

EFFECT OF EXTRACAPSULAR TUMOR SPREAD ON THE SURVIVAL RATES OF HEAD AND NECK SQUAMOUS CELL CARCINOMA

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Gazi Medical Journal 7 : 111-113, 1996

SUMMARY : *The efficacy of any form of treatment of nodal metastasis in squamous cell carcinoma of the head and neck is reflected by the regional control rate after the treatment. The regional relapse rate correlates well with the pathologic extent of involvement and whether surgical treatment has been followed by radiotherapy or not.*

Seventy-two laryngeal and forty oral cavity squamous cell carcinoma cases who underwent primary tumor resection combined with radical neck dissection were studied to provide information on the prognosis of extracapsular spread of cancer in the cervical lymph nodes. The presence of extracapsular spread was found to be a poor prognostic factor indicating that radical surgery should be followed by a radiotherapy course in metastatic cases.

Key Words : *Metastasis, Squamous Cell Carcinoma, Head and Neck, Lymph Nodes.*

INTRODUCTION

In head and neck squamous cell carcinoma, the presence of clinically involved lymph nodes seems to be a major determinant of patient's outcome. Despite the advances of surgery and radiation therapy, tumor control and survival rates remain disappointing. As it is stated in the literature, cervical lymph node metastasis is an important prognostic factor in the survival of the patients. The size and the number of the metastatic nodes have become more important factors than the stage of the primary lesion in prognosis (2, 7).

The findings in this paper are derived from a series of patients with laryngeal or oral cavity squamous cell carcinoma on whom a primary radical surgery had been performed and postoperative ra-

diotherapy was applied.

The study is focused on the evaluation of the patterns of failure in cases with pathologically positive extracapsular spread in the metastatic nodes. The local, regional and distant control of the disease and the survival rates are evaluated.

MATERIALS AND METHODS

We reviewed 112 patients treated at the ENT and Radiation Oncology departments of Dokuz Eylül University Medical School from 1987 through 1993. The clinical records, pathological protocols, and microsections of 72 laryngeal and 40 oral cavity squamous cell carcinoma patients have been carefully analysed. Total or partial laryngectomies with radical neck dissections were done for laryngeal cancers. A standard pull-through operation or

various composite resection modalities combined with radical neck dissections were performed for oral cavity tumors. The neck dissection specimens have routinely been divided into six regions and the lymph nodes were dissected and labeled. By careful dissection, an average of 20 nodes have been recovered from each neck dissection specimen. All of these lymph nodes have been examined under light microscope. The presence of metastatic deposits and the location, size and number of metastatic lymph nodes have been documented. Extracapsular spread and the extent of invasion to the soft tissues, and vascular and neural structures were examined.

A 66 Gy radiation therapy was applied in the postoperative period to the metastatic cases showing the following criteria i) presence of extracapsular spread in the metastatic lymph node ii) three or more tumor positive lymph nodes, at any size iii) any node larger than 3 cm. in diameter. Electron boost to the area of extracapsular spread and to the soft tissue with tumor involvement was applied.

RESULTS

The patients were divided into three groups according to the histology of the lymph nodes. Group 1 : no tumor metastasis in the lymph node, group 2 : lymph node metastasis without extracapsular spread and group 3 : lymph node metastasis with extracapsular spread.

Histopathological examination revealed that metastatic deposits were present in 32 of 112 specimens (28.5 %), and extracapsular tumor spread of the lymph nodes were present in 19 of the 32 metastatic cases (59.4 %). The clinical versus tumor stages of these 19 patients are given in Table 1.

	T1	T2	T3	T4	TOTAL
NO	-	-	-	-	-
N1	-	1	1	2	4
N2	1	3	6	3	13
N3	-	1	-	1	2
TOTAL	1	5	7	6	19

Table 1 : Correlation of primary tumor staging and lymph node status in group 3 patients according to UICC-1987 (9).

