacial Surgery, Maribor, Slovenia

Treatment results of two different kinds of supraglottic laryngectomies were compared.

Material and methods: Treatment results of all patients treated at our department between 1st January 1990 and 31st December 1994 with partial supraglottic laryngectomy were analyzed. Patients were treated with two different methods of operation - in 29 patients, the defect was reconstructed with simple suspension of the rest of larynx to the base of the tongue and, in 23 patients, the defect was covered with the sternohyoid fascia. The majority of patients were postoperatively irradiated (42/52). Patients were followed for at least two years.

Results: An overall 79% (41/52) local and regional control of disease was achieved. Decanulation was possible in 66% (34/52) of patients and in 85% (44/52) of patients peroral intake was achieved. Locoregional control was comparable to that published in the literature, but the percentage of decanulated patients was lower. There was no statistically significant difference in survival and function between the two methods compared.

Conclusion: Since with both methods comparable results were obtained, we think that the simpler method without the use of fascia, is a more appropriate one.

Key words: laryngectomy-methods; laryngeal neoplasms-surgery; treatment outcome

Introduction

Supraglottic laryngectomy is very often initial treatment of supraglottic tumors.¹⁻³ In classic supraglottic laryngectomy, embryologic unit of the larynx with the tumor is removed.⁴ With some extension, this operation can be applied in some hypopharyngeal and oropharyngeal carcinomas.⁵⁻⁷

A tissue defect between the base of the tongue and the remaining part of the larynx appears after tumor removal. In our patients, we used two methods of reconstruction; the defect was either bridged with the sternohyoid fascia⁸ or the larynx was suspended on the base of the tongue with the sutures.

The aim of this retrospective study was to assess with which of the two methods used better functional and survival results were achieved.

Material and methods

From 1st January 1990 to 31st December 1994, supraglottic laryngectomy was performed on 59 patients at our department. The patients previously treated for the same or another malignant disease in the head and neck region were excluded from the study. Thus, treatment results of 52 patients were evaluated.

Patients were divided into two groups. In the first group, there were 23 patients operated on using the sternohyoid fascia for reconstruction and, in the second group, there were 29 patients operated on with the suspension method.

The majority of our patients (42/52) was postoperatively irradiated. Indications for irradiation were:

Correspondence to: Dr. B. Čizmarević, Department of Otolaryngology & Cervicofacial Surgery, Teaching Hospital Maribor, Ljubljanska 5, 2000 Maribor, Slovenia.

positive or insecure margins of excision, stage III and IV of disease, perineural spread, more than one positive neck node or positive node low in the neck, and extracapsular spread of tumor.

Irradiated patients received tumor doses of 50-70 Gy. Irradiation was applied in daily fractions of 2 Gy, 5 fractions per week.

All patients included in the study were followed for at least two years. Data of all patients were put in the computer and analyzed with Msaccess and Statistica for Windows software. Disease specific survival rate was computed with Kaplan-Meier method. Two-tailed t-test for independent samples was used for evaluation of differences between the groups.

Results

In the period under study, partial supraglottic laryngectomy was performed on 13 patients with carcinoma of the hypopharynx, 36 patients with carcinoma of the supraglottis and 3 patients with disease in the oropharynx. There were 7 women and 45 men, aged 32 - 82 years (median, 56 years). Distribution of our patients according to the TNM Classification of Malignant diseases⁹ is presented in Tables 1, 2 and 3:

Table 1. Distribution of patients with hypopharyngeal carcinoma (n=13)

	N0	N1	N2a	N2b	N2c	N3	
T1	0	0	0	1	0	0	1
T2	2	2	2	0	1	1	8
T3	1	0	0	1	0	1	3
T4	0	0	0	1	0	0	1
	3	2	2	3	1	2	13

Table 2. Distribution of patients with supraglottic carcinoma (n=36)

	N0	N1	N2a	N2b	N2c	N3	
T1	0	0	0	0	0	0	0
T2	12	2	2	5	3	0	24
T3	4	1	0	2	1	0	8
T4	0	0	1	0	3	0	4
	16	3	3	7	7	0	36

Table 3. Distribution of patients with oropharyngeal carcinoma (n=3)

	N0	N1	N2a	N2b	N2c	N3	
T1	0	0	0	0	0	0	0
T2	0	0	0	2	0	0	2
T3	0	0	0	1	0	0	1
T4	0	0	0	0	0	0	0
	0	0	0	3	0	0	3

