

THE RESULTS OF SALVAGE SURGERY COMBINED WITH REIRRADIATION IN NODAL RECURRENCE OF LARYNX CANCER

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SUMMARY

The recurrence in the regional lymph nodes of patients after total laryngectomy and postoperative radiotherapy is a still serious therapeutic problem. The conditions that are altered following the combined primary treatment make it difficult to achieve satisfactory results of the second surgical treatment. The aim of our study was to evaluate the outcome of a salvage operation (lymphadenectomy) and reirradiation in 50 patients with recurrence in regional lymph nodes (rN). Between 1991 and 1996, 650 patients with larynx carcinoma were treated in our institutions. All patients during the primary irradiation received a total dose of about 60 Gy. In the case of regional recurrence (rN) patients had selective lymphadenectomy and reirradiation (total dose 40 Gy) when capsulae were found to be infiltrated. The survival rates were for 1, 2 and 3 years : 34 (68%), 22 (44%), only 9 (18%) respectively. This strategy of a second combined treatment had a good tolerance level, without any unacceptable side effects (complications).

INTRODUCTION

At present, the surgery combined with postoperative radiation therapy is the treatment of choice for advanced stage of the carcinoma of larynx (T3-4, N0-3, M0). However the results of such treatment is still unsatisfactory. The main cause of the failure is the recurrence in lymph nodes of the neck. The altered conditions after the primary surgery (total laryngectomy and/or lymphadenectomy) and postoperative irradiation cause difficulties in achieving satisfactory results of the second operation (Cornes et al., 1996, Parsons et al, 1998). Therefore an attempt at reirradiating the close margin of surgery field or infiltration of the capsulae of lymph nodes is a logical option. The aim of our study was to evaluate the outcome of salvage surgery (lymphadenectomy) and reirradiation patients with recurrence in regional lymph nodes (rN).

MATERIAL AND METHODS

The analysis of 50 patients after total laryngectomy and salvage surgery due to recurrence in the neck was performed in years 1991-1996. The surgical treatment was performed in Poznań at the Department of Otolaryngology of Medical Science and radiation therapy at The Department of Radiotherapy, Greatpoland Cancer Center. All patients underwent postoperative radiation in a conventional way of a total dose of 60 Gy to the postoperative bed and regional lymph nodes. The group of patients analysed failed to show any symptoms of recurrence in the postoperative bed and any evidence of distant metastases. All patients were in a good performance status (0-1) according to the WHO classification. The haematology and serum chemistry tests were in a normal range. The ultrasonography of the neck was performed in each patient. The recurrences in lymph nodes after the primary treatment occurred within 4 to 36 months, average 11 months. The analysed group of patients (pts) investigated consisted of 45 (90%) men and 5 (10%) women, aged 42 to 70 years (average 56,6 years). The primary stage of the disease was established according to the TNM classification (UICC- 1987): 36 (72%) pts as T3 and 14 (28%) pts as T4. The primary tumour mainly involved the supraglottic or supraglottic and glottic part of the larynx. The stage of the disease in lymph nodes was established in 22 (44%) pts as N0, but metastases as N1 (20 pts) and N2 (8 pts), average 56%. The primary ipsilateral radical neck dissection was performed in 12 (24%) pts and 28 (56%) pts had a modified radical ipsilateral or bilateral neck dissection.

The recurrence in lymph nodes rN1 was observed either in the group of 9 patients who had no metastases in the neck prior to the primary surgery (N0) and rN2, rN3 in 41 patients with metastases (N1, N2). The recurrence in the neck occurred mainly at levels II, III, V. The histology grading was performed in all patients and it was found to be g-1 in 14 (28%) patients, g-2 in 34 (68%) patients and g-3 in 2 (4%)

patients. The reirradiation was performed in case of positive margins or extranodal extension, with a minimal interval of 6 months following the primary radiation therapy. The second irradiation began 4 weeks after the salvage surgery. The total dose was lower than that during the primary treatment and amounted to about 40 Gy from 10 MeV electrons. The treatment was well tolerated without any serious side effects as defined by the EORTC/EORTG (3-4). The failure in the treatment was due to:

- appearance of a loco-regional recurrence,
- occurrence of distant metastases or death caused by the cancer of the larynx.

The analysis of the effect of the following factors on the outcome of second combined treatment was performed:

- the period of time from the primary treatment (surgery day) to the appearance of a loco-regional recurrence,
- grading,
- age,
- the period of time between the first symptom of the disease and the beginning of the primary treatment (surgery day).

RESULTS

The average survival time for all 50 patients after total laryngectomy and the recurrence in the neck was 21 months in 34 (68%) pts, 24 months in 22 (44%) pts, but 36 months only in 9 (18%) pts. The following ranges of the time period from the primary treatment to the appearance of the recurrence in the neck were:

- up to 6 months in 18 (36%) pts with the average survival time of 18 months after the salvage treatment,
- from 6 to 12 months in 8 (16%) pts with the average survival time of 23 months,
- more than 12 months in 24 (48%) pts with the average survival time of 24 months.

According to the histology grade of the tumour, the average survival time for g-1 was 27 months, for g-2 it was 18,9 months and for g-3 (only 2 pts) it was 20 months. The regional recurrence after second combined treatment was frequent by found in patients aged 50 years or more - 34 (68%) pts. The average survival time in this group was 24 months. The average survival time in patients aged less than 50 years was 18,4 months. The patients survival time measured from the beginning of the first symptoms of the disease to the beginning of the primary treatment of less than 6 months was 18,6 months. The duration of the symptoms lasting more than 6 months was found to be related with the survival time of 27,8 months.

DISCUSSION

At present there is a lack of any efficient method of treating patients after total laryngectomy and postoperative radiotherapy with recurrences in the neck. Regional failure after surgery and irradiation is still a significant problem. Attempts are made at applying salvage surgery, concurrent chemoradiotherapy, reirradiation (Mc Laughlin et al, 1996; Sengelov, 1998; Skolyszewski et al, 1980; Weppelmann et al, 1992). Reirradiation post salvage surgery of the field of primary surgery and postoperative irradiation with a total dose of 60 Gy is still controversial due to the high percentage (20-40%) of late side effects (De Crevoisier et al, 1998).

In this work in 50 patients after total laryngectomy and salvage surgery and second radiation therapy no important late postirradiation complications were found (RTOG/EORTC 3 - 4). The following factors had an effect on the occurrence of severe late complications of the treatment:

- a low total dose of the second irradiation (about 40 Gy),
- a small area of the irradiation fields (about 40 cm²),
- the time from the end of the first irradiation to the beginning of the second irradiation (over 6 months),
- a short time of the follow up (overall survival time in the whole group was 24 months).

The general outcomes of the treatment in the first and second years of the follow up were similar to the updated in the literature (Benchalal et al, 1997; Stevens et al, 1994), but in the third year the survival time of patients decreased by 10 - 20% in comparison with the data from literature. We would like to stress that the total doses used by other authors were higher and the late complications of the treatment were considerable (Hwang et al, 1998). The general conclusion from our work and from the literature is that efficient local control can be achieved with a total reirradiation dose of 60 Gy (Ememi et al, 1987; Langlois et al, 1985). Lower doses are rather inefficient for the 3-year local control (in our study 18%) especially in patients with a short duration of symptoms of the disease and also in the group of patients with a short time period between the primary treatment and the appearance of recurrences.

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