CARCINOMA OF THE LUNG WITH METASTASES TO SKELETAL MUSCLES

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ABSTRACT:

A prominent feature of the natural history of carcinoma of the lung is that it invariably metastasises to other organs. The well-known sites include lymph nodes, liver, adrenals, bones and brain. Spread is mainly by lymphatic and haematogenous routes, or by direct extension. However, like many other primary malignancies, the spread of carcinoma of the lung to skeletal muscles is rare. This is despite its bulk and abundant blood supply. Why this is so is unknown. A search of the literature revealed only 3 published case reports of carcinoma of the lung spreading to skeletal muscles. In this paper, we report a case of squamous cell carcinoma of the lung with multiple metastases to skeletal muscles.

Keywords: skeletal muscle metastasis, squamous cell carcinoma, lung.

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INTRODUCTION

Despite its massive bulk and abundant blood supply, skeletal muscles is an uncommon site of metastases. In an analysis of 100 autopsied cases of carcinoma, Abrams, Spiro and Goldstein (1) did not mention skeletal muscles as a site of metastases. Mulsow (2) observed a total of 7 cases. Primary carcinoma of the lung spreading to skeletal muscles is equally rare. Ochsner and DeBakey (3) did not report any case of muscle secondaries in a review of about 300 cases of bronchial carcinoma. Galluzzi and Payne (4) in another study of 741 cases of carcinoma of lung did not find any either. Warren and Gates (5), in a series of 368 autopsies, reported only 6 cases. A search of the literature showed that there are only 3 published case reports of carcinoma of the lung with spread to skeletal muscles (6-8). We report a case of squamous cell carcinoma of the lung with multiple metastases to skeletal muscles.

CASE REPORT

Mr. TL, a 59-year old electrician, was admitted to this hospital in November 1986 for complaints of progressive breathlessness on exertion for 2 weeks. He had been well until about two months before his admission when he felt a dull ache in the right side of the chest. This was not aggravated by breathing. There was associated cough productive of whitish sputum but there was no hemoptysis. Two weeks before admission, he felt breathless on exertion and this progressively got worse. There was no ankle oedema or orthopnoea. During this time, he also had loss of appetite and loss of weight. For the past 1 year, he had also noticed a non-painful lump on his left forearm and a few months before his admission, other lumps appeared over the abdomen and lower limbs. He saw a general practitioner for these complaints and a chest radiograph revealed a pleural effusion on the right. He had been a drinker and heavy smoker for the past 30 years, averaging about 30 sticks of cigarettes a day. He had no history of pulmonary tuberculosis, asthma or other medical illnesses. This was his first admission to hospital.

Figure 1 – Photo shows one of the rounded masses in the right arm of the patient as described.

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On examination, the patient appeared well. He was not pale nor clubbed. The trachea was deviated to the left and there were signs of a pleural effusion on the right. The liver was palpable 4 cm beneath the right costal margin and there were a few spider naevi on the chest as well as bilateral gynaecomastia. Multiple rounded masses, firm to hard in consistency, were seen in all four limbs and in the abdominal wall (Fig. 1).

Figure 2a – The histological features of the resected lump under low magnification.

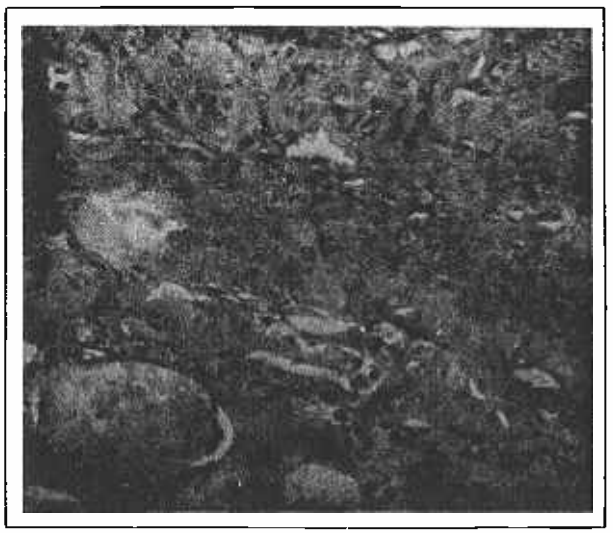

Figure 2b – The histological features of the resected lump under high magnification.

There were 3 in the right arm, 1 in the left forearm, 1 in each thigh and 2 in the anterior abdominal wall, These were mobile at rest and became 'fixed' when the underlying muscles were tensed. These were not tender except for the 2 in the lower limbs. There was no lymphadenopathy. Examination of the other systems were essentially normal.

Radiography of the chest showed a large pleural effusion on the right with minimal shift of the mediastinum to the left. There was osteolytic lesion in the 3rd rib posteriorly. The left lung appeared clear. Thoracocentesis revealed straw coloured exudate. A repeat radiograph after thoracocentesis showed a mass at the right hilum. Total protein content of the pleural fluid was 4.0 gm% and specific gravity was 1.027. No acid fast bacillus or other organisms were seen. The cytology of the fluid showed malignant cells lying singly and in groups with other inflammatory cells. The malignant cells showed ample cytoplasm and prominent nucleoli. There were also multinucleated giant cells. A pleural biopsy showed groups of carcinomatous cells with ample ctyoplasm and prominent nucleoli. There were intercellular bridges. The features were suggestive of squamous cell carcinoma. Excisional biopsy of one of the lumps (over the right axilla) was performed. The surgeon noted a solitary, intramuscular lump measuring about $3 \times 3 \times 2$ cm. Histology showed metastatic poorly differentiated carcinoma (Fig. 2). Many of the tumour cells had features suggestive of a squamoid differentiation and stains for mucin were focally positive. The pathologist suggested looking for a primary in the lung.

The patient was treated symptomatically and repeated thoracocenteses and intrapleural instillation with tetracycline were carried out. He was discharged and referred back to his family doctor for further management.

DISCUSSION

Like other primary malignancies, the spread of carcinoma of the lung to skeletal muscles is rare. Of the 3 published case reports in the literature, 2 (both adenocarcinoma) had ossifying metastases in the skeletal muscles (6,7). The third case was a patient with squamous cell carcinoma presenting with a gluteal muscle abscess. It is not known why such a spread to skeletal muscles is rare, given the large tissue bