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Recurrent nodal metastases in the posterior triangle: Implications for treatment of the atypical tumour

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Abstract

We studied the incidence of recurrent nodal metastases in level V (posterior triangle) in patients who had previously had a staging or therapeutic dissection of the neck, with or without postoperative radiotherapy.

Of 160 patients studied (177 neck dissections), 41 (26%) developed recurrent metastases in the neck. Four patients (3%) developed ipsilateral recurrent disease in level V. In these four patients, level III or IV lymph nodes were shown histologically to have extracapsular spread at the time of the original dissection. All four metastases were located at or just beyond the anatomical boundaries of the posterior triangle. None of the metastases at level V were from oral or oropharyngeal primary tumours.

Keywords: Neck; Metastasis; Oropharyngeal; Cancer

Introduction

Metastatic cervical nodes in patients with squamous cell carcinoma of the head and neck are generally managed by surgery, radiotherapy, or both. Metastatic spread of the cancer to cervical lymph nodes usually follows predictable and extensively studied pathways, at least in the neck that has not been violated by previous surgery or radiotherapy.[1,2] Although the nomenclature of head and neck lymph nodes has been burdened by various confusing systems that are still in use in major textbooks and articles, most clinicians who practise oncology in the head and neck now use the so-called Robbins' classification that divides the neck into six levels (level VI is the anterior compartment group).[3]

More recently, Robbins refined the classification and proposed to divide level II into levels IIa and IIb, and level V into level Va and Vb.[4] Anatomically, levels IIa and IIb are separated by the spinal accessory nerve, whereas levels Va and Vb are divided by the omohyoid muscle. Involvement of level V lymph nodes is uncommon in oral and oropharyngeal squamous cell carcinoma. A large study of 1123 patients who had 1277 cervical dissections at the Memorial Sloan-Kettering Cancer Center showed that infiltration of level V was seen in only one patient (<1%) with a hypopharyngeal tumour.[5] Infiltration in level V remained below 1% when a single histologically confirmed involved node was present in levels I–III, but reached 16% when a single pathologically confirmed involved node was present in level IV. When more than one level was infiltrated, the probability of level V involvement increased progressively, reaching 40% when levels I–IV were all involved. Others have published similar findings.[6,7]

Although recurrent cervical disease after primary radiotherapy is more likely to be concentrated in the upper neck, with relative sparing of nodes in the posterior triangle,[8] involvement of the musculature of the posterior triangle and spinal accessory nerve is usually associated with failure to control cervical disease.[9] Current knowledge suggests that lymph node metastases in the lower neck (supraclavicular

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fossa and posterior triangle) are associated with poor survival, although to date little work has been published.[10]

We investigated the incidence of recurrent lymph node metastases confined to level V in patients who had previously had their necks treated to find out whether clinicopathological variables were related to the pattern of metastases.

Methods

This was a retrospective study of 160 patients. Data were retrieved from our database of patients who, during the previous 4 years, had undergone selective (to include level IV), modified radical or radical neck dissection (including level V).

After histological review of the nodal status and discussion at a multidisciplinary team meeting, 104 patients had undergone postoperative radiotherapy, comprising 66 Gy to the anterior triangle and between 44 and 66 Gy to the posterior triangle, with 2 Gy fractions a day. The posterior triangle was irradiated using either lateral fields, lateral fields with electrons or a planned volume. Fifty-six patients were not given radiotherapy postoperatively.

The primary tumours were all squamous cell carcinomas of the head and neck. Data were collected about the site and size of cervical metastases, and clinical and pathological variables relating to the primary tumour and the neck after the initial operation.

Results

Of the 160 patients 105 were men and 55 women. The age range was 31–90 years (median 68). The types of dissection of the neck that were done are shown in Table 1. Seventeen patients (11%) had bilateral dissections. The sites of the primary tumours and the nodes in the neck are shown in Table 2.

Metastatic nodes in the neck were present in 41 patients (26%). In 37 patients, the metastases were in levels I–IV. Three patients had had metastases in level V alone and one patient had involved nodes in levels IV and V. Clinical examination at the time of diagnosis found that all level V nodes were no bigger than 1.5 cm and all were on the same side as the original lesion. The metastases all developed within 1

Table 1
The type of neck dissection performed at the time of initial treatment

Type of neck dissection	Number of patients
Selective neck dissection (levels I–IV)	79
MRND type 1	26
MRND type 2	5
MRND type 3	13
Radical neck dissection	37
Total	160

Contralateral neck dissections have not been included. MRND: modified radical neck dissection.

Table 2
Number (%) of sites of primary tumours and status of necks in the study group ($n = 160$)

Site of primary tumour	Number	Histology of the neck	
		N0 ($n = 61$)	N+ ($n = 99$)
Oral and oro-pharynx	64	26 (40%)	38 (60%)
Hypopharynx and larynx	81	35 (43%)	46 (57%)
Unknown primary and other sites	15	0	15 (100%)

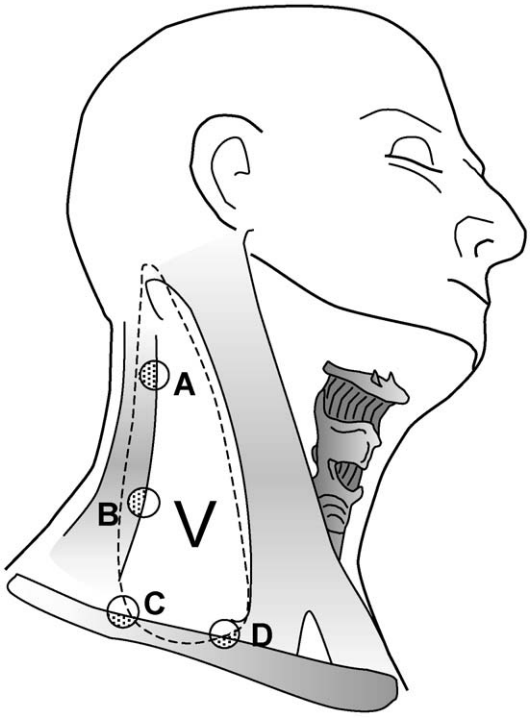

Fig. 1. Diagram of the sites of level V metastases. The boundaries of level V are shown with a dotted line.

Fig. 2. Computed tomogram showing recurrent nodal disease (arrowed) lateral to the trapezius muscle.