

Post-Laryngectomy Neck Node Metastasis

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Neck recurrence after total laryngectomy in 45 patients was studied with the reference to risk factors & efficacy of surgical treatment for the control of disease. Age, smoking, duration and progression of symptoms, degree of differentiation, site and size of primary tumor were the parameters that affected the lymph node metastasis. In all the patient recurrence was at level 2 and 3. Surgery was found to be the best treatment modality for such recurrence.

Key words: Squamous cell carcinoma, larynx, neck dissection, radiotherapy, lymph node metastasis.

The lymph node metastasis after total laryngectomy reduces the chances of survival^{1,2,3}. Unfortunately, there are no precise non-invasive means available for evaluating lymph nodes at the time of primary surgery. Even with use of computed tomography and magnetic resonance imaging, occult metastasis upto 12% have been reported⁴. Age has inverse relationship with neck recurrence^{5,6}. Site of primary tumor influences lymph node metastasis and incidence is maximum with supraglottic and minimum with the glottic lesions⁷. Similarly, large size of primary tumor and histologically aggressive tumor has more chances to metastasize to regional lymph nodes^{8,9}. This aggressive behavior is never seen in small tumor that is well differentiated.

In the presence of lymph node metastasis at the time of presentation, neck dissection is combined with laryngectomy¹⁰. But, there is no consensus over performing elective neck dissection in patients with laryngeal carcinoma^{2,10,11}. Due to rich lymphatic supply of supraglottic area, elective neck dissection is advocated by few authors, while other prefer radiotherapy^{1,12}. It has been proposed that if the chances of occult metastasis exceed 15%, the neck should be treated either surgically or with radiotherapy, depending upon the treatment of primary lesion.

How ever, if there is a post-operative lymph node metastasis, neck dissection should be the treatment of choice as it gives opportunity to confirm extra nodal spread and multiple node involvement, thus helping to plan the post-operative radiotherapy more selectively¹³. Moreover the incidence of surgical complications is high after post-operative radiotherapy.

Until late 60's, classical radical neck dissection described by Crile¹⁴ and Martin was practiced¹⁵. But during last two decades modifications have been introduced for cosmetic and functional reasons¹⁶. Two of these modifications are more popular¹⁷. First, a modified neck dissection in which accessory nerve, internal jugular vein or sternocleidomastoid is preserved provided they are clinically free of diseases. Second, in form of selective neck dissection in which only those groups of lymph nodes are removed which are most likely to contain metastasis, depending upon the location of primary tumor¹¹.

Material and methods:

This study comprises of 45 consecutive patients who underwent total laryngectomy for histologically proven squamous cell carcinoma of larynx at ENT-II Jinnah Hospital, Lahore between September 2000 to June 2003.

There were 42 male (93.33%) and 3 female (6.66%) patients. Age of patients ranged between 34 to 80 years (means 56 years). All 45 patients underwent total laryngectomy, while it was accompanied by radical neck dissection in 5 patients (11.11%). Partial thyroidectomy was done in 42 patients (93.33%) and in remaining three patients thyroid was spared, as disease was mainly limited to larynx. Lymph node metastasis and results of radical neck dissection were evaluated.

Results

Out of 45 patients, 5 had nodal recurrence. Level 3 was involved in 4 patients and level 2 in one patient. All these patients were in the fifth decade of life with good health. They were smokers and had supraglottic extension of growth. Four were staged T3NoMo and one was staged T4NoMo. All of them had exophytic growth. The mean interval between the appearance of first symptom and laryngectomy was six months [3 months to 1 year]. Histopathological examination revealed moderately differentiated and poorly differentiated squamous cell carcinoma in 1 and 4 cases respectively.

The neck node metastasis appeared after the period of 3 to 14 months (average 8 months). The size of lymph node was less than 3 cm in 4 patients and more than 3 cm in one patient. Three patients had radiotherapy after laryngectomy. One of these patients had extensive disease, radical neck dissection was done on right side but there was nodal recurrence on the contralateral side during the course of radiotherapy. Disease progressed very rapidly and patient expired within a month. Other two patients had recurrence after a year. They were referred for radiotherapy, as the size of the node was less than 3cm. But after the course of radiotherapy, one of the patients became inoperable due to involvement of skull base, while radical neck dissection was performed in other patient, who recovered well. Two patients had no radiotherapy after laryngectomy, radical neck dissection was performed

in one of them, who had node more than 3cm & he recovered well, while surgery was under taken in the other case after radiotherapy failure.

Discussion

The efficacy of any form of treatment for squamous cell carcinoma of larynx is reflected by the locoregional control of the disease. The regional relapse rate correlates well with the extent and site of the tumor at the time of primary surgery and whether surgical treatment has been followed-up by postoperative radiotherapy².

In all the patients with positive neck nodes at the time of presentation, neck dissection should be combined with total laryngectomy irrespective of the size of the lymph node metastasis for the better control of the disease¹⁰. Unfortunately, there are no accurate non-invasive means for the evaluation of lymph nodes metastasis prior to their removal. Considering this inaccuracy, there is a risk in waiting clinically negative nodes to become positive. Preoperative, evaluation should be made about the severity of the disease based upon the age, general health and smoking habits of the patients, with due consideration to the progression of symptoms, site, size and histopathological differentiation of the tumor⁶. All patients in the study had exophytic growth with rapid progression of symptoms & grade III differentiation predominantly. The high incidence of lymph node metastasis in the tumor involving supraglottic region and the fallibility of palpating the neck invites a more aggressive approach at the time of primary surgery in the form of elective or selective neck dissection for No neck. All five patients had supraglottic involvement.

None of our patients with lymph node metastasis had recurrence at primary site, thus indicating a favorable outcome since latter is almost always fatal. The treatment of neck, thus gives very good chances of disease free survival. As the lymph node metastasis appears within a year in most of the cases, patients should be followed-up regularly during first postoperative year. Unfortunately, many of these patients do not return for regular follow-up, unless they have a significant problem. Once there is an evidence of lymph node metastasis, radiotherapy should be avoided as much as possible regardless of the size of lymph node. As radiotherapy not only makes surgery difficult, but also increases the morbidity of be patient and the option for early postoperative radiotherapy is lost. Surgery in the form of radical or modified neck dissection should be the treatment of choice, as it removes the disease and gives precise knowledge about the extent of disease, so that other treatment modalities can be used more effectively. Postoperative radiotherapy should be considered in all cases of neck dissection if there is an extracapsular spread or there are multiple node involvement¹⁰. After total laryngectomy, patients should be followed up regularly. Whenever there is a need to give prophylactic radiotherapy, this treatment modality should

be replaced by prophylactic neck dissection and radiotherapy should occupy a second place to surgery.

Conclusion:

At the time of primary surgery elective comprehensive neck dissection, in the cases with large exophytic supraglottic growth should be undertaken. Radiotherapy should be avoided if the disease has recurred. For nodal disease, first choice should be neck dissection rather than radiotherapy. If radiotherapy has been given for treatment of recurrence there are good chances of patient becoming inoperable.

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