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The cause of death in patients with head and neck squamous cell carcinoma

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Abstract

For patients with head and neck squamous cell carcinoma the cause of death is not well described in world literature. We report data on 106 patients diagnosed with head and neck squamous cell carcinoma who subsequently died. The literature related to this topic is discussed, and recommendations are made for data collection.

Key words: Mortality; Carcinoma; Squamous Cell

Introduction

In the UK the incidence of head and neck cancer varies on a regional basis, between 7.7–15.3/100 000.[1] Despite advances in locoregional control of the disease, the survival of patients with head and neck squamous cell carcinoma has changed very little over the past 20 years.[1] Reasons postulated for this are: death from co-morbid smoking-related conditions such as cardiovascular disease; development of a second primary tumour;[1] and the relatively high median age incidence of head and neck cancer patients.[2] Whilst this may well be the case, there is very little evidence in the world literature to confirm or support this. It is widely believed that head and neck cancer remains above the clavicles in the majority of cases, and that distant metastases are uncommon.[3] Pulmonary metastases are well recognized. There are also papers reporting distant lymphatic metastasis from head and neck cancer.[4,5] and more uncommon metastatic sites including the heart,[6,7] skin, bone marrow[8] and brain.[9] Those papers that include post-mortem findings suggest the incidence of distant, often clinically unrecognized metastases is high, ranging from 24 per cent to 41.5 per cent.[10–12] Also Narula and colleagues reported the post-mortem findings in two cases who clinically had 'no evidence of disease'.[9] Both cases were found to have significant distant head and neck squamous cell carcinoma metastases.

We have studied the data available in our department on patients with head and neck squamous cell carcinoma who have died, and we report these findings.

Materials and methods

Between August 1995 and November 2000, 320 patients had a diagnosis of head and neck squamous cell carcinoma made in our department. Information on this cohort of patients was collected prospectively in a database. The 1997 UICC TNM classification was used.[13] Those patients who were diagnosed prior to this have been reclassified, as the database recorded information on the size and site of primary tumours, and the number, size and distribution of neck nodes. From this database 113 patients were identified who had subsequently died. This represented 35.3 per cent of the total cohort. Information concerning the cause of death in these patients was then retrospectively analysed from case notes and details from death certificates recorded at the regional Cancer Registry.

Results

In the period studied, 113 patients were identified who had died having previously been diagnosed with head and neck squamous cell carcinoma. Information was available on 106 of these. The breakdown of the study group by primary site, T and N status and stage are shown (Tables I, II and III). There were 88 males, and 18 females. The mean age at death was 64 years five months (range 36 years five months – 86 years four months), the median age was 63 years five months. In our study group, 34.9 per cent were aged 59 or under, 67 per cent were 69 or under. The age distribution is shown in Table IV. The mean time between diagnosis and death was 23 months (range one to 57 months). Of the patients in this study group none had post-mortem examinations.

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TABLE I
PATIENT DETAILS BY PRIMARY SITE AND T STATUS

	Larynx	Hypopharynx	Larynx/hypopharynx	Oropharynx	Oral cavity	Other	Total
T1	6	1	0	2	2	0	11
T2	4	3	2	7	2	1	19
T3	13	6	12	6	1	0	38
T4	9	10	7	4	1	1	32
Tx	2	1	0	0	0	3	6
Total	34	21	21	19	6	5	106

TABLE II
PATIENT DETAILS BY PRIMARY SITE AND N STATUS

	Larynx	Hypopharynx	Larynx/hypopharynx	Oropharynx	Oral cavity	Other	Total
N_0	20	12	8	4	2	2	48
N_1	3	3	4	2	2	0	14
N_{2a}	5	3	5	5	2	1	21
N_{2b}	1	0	2	0	0	1	4
N_{2c}	0	0	0	2	0	0	2
N_3	5	3	2	6	0	1	17
Total	34	21	21	19	6	5	106

TABLE III
PATIENT DETAILS BY PRIMARY SITE AND STAGE

	Larynx	Hypopharynx	Larynx/hypopharynx	Oropharynx	Oral cavity	Other	Total
I	1	0	0	0	0	0	1
II	5	1	1	2	2	1	12
III	10	6	7	2	1	0	26
IVa	13	11	12	9	3	3	51
IVb	5	3	1	6	0	1	16
Total	34	21	21	19	6	5	106

Locally advanced squamous cell carcinoma was recorded as being the cause of death in 45 patients, which represented 42.5 per cent of the group. The primary site in these cases comprised: larynx 19, hypopharynx 10, oropharynx six, oral cavity five and other (not stated) one. In four cases death was due to haemorrhage with locally advanced disease. Metastatic head and neck squamous cell carcinoma was recorded as the cause of death in 19 cases (17.9 per cent). Seventeen were documented as having died from catosis (disseminated malignant disease), one had liver metastases, one had bone marrow metastasis. In one case mediastinal metastases were present, but these were not the primary cause of death.

Thirteen patients had a second primary malignancy: six lung, three oesophagus, three large bowel, and one bladder. In eight cases this was cited as their cause of death, four lung, two oesophagus, one colon and one bladder.

Pneumonia was the cause of death in 10 cases, and chronic obstructive airways disease in one. In the remaining 23 cases, 'non-malignant death', without any more specific data, was recorded.

Discussion

The information on our patients has been collected retrospectively, with no information from post-mortem examination. Even with these limitations, a high proportion of cases had their death attributed to head and neck squamous cell cancer, either locoregional (42.5 per cent), or distant metastatic disease (17.9 per cent). As well as these, some or all of the six cases of lung cancer may not be second primary tumours, but may have been unrecognized pulmonary metastases. Historical data including post-mortem studies suggest that we may have underestimated the true incidence of distant metastases.[10–12]

Once distant metastases have become apparent, treatment is most often palliative, and life-span is measured in months.[14] Distant metastases may be present with no clinical evidence of disease.[9] History and clinical examination, the mainstay of patient follow up,[15] will not pick up these cases. Distant metastases from head and neck squamous cell carcinoma involve the lungs most frequently.[16] Screening for pulmonary metastases with computed tomography (CT) scanning, targeted at the high risk population, defined by tumour stage and histological cell type, has been recommended.[15] Extracapsular spread and positive cervical lymph nodes have also been recognized to be associated with a high (40 per cent) risk of distant metastases.[17]

TABLE IV
AGE DISTRIBUTION OF THE STUDY GROUP

Age (years)	Total (percentage)
30–39	1 (0.9)
40–49	9 (8.5)
50–59	27 (25.5)
60–69	34 (32.1)
70–79	30 (28.3)
80+	5 (4.7)

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Head and neck squamous cell carcinoma is considered to be predominantly a 'locoregional' disease, however significant improvements in locoregional control have not been followed by similar improvements in survival. It may be that patients with head and neck squamous cell cancer are dying of co-morbid conditions, second primary malignancies, or present at an elderly age.[1,2] However unless metastatic disease is actively looked for it may be missed, and whilst the rate of post-mortems is low there will always be a degree of assumption in the cause of death. In our study, whilst one third of our population were aged over 70, and may be considered to be elderly, there was a wide age distribution, and 34.9 per cent were 59 or younger.

This paper emphasizes the need for more extensive data collection in patients with head and neck squamous cell carcinoma. The reason that survival rates have failed to improve despite better locoregional control may be due to unrecognized metastatic disease. If this is the case, new strategies and novel treatment regimes such as combined surgery and chemotherapy, or treatments that block tumour angiogenesis,[14] may reduce the late development of metastases, and improve survival.

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