The Journal of Laryngology & Otology (2006), ***120***, *511–513*.

doi:10.1017/S0022215106000867
Printed in the United Kingdom
First published online 27 March 2006

Clinical Record

Myxoid liposarcoma metastatic to the thyroid gland: a case report and literature review

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Abstract

We present the second reported case of a myxoid liposarcoma metastatic to the thyroid gland in a 51-year-old gentleman with previous liposarcoma of the right thigh. Myxoid liposarcoma has a relatively good prognosis but tends to recur locally. Metastases affecting the thyroid gland are a rare entity and most commonly arise from the kidney, lung or breast. Clinical presentation, patterns of recurrence and prognosis of myxoid liposarcoma and metastases to the thyroid gland are discussed.

Key words: Liposarcoma, Myxoid; Thyroid Gland; Neoplasm Metastasis

Introduction

Liposarcoma is second only to fibrosarcoma as the most frequently occurring soft tissue sarcoma in adults.[1] The majority of liposarcomas arise in the lower extremities and retroperitoneum. The most common site for metastasis of soft tissue sarcomas is the lungs. In contrast, liposarcomas, especially those of myxoid origin, have a tendency for extrapulmonary metastasis.[2]

Metastasis to the thyroid gland is unusual. The number of reported cases is increasing, possibly due to improved fine needle aspiration cytology (FNAC) techniques.[3] We present the fourth reported case of a liposarcoma metastatic to the thyroid gland, the second to be myxoid in origin.

Case report

A 51-year-old gentleman presented with a two-month history of a right neck swelling and a one-month history of dysphagia and hoarseness. Thirty months previously, he had complained of a right thigh swelling. Fine needle aspirate cytology of the thigh mass at that time had revealed a myxoid liposarcoma (MLS). This was resected and followed by adjuvant radiotherapy (50 Gy in 25 fractions to the thigh, 10 Gy boost in five fractions to the tumour site). Sixteen months later, a second swelling in the same area proved to be a local recurrence of the tumour. The patient underwent a second extensive surgical resection. Around the same time, a computed tomography (CT) scan of his chest, abdomen and pelvis found three lung lesions consistent with metastases. These remained stable over the course of the following year.

Twelve months following the second resection, the patient noticed a neck mass and was referred to our otolaryngology department for further assessment. Physical examination revealed a large, firm mass arising from the right side of the neck, which elevated on swallowing. Fibre-optic laryngoscopy demonstrated right vocal fold palsy. A CT scan revealed that the mass was arising from the right lobe of the thyroid gland, with retrosternal extension and tracheal displacement (Figure 1). Fine needle aspiration cytology of the mass showed occasional lipoblasts on a background of myxoid material, consistent with metastatic MLS.

At operation, the mass was found to be confined to an enlarged right lobe of the thyroid. The patient underwent a right hemithyroidectomy and right level IV, VI and VII neck dissection, as the tumour extended into his upper mediastinum. Histopathology showed a lobular myxoid tumour, with patchy necrosis and branching, thin-walled capillaries (Figure 2a). Numerous univacuolar and multivacuolar cells with indented nuclei, consistent with lipoblasts, were present. The tumour was infiltrating thyroid tissue (Figure 2b). These features confirmed metastatic MLS.

Post-operative recovery was uneventful. Unfortunately, one month following surgery, the patient re-presented with a further right thigh mass. Fine needle aspiration cytology demonstrated a second local tumour recurrence. The patient also became symptomatic from his pulmonary metastases. He was therefore commenced on six cycles of MAID regimen chemotherapy (mesna, adriamycin, ifosfamide and dacarbazine). He responded well, and both thigh recurrence and pulmonary metastases regressed. At the time of writing, the patient remained well and had returned to work, six months following his neck surgery.

Discussion

Liposarcomas usually present as a slow-growing, painless mass. They occur most commonly in adults in the sixth decade. Their behaviour and pattern of recurrence depends on their histological subtype. Although various classification systems have been described, the World Health Organization divides liposarcomas into well differentiated, myxoid, round cell, pleomorphic and de-differentiated.[4] Myxoid liposarcomas are distinguished by lipoblasts against a background of proliferating

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Accepted for publication: 11 October 2005.

