

## Role of neck dissection for metastatic nonseminomatous testicular carcinoma: case report and literature review

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### Abstract

**Objectives:** To review the incidence, treatment and prognosis of testicular carcinoma metastatic to the neck, and to propose a selective neck dissection be performed for residual disease post-chemotherapy.

**Case report:** A 17-year-old young man with metastatic testicular carcinoma presented with a left neck mass. A palpable neck mass is the initial sign in approximately 5 per cent of cases of metastatic testicular teratoma. Approximately 30 per cent of patients with advanced-stage testicular cancer have extra-retroperitoneal disease post-chemotherapy, which requires resection. The presented patient underwent a left selective neck dissection, thymectomy, median sternotomy, left thoracotomy and mediastinal lymph node dissection. Eighteen months later, a computed tomography scan of the thorax showed no evidence of disease recurrence in the neck or mediastinum.

**Conclusion:** While surgical management of testicular cancer retroperitoneal metastases is well described, there is limited literature on the management of cervical lymph node metastases. In the presented case of metastatic testicular carcinoma with cervical lymph node metastases, a selective neck dissection was successfully performed for a post-chemotherapy mass.

**Key words:** Teratoma; Testicular Carcinoma; Metastases; Neck

### Introduction

This paper reviews the case of a 17-year-old young man with metastatic testicular carcinoma (nonseminomatous germ cell tumour) presenting with a left neck mass and right testicular mass. It is important to consider metastatic testicular carcinoma in the differential diagnosis of a supraclavicular neck mass, and to effectively treat residual neck disease with appropriate adjuvant therapy.

### Case history

A 17-year-old young male presented to the accident and emergency department with severe epigastric and left upper quadrant pain.

A computed tomography (CT) scan of the abdomen, thorax and pelvis showed large retroperitoneal masses with mediastinal and paravertebral lymphadenopathy. The largest mass measured  $9 \times 6 \times 6$  cm and was displacing the inferior vena cava, pancreas and duodenum anteriorly.

Further examination revealed a left-sided neck lump and a right testicular mass.

Subsequent ultrasonography of the testes showed a 12 cm, mixed solid and cystic mass replacing the right testis, consistent with a testicular neoplasm and suggestive of a malignant teratoma.

Ultrasonography of the neck showed a solid mass in the left anterior neck resembling a metastatic nodal deposit. A CT of the neck characterised the mass as  $5 \times 5 \times 4$  cm, abutting the left common carotid and displacing the left internal jugular vein anteriorly.

The histopathological findings from biopsies confirmed metastatic testicular teratoma. Tumour markers ( $\alpha$ -fetoprotein and human chorionic gonadotrophin) were not elevated at any stage.

A right orchidectomy was performed. Histopathological analysis demonstrated a teratoma with mature and immature components. The patient's disease was staged as IIIc.

The patient underwent four cycles of chemotherapy with cisplatin, etoposide and bleomycin. An interval CT scan demonstrated no residual change post-treatment.

The patient was referred for surgical resection at a tertiary referral unit. He underwent a left selective neck dissection, thymectomy, median sternotomy, left thoracotomy and mediastinal lymph node dissection as a joint case with the otolaryngology and cardiothoracic teams.

Histopathological analysis of surgical specimens demonstrated a mass of metastatic immature and mature teratoma at level II in the neck dissection, with the remaining lymph nodes ( $n = 18$ ) free from tumour, a normal thymus, and metastatic deposits in the para-aortic, subaortic and paravertebral nodes.

The patient was transferred to a specialist unit for retroperitoneal lymph node dissection for high-volume disease surrounding the great vessels and renal vessels. Histopathological analysis showed a differentiated teratoma.

Post-operatively, he presented with significant hypotension resulting from decompression due to retroperitoneal lymph node dissection. Symptoms improved with fludrocortisone.

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A surveillance CT of the thorax, 15 months after surgical resection, showed a paratracheal node. This was excised successfully; histology showed a mature teratoma.

A subsequent CT of the thorax at 18 months showed no evidence of disease recurrence in the neck or mediastinum. No pulmonary parenchyma abnormality was identified. Computed tomography scans of the abdomen and pelvis showed no retroperitoneal nodal disease, no bony lesions and unremarkable solid viscera.

At the time of writing, the patient had been disease-free for three months.

## Discussion

Testicular cancer is rare, accounting for 1 to 2 per cent of all cancers in men.<sup>1</sup> It represents the most common solid tumour malignancy in men between the ages of 20 and 35 years. The median age at presentation for nonseminomatous germ cell tumours is 25 years.<sup>2</sup> The most common presentation of testicular cancer is a painless swelling or enlargement of the testis, which occurs in 50 per cent of cases.<sup>3</sup> Ten per cent of patients present with signs or symptoms of metastatic disease. Wood *et al.* assessed 31 patients with supradiaphragmatic nodal metastases from testicular primary germ cell tumours, and found neck lymphadenopathy in 10 of 11 patients with seminoma germ cell tumours (91 per cent) and in 13 of 20 patients (65 per cent) with nonseminomatous germ cell tumours.<sup>3</sup> Neck metastasis is almost invariably left-sided. In 23 patients with neck disease from testicular germ cell tumours, 21 had left-sided lymphadenopathy, either in the supraclavicular or scalene lymph nodes.<sup>3</sup> This phenomenon reflects the anatomy of the lymphatic system and the characteristic route of metastases.

Patients with stage II–IV testicular cancer, such as our patient, are initially treated with chemotherapy. However, approximately 70 per cent of patients will have residual masses in the retroperitoneum or other sites post-chemotherapy, with viable tumour present in 10–15 per cent of these masses.<sup>4</sup> Therefore, surgical resection of all remaining tumour deposits is warranted. The prognosis of stage III and IV nonseminomatous testicular cancer is good, with an overall 5-year survival of 50–90 per cent.<sup>4</sup>

While surgical management of retroperitoneal metastases is well described, there is limited literature on the management of cervical lymph node metastases.

In a case series by Van Vledder *et al.* 4 per cent of patients developed neck metastases, the incidence being higher in advanced stage disease.<sup>5</sup> Van Vledder and colleagues performed a selective neck dissection for residual masses post-chemotherapy. A level IV dissection was performed on six patients, and in three patients additional levels were required (level III in one patient, level V in the second, and levels II, III and V in the third). The authors reported no local recurrence after selective neck dissection, and 7 of 9 patients were alive after a mean follow up of 78 months.

Weisberger and McBride reported 45 patients who also underwent selective neck dissections.<sup>6</sup> Their policy was to dissect at least all level III, IV and V lymph nodes in all patients. After following up 25 patients for a mean time of 32 months, 72 per cent were disease-free. Weisberger and

McBride reported an overall complication rate of 14 per cent in their series.

- **A palpable neck mass is the first sign of metastatic testicular teratoma in about 5 per cent of cases**
- **Metastatic testicular carcinoma is an important differential diagnosis of neck mass**
- **Surgical resection is indicated, post-chemotherapy, for residual disease**
- **In the presented patient, selective neck dissection was performed for residual disease post-chemotherapy**

Our patient underwent a left selective neck dissection. Levels II, III, IV and V lymph nodes were excised. There were no post-operative complications and no evidence of neck metastasis recurrence.

## Conclusion

Metastatic testicular carcinoma can manifest as a cervical mass, and must be considered as a differential diagnosis in a young man with a neck lump. Surgical resection is indicated post-chemotherapy if residual disease occurs. In the presented case of cervical lymph node metastases, a selective neck dissection was performed for a post-chemotherapy mass.

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Ms A O'Connor takes responsibility for the integrity of the content of the paper

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