

Surgical treatment of advanced oropharyngeal cancer with preservation of the larynx

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Background and methods. This retrospective study evaluates the oncological and functional results obtained in 61 patients with advanced oropharyngeal cancer who underwent extended tumor resection as a primary procedure or as a salvage surgery form.

Results. Although the oropharyngeal cancers involved the base of the tongue, or some of them extended to the lateral hypopharyngeal wall, the surgery was performed without total laryngectomy. The tumor extended to the vallecula and/or to the pharyngoepiglottic fold in five cases, which required supraglottic laryngectomy. The closure following the extended resection of the tumor was made with flap reconstruction in all patients. The preferred method was employing the pectoralis major myocutaneous flap. The survival rates were 75%, at 1 year and 31%, at 2 years and 25% from 2 to 5 years with recurrence of the disease. In one patient, the nasogastric tube could not have been removed, and another patient could be decannulated only after postoperative radiation because of the persistent oedema.

Conclusions. A satisfactory functional result was obtained in this series. In most of our patients, good functioning of larynx as well as voice preservation were secured.

Key words: oropharyngeal neoplasms - surgery; organ sparing - methods; larynx - surgery

Introduction

The therapeutic approach to the patients with previously untreated advanced carcinoma of the oropharynx or of those presenting with recurrences after surgical and/or radiation failure presents numerous difficulties.¹⁻³ The question of quality of life is very important.

Oncological success in the treatment of head and neck cancer is bought at a price of crippling of vital functions such as eating, breathing, speech and, furthermore, striking aesthetic deformity. Beside the strict oncological principles, and adequate resection of cancer with the preservation of laryngeal function is one of the main goals in our department. The present study of a series of patients is a review of the oncological and functional results of this kind of surgery performed in the last 6 years.

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Material and methods

Sixty-one patients, 54 men and 7 women, underwent surgical procedure for advanced oropharyngeal cancer from January 1990 to January 1996. Their ages ranged from 40 to 71 years (mean 48 years). Twenty-eight patients had previous radiotherapy only, 9 had partial surgery and radiotherapy, and the remaining 24 patients presented with untreated carcinoma.

All tumors had their origin in the oropharynx. Invasion in oral cavity was very frequent. The tumor invaded the mobile tongue and had an extension to the floor of the mouth in 43 patients. There was extension to the mandible in 7 patients and in 17 other cases the tumor involved the gingival mucosa. In 17 patients, the tumor spread to the lateral wall or the lateral and posterior wall of the hypopharynx.

The clinical staging of the disease is reported according to the UICC TNM staging sys-

hypopharyngectomy was performed in 8 patients. Partial horizontal laryngectomy was required in 5 patients because the tumor involved the vallecula or pharyngoepiglottic fold as well.

Neck dissection was performed in all patients. The terminology for describing neck dissection follows the publication by Robbins *et al.*⁵ Radical neck dissection was indicated for clinically positive neck nodes in 29 patients, and, for clinically negative neck nodes, in 9 patients. Modified radical dissection was performed in 6 cases for N1 neck disease and in 18 cases for N0 neck disease. Selective neck dissection was done in one patient for N0 neck. In two patients, the neck dissection was bilateral. In the first case, ipsilateral radical neck dissection and, in the other side, modified radical neck dissection were used. In the second case, modified radical neck dissection was performed in both sides.

Table 1. TNM staging

Primary stage	Neck stage						Totals
	N0	N1	N2a	N2b	N2c	N3	
T1	0	0	0	0	0	0	0
T2	4	4	0	0	0	0	8
T3	3	0	1	1	1	0	6
T4	19	14	4	7	0	3	47
Total	26	18	5	8	1	3	61

Stadium I. -

Stadium II. 4

Stadium III. 7

Stadium IV. 54

tem⁴ for head and neck tumors (Table 1). Resection of the base of the tongue with parts of the oral cavity without segmental resection of the mandible was performed in 13 patients. Composite resection of the oropharynx was required in 31 cases. Resection of the base of tongue with partial hypopharyngectomy was required in 4 patients. Composite resection of the oropharynx with partial

Reconstruction of the defect was carried out by the transposition of the myocutaneous flap in 60 patients (58 pectoralis major, 2 latissimus dorsi) and a free microvascular flap was used in one patient (latissimus dorsi).

Postoperative radiation treatment was given to the patients who had no previous radiation.