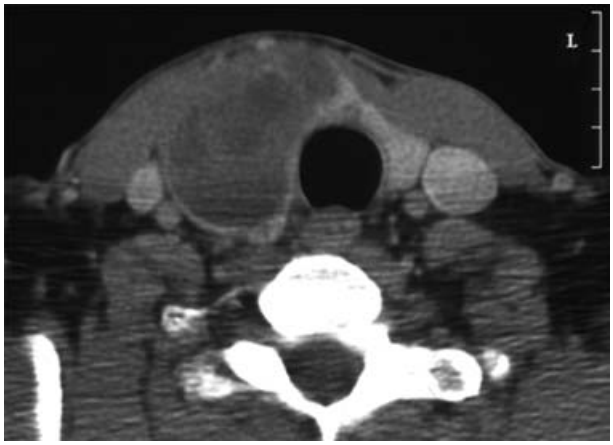

FIG. 1
Computed tomography scan of the neck, demonstrating metastatic myxoid liposarcoma arising from the right lobe of the thyroid gland.

fibroblasts, a delicate plexiform capillary pattern and a myxoid matrix of nonsulphated glycosaminoglycans.[5] Myxoid and well differentiated liposarcomas are the most common types, and well differentiated tumours have the best prognosis. Myxoid liposarcomas are generally considered to carry a relatively low risk of metastasis. Round cell and pleomorphic liposarcomas are clinically much more aggressive tumours.

The thyroid is a rare site in which to find liposarcoma. A Medline search revealed two previous reports of pleomorphic liposarcoma and one of MLS metastatic to the thyroid gland.[6–8] These cases occurred respectively two and a half, three and 20 years after a primary extremity tumour. There have also been four reported cases of primary liposarcoma of the thyroid gland[9–11] and one, possibly radiation-induced, case seen 12 years following radiotherapy for a nasopharyngeal carcinoma.[12] Every case was treated with surgical excision, which in four cases was followed by radiotherapy.

There are less than 100 reported cases of head and neck liposarcoma. Like liposarcomas elsewhere in the body, they present mostly in adults. Histological subtype is the most important factor in prediction of outcome in terms of recurrence and survival.[13,14] Myxoid liposarcomas of the head and neck rarely metastasize but demonstrate a five-year local recurrence rate of 33 per cent,[13] with five-year survival rates of 73–77 per cent.[13,14] This compares with five-year survival rates of 85–100 per cent for well differentiated, 21–42 per cent for pleomorphic and 0–18 per cent for round cell liposarcoma.[13,14]

The neck is the most common site of head and neck liposarcoma.[13] Tumour site also affects prognosis, which is more favourable in scalp, face and larynx when compared with oral, pharyngeal and neck.[14] Management usually involves surgical excision of the primary, recurrent or metastatic liposarcoma. The benefit of adjuvant radiotherapy is unclear. A review of head and neck liposarcoma by Golledge *et al.* (1995) actually found that five-year survival was worse in those receiving surgery with adjuvant radiotherapy when compared with those receiving surgery alone.[13] This may reflect the selection of more aggressive tumours to receive post-operative radiotherapy. However, other studies have reported improved survival in patients receiving surgery with adjuvant radiotherapy when compared with those receiving surgery alone.[15,16] Chemotherapy has been shown to be effective in the