Clinical status of the patients have been correlated to the histopathological findings of neck dissection specimens. Twelve of the 19 patients who had extracapsular spread (group 3) were dead within 8 to 18 months of their treatment regimen. Regional

recurrence (3 cases) and distant metastasis (9 cases) were the causes of death. The remaining 7 patients showed no evidence of disease within a mean follow-up period of 36 months (36.8 %).

Thirteen patients of the metastatic group showed lymph node invasion without evidence of extracapsular spread (group 2). Pulmonary metastasis in 3 and bone metastasis in 1 patient were the causes of death within a 16 to 24 months of follow-up period. One patient in this group died in a traffic accident. The remaining 8 cases are under control and free of disease for 36 months' mean follow-up period (61.4 %).

The large portion of the series consisted of 80 cases who did not have cervical lymph node metastasis (group 1). Among them, 2 patients died of local recurrences, 4 of pulmonary metastasis and 3 of metachronous secondary malignancies. We had 2 patients lost to follow-up and the 36 months' mean survival rate of this nonmetastatic group appeared as 88.0 %.

The 3-year overall survival rate of 112 patients is 76.8 % (Table 2).

Groups	No of Patients	Survival Rates
Group 1	80	88.0 %
Group 2	13	61.4 %
Group 3	19	36.8 %
TOTAL	112	76.8 %

Table 2 : Mean 36 months survival rates of the study groups.

DISCUSSION

Regional control of disease in the neck is an important factor in predicting the clinical course and outcome of the patient with head and neck squamous cell carcinoma. If regional lymph node involvement is present, the overall survival rate is generally reduced (1).

Patients with positive neck disease require some form of combined therapy. Treatment of the patient with extracapsular spread, on the other hand, is more controversial. The prognostic significance of extracapsular spread of tumors in neck lymph node metastasis has been documented in head and neck squamous cell carcinoma in the English literature (4-8). Hirabayashi et al. (3) found the difference in survival to be statistically significant in laryngeal cancer. The 5-year survival rates in their series were 81 % in patients with no tumor in the lymph nodes,

76 % in patients with no extracapsular spread, and 17 % in patients with extracapsular spread.

In their series of T3 and T4 oral cavity tumors: Pinsolle et al. (6) have found that 43 % of 121 neck dissection specimens showed lymph node metastasis, 30 % had nodal metastasis without extracapsular spread, and 27 % had lymph node invasion with extracapsular spread. 5-year survival rates were 71 %, 30 % and 33 % for the groups, respectively. They have found statistically significant difference between the metastatic and nonmetastatic groups; but the presence of extracapsular spread showed no significant difference in survival between the metastatic groups. The presence of extracapsular spread did not make any difference on the rate of neck recurrences, either.

Leemans et al. (5) have found 52.3 % extranodal invasion of tumor in 329 nodal metastatic cases. In their series of 494 cases, the patients with one or two metastatic nodes without extracapsular spread did no better in terms of neck recurrence than the patients with more positive nodes or extranodal spread. They have concluded that the regional relapse rate correlates well with the pathologic extent of involvement of the neck and whether surgical treatment was followed by radiotherapy.

In the present series, we found nodal metastasis in 32 of 112 neck dissection specimens (28.5 %). The incidence of extracapsular spread of tumor in the metastatic nodes were 59.4 %. The 3-year survival rates were 36.8 % in the metastatic group with extracapsular spread, 61.4 % in the metastatic group without extracapsular spread, and 88.0 % in the nonmetastatic group. Histological evidence of extranodal spread and multiple histologically positive nodes are the most important risk factors. Extracapsular spread of the tumor in the neck is an indicator of poor prognosis in patients with squamous cell carcinoma of the upper aerodigestive system.

Postoperative radiotherapy in all metastatic cases and application of the boost with electrons to the neck area with extracapsular spread could improve the results. Combining surgery with postoperative radiotherapy is probably superior to definitive radiotherapy and salvage surgery in tumors with lymph node metastasis with the presence of capsular spread or not. A randomized study, however, is difficult to perform owing to the therapeutic risks.

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