In total, 42 patients were postoperatively irradiated, out of whom 27 were decanulated (64%). Seven patients out of 10 without irradiation were decanulated (70%). Postoperatively, decanulation was possible in 34 (66%) patients. In 18 of them, suspension was used for reconstruction, and in 16, the fascia was used (Figure 1). In supraglottic tumors decanulation was possible in 27 out of 36 patients (75%). The reconstruction method with the fascia was applied to 16 patients out of whom 14 (88%) were decanulated. Suspension method was used in 20 patients out of whom 13 (65%) were decanulated. Tumor size did not influence significantly the proportion of decanulated patients. In all three patients with the tumor in the oropharynx, the suspension method of operation was performed. In spite of a very extensive excision of the base of the tongue, we managed to decanulate two of them (66%). Five out of 13 (38%) patients with hypopharyngeal carcinoma were decanulated postoperatively. Reconstruction with the fascia was used in 7 patients of whom 2(29%) were decanulated. Suspension was used in 5 patients of whom 3 (60%) were decanulated. Tumor size did not influence significantly the proportion of decanulated patients. The peroral feeding after treatment was achieved in 85% (44/52) of patients (Figure 2). Regarding the method of operation, peroral intake was possible in 18/23 patients (78%) operated with fascia method and in 26/29 (89%) with suspension method. Regarding the localization of the tumor, peroral intake was possible in 9/13 (69%) patients with hypopharyngeal tumors, in 32/36 (89%) patients with supraglottic tumors and in all three patients with the tumor of the oropharynx. Age did not influence the proportion of decanulated patients. A two year disease specific survival of patients with supraglottic and hypopharyngeal tu-

mors was 89% and 44% respectively (Figure 3). There was no statistically significant difference in disease specific survival of patients with supratlottic carcinoma whether the reconstruction with suspension or fascia method was done (Figure 4). There was a slightly better disease specific survival in patients with hypopharyngeal carcinomas when the method with fascia was applied, but the difference was not statistically significant (Figure 5).

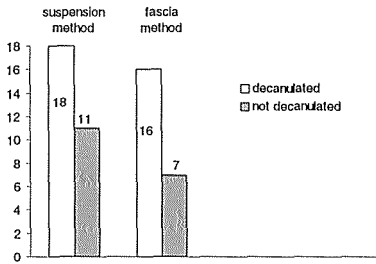


Figure 1. Decanulation rate according to the method of operation (n=52).

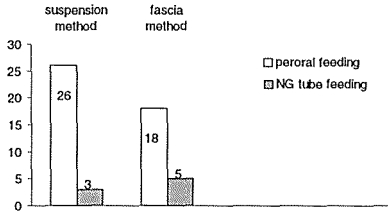


Figure 2. Posttreatment feeding according to the method of operation (n=52); NG tube = naso-gastric tube.

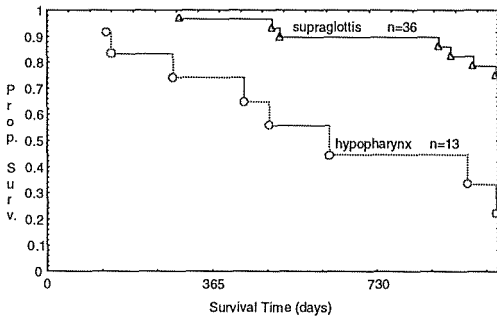


Figure 3. Disease specific survival of patients with the supraglottic and hypopharyngeal carcinomas of all stages (n=49, p=0.07).

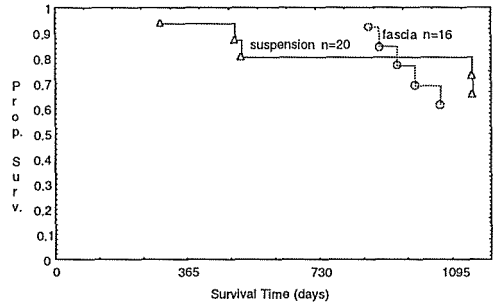


Figure 4. Disease specific survival of patients with the supraglottic carcinoma operated on with the suspension and reconstruction with the fascia method (n=36, p=0.26).

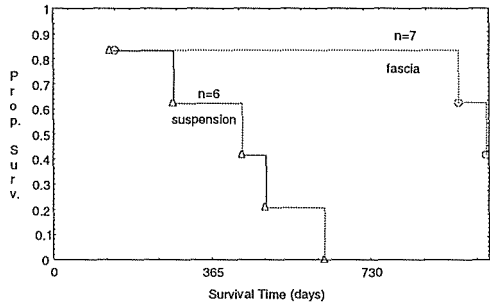


Figure 5. Disease specific survival of patients with the hypopharyngeal carcinoma operated on with the suspension and reconstruction with the fascia method (n=13, p=0.13).

Discussion

The comparison of survival according to localizations of the tumor showed worse survival in patients with hypopharyngeal than with the supraglottic carcinomas. The percentage of patients who were decanulated and were able to swallow satisfactorily was lower in the group with hypopharyngeal carcinoma compared to the patients with other two localizations of carcinoma. In our series, the method of operation had little influence on survival and functional results and extension of resection did not influence the postoperative function. The age of patients did not influence functional results which, in our opinion, makes supraglottic laryngectomy acceptable treatment option also in older patients. Due to the small number of unirradiated patients, it was impossible to compare the influence of irradiation on functional rehabilitation of our patients. We managed to decanulate 66% (34/52) of patients, which is less than described in the literature (7,10). However, we had a larger proportion of postopera-

tively irradiated patients and tumors not localized to the supraglottis only, thus more extensive excisions were necessary.

Conclusions

In both methods of partial supraglottic laryngectomy, functional and oncological results are comparable. Since the method with suspension is simpler and quicker than the method with fascia, it is in our opinion a more appropriate one.

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