

# Nasopharyngeal carcinoma with axillary node involvement as a component of failure following chemoradiotherapy

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## Abstract

*We describe the treatment course and imaging correlations in a patient with a unique case of undifferentiated nasopharyngeal carcinoma with axillary lymph node involvement as a component of failure following chemoradiotherapy. To our knowledge, this is the only such case reported in the literature. A preliminary diagnosis of axillary node involvement was based on both positron-emission tomography and computed tomography; these findings were subsequently confirmed by pathologic review following dissection of the node. This case represents a rare presentation of a recurrent nasopharyngeal carcinoma and illustrates the importance of a comprehensive physical examination and correlation with imaging modalities when following these patients over time.*

## Introduction

Nasopharyngeal carcinomas are epithelial neoplasms that are seen only sporadically in the Western hemisphere. In southern China, however, they are endemic; they represent the third most common malignancy in men there.<sup>1</sup> Three histopathologic types of this tumor have been recognized by the World Health Organization. The type I classification applies to squamous cell carcinomas of varying degrees of differentiation. Types II and III are nonkeratinizing carcinomas and undifferentiated carcinomas, respectively. Type II and III tumors have traditionally been associated with higher local control rates than are keratinizing squamous cell carcinomas, but their metastatic potential is higher.<sup>1</sup>

With contemporary combined-modality chemoradiotherapy, 10-year disease-free survival rates of 40 to 55% are possible.<sup>1-3</sup> The presenting stage of disease has proven to be one of the most important prognostic factors for both local control and overall survival. In general, nodal deposits from nasopharyngeal carcinoma are much more radiosensitive than those from other head and neck cancers, and an average control rate of 75% can be achieved with radiation alone, even for nodes that are larger than 6 cm in diameter.<sup>2</sup> It has been traditionally accepted that these lesions metastasize to predictable contiguous nodal sites—for example, from the neck to the supraclavicular region and subsequently to the upper mediastinum.<sup>1,3</sup>

In this article, we describe the treatment course and imaging correlations of a patient with a unique case of undifferentiated nasopharyngeal carcinoma with axillary lymph node involvement as a component of failure following chemoradiotherapy.

## Case report

This case involved a 52-year-old man of Chinese descent with stage III (T1N2M0) undifferentiated carcinoma of the nasopharynx. He first presented with a lump in the left neck. Computed tomography (CT) at that time revealed the presence of a mass in the right nasopharynx and bilateral cervical adenopathy. A further staging workup with CT of the chest and abdomen failed to detect any evidence of distant disease. Biopsy of the nasopharynx and neck mass revealed that the tumor was an undifferentiated carcinoma of the nasopharynx. Following discussion at a multidisciplinary tumor conference, a consensus was reached to treat the patient definitively with concomitant chemotherapy (5-fluorouracil and cisplatin) and radiation therapy (7,020 cGy in 39 fractions).

Five months following the completion of treatment, the patient experienced right vocal fold paralysis, and restaging studies were performed to determine its cause. Although

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Figure 1. FDG PET demonstrates hypermetabolic areas in the nasopharynx, the left spinal accessory chain, and the left axillary lymph nodes.

CT of the neck revealed that the original right nasopharyngeal soft-tissue mass had decreased in size and the deep cervical lymphadenopathy had abated, positron-emission tomography (PET) detected abnormal activity—specifically, increased uptake of [18F]2-fluoro-2-deoxyglucose (FDG) in two left inferior spinal accessory chain lymph nodes and in the left axilla (figure 1). CT of the chest revealed that the largest axillary lymph node measured  $20 \times 14$  mm.

The patient underwent a nasopharyngeal biopsy, left neck dissection, and a left axillary lymph node dissection. Pathology studies revealed that the nasopharynx specimen contained residual carcinoma, that 11 of 62 lymph nodes in the neck showed microscopic evidence of involvement, and that undifferentiated carcinoma was present in 7 of 21 axillary lymph nodes.

The pathologic characteristics of the axillary lymph node specimens were compared with those of the original primary tumor (figure 2). The histologic features of the right nasopharyngeal specimen were consistent with

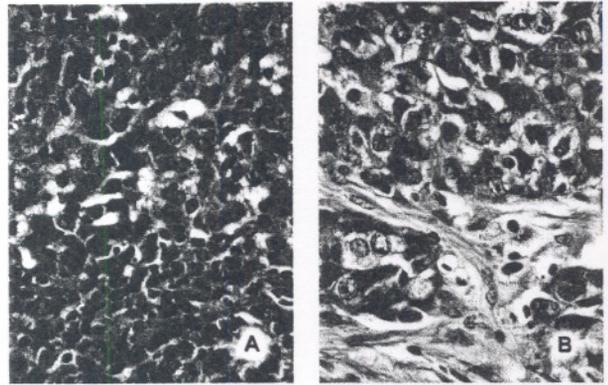


Figure 2. Microphotographs show the nasopharyngeal undifferentiated carcinoma of the lymphoepithelioma type. The nasopharyngeal tumor cytology (A) is essentially identical to that found within the left axillary lymph node specimen (B) (original magnification  $\times 400$ ).

a typical nasopharyngeal carcinoma of the lymphoepithelioma subtype. Variably sized, cohesive nests and cords of malignant cells were present on a predominantly lymphocytic background, and smaller numbers of plasma cells, histiocytes, and eosinophils were present. Mildly to moderately pleomorphic tumor cell nuclei exhibited vesicular chromatin and moderately prominent eosinophilic nucleoli. Occasional mitotic figures were noted, and the tumor had invaded into adjacent skeletal muscle. The left axillary lymph node specimen was made up of a mass of lymph node-containing adipose tissue that measured  $11.5 \times 7 \times 2$  cm. Seven of the 21 lymph nodes were positive for metastatic undifferentiated carcinoma. Focally, tumor was found to be invading into perinodal connective tissue. The tumor cell cytology was essentially identical to that of the nasopharyngeal tumor except that mitotic activity was slightly greater.

## Discussion

Nasopharyngeal carcinoma is known to be both radiosensitive and chemosensitive, although long-term survival for patients with advanced disease is poor.<sup>4,5</sup> General patterns of treatment failure for patients with nasopharyngeal carcinoma have been described in the literature.<sup>2,5,6</sup> Randomized clinical trials of induction chemotherapy prior to radiation have failed to show that it is any more beneficial than radiation alone.<sup>7-9</sup> However, simultaneous treatment with chemotherapy and radiotherapy has demonstrated an advantage over radiation alone.<sup>10,11</sup> The prognosis for patients with nasopharyngeal carcinoma depends not only on the extent of the primary lesion and the status of the involved nodal tissue, but on the intrinsic radiosensitivity of the tumor tissue, as well. Several other prognostic factors have been described in the literature.<sup>1-3,5</sup>

To our knowledge, this is the only report in the literature

of a documented case of undifferentiated nasopharyngeal carcinoma with axillary lymph node involvement as a component of failure following chemoradiotherapy. This case represents an unusual pattern of lymph node metastasis, as there was no evidence of supraclavicular or mediastinal disease on PET or on final pathology. This case represents a rare presentation of recurrent nasopharyngeal carcinoma and illustrates the importance of a comprehensive physical examination and correlation with imaging modalities when following these patients over time.

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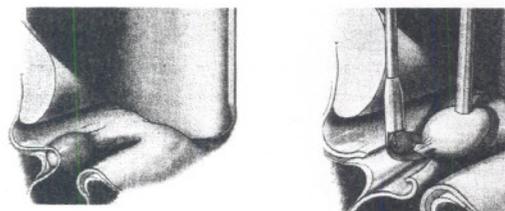
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