Results

One patient had early postoperative medical complication as gastric perforation, three patients had aspiration pneumonia and, in two cases, pneumonia was observed. Twenty-seven patients had flap related complications, e.g., flap necrosis dehiscence, infection and fistula formation.

Total flap loss occurred in one patient. This complication required a secondary reconstruction by latissimus dorsi myocutaneous flap. Partial flap necrosis occurred in 8 patients. Secondary repair was required in 4 patients. In 4 patients, the area of necrosis was minimal and did not require additional treatment. Orocutaneous fistula developed in 10 patients but in all it closed spontaneously with conservative management. There were 8 cases of minor wound complication on the neck or the donor site.

Fifty- six patients were decannulated between the 3rd and 30th postoperative day (mean 13.5). They were released of nasogastric tube between 10th and 90th day (mean 22 days). In five cases, when the resection of the oropharyngeal cancer required supraglottic laryngectomy, the nasogastric tube was removed between the 33rd and 85th day after surgery (mean 60 days) and they were decannulated between the 30th and 85th day (mean 64 days).

One patient remained dependent on feeding tube because normal swallowing function

was not restored. In this case, a second primary tumor in the brain was detected.

The survival rates were 75% at 1 year, 31% at 2 years and 25% at 2 to 5 years. The death was due to early recurrence of the disease. Forty-one of the 61 patients died. One was lost from the follow-up in the early postoperative period, and another died from cardiorespiratory disease (Table 2). Survival distribution of study population was analysed by the Kaplan- Meier method (Figure 1,2).

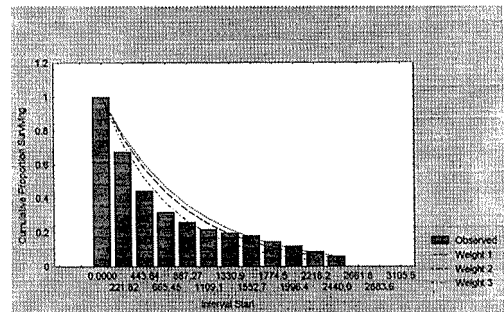


Figure 1. LS estimates of survivorship function. Model exponential Note: Weights: 1=1, 2=1, 3=N (I) H (I).

Local failure was the most frequent cause of death. Thirty-four patients had recurrence above the clavicles. Three patients presented with lung and one patient with brain metastases. Two multiplex primary malignant tumors were observed in the oesophagus.

Table 2. Outcome of previous therapy and salvage surgery

	Date of surgical procedure					
	1990-1995		1990-1994		1990-1993	
Previous care	61 patients 1 year follow up		48 patients 2 years follow up		40 patients from 2 to 5 years follow up	
	disease free survival					
Previously untreated	20/26	77%	6/19	31%	4/15	26%
Previously treated	20/35	74%	9/29	31%	6/25	24%
Total	46/61	75%	15/48	31%	10/40	25%

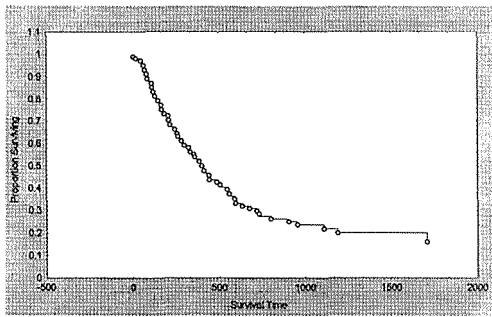


Figure 2. Survivorship function.

Discussion

The extension of the tumor to the vallecula or lateral wall of the hypopharynx and pharyngoepiglottic fold does not require total laryngectomy. Replacement of the lack of tissue with any type of flap following partial laryngectomy provides the motility of the preserved hypopharyngeal structures and oral tongue. It is necessary to provide the sensory component of the reflex mechanism by preserving the superior laryngeal nerve and its internal branches. The intact innervation of the larynx prevents aspiration. The relief of pain after surgery was marked by all of the patients. In the present study, there was no significant higher rate of postoperative morbidity after radiation failure than in the group of previously untreated patients.^{7,8}

The survival rates were similar to those of Marcial and Brennan.^{1,9} There was no significant difference of survival between the group of patients who underwent previous surgery or radiation and those who were previously untreated.^{9,10}

It is the authors' opinion that extended tumor resection without associated laryngectomy provides excellent palliation of symptoms and offers acceptable survival results and quality of life.

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