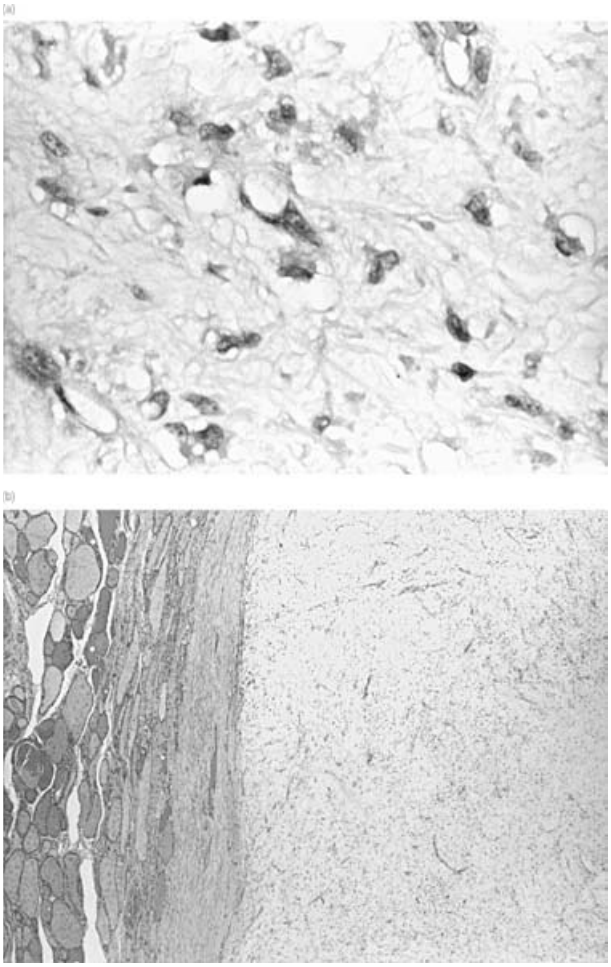

FIG. 2
(a) High power view showing numerous lipoblasts in myxoid liposarcoma (H&E, × 400). (b) Low power view showing myxoid liposarcoma, with a peripheral rim of normal thyroid tissue (H&E, × 40).

treatment of MLS.[17] Since the numbers of patients in these studies are small, it remains difficult to draw firm conclusions.

The primary site of origin in our case was the thigh. Extremity liposarcoma is most commonly seen in the thigh.[2] This is independent of tumour subtype.[18] Again, histological subtype and tumour grade are most important in prediction of outcome. Studies of extremity MLS have found that they rarely recur locally but demonstrate a five-year distant recurrence rate of 25 per cent[2,18] and five-year survival rates of 75–88 per cent.[19,20] Therefore, although five-year survival rates are similar to those for head and neck liposarcomas, extremity liposarcomas tend to recur at a distant site and rarely locally, whereas primary head and neck MLS tend to recur locally and rarely metastasize. Specifically, extremity MLS tend to metastasize to extrapulmonary sites significantly more often than other histological types of liposarcoma.[2] In this case, the tumour recurred, both locally and via metastasis to both a pulmonary and extrapulmonary site.

Metastases to the thyroid gland are rarely detected. Their reported incidence in autopsy series varies from 1.25 to 25 per cent. They most commonly arise from the kidney, lung or breast, often many years after the primary tumour.[3] Presentation is mostly with a firm, enlarging mass in the neck, and diagnosis is gained by FNAC.

https://doi.org/10.1017/S0022215106000867 Published online by Cambridge University Press

The number of cases of metastasis to the thyroid gland has increased recently, possibly due to more frequent detection with FNAC or to better technique. In general, metastatic tumours in the thyroid gland have a poor prognosis.[3]

Extremity MLS has been shown to metastasize more frequently to extrapulmonary sites than do other liposarcomas. Head and neck MLS tend to recur locally. When a patient with a history of a liposarcoma or any other carcinoma presents with a mass in the thyroid gland, the possibility of a metastasis should be suspected. Investigation with FNAC is effective in diagnosis of metastases to the thyroid gland.[3] Treatment options include excision of the tumour where possible. It is unclear whether adjuvant radiotherapy is of benefit.

- **Metastases to the thyroid gland are unusual**
- **This paper describes the second reported case of a myxoid liposarcoma metastasizing to the thyroid**
- **The clinical presentation, patterns of recurrence and prognosis are discussed**

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Mr J Tysome takes responsibility for the integrity of the content of the paper.
Competing interests: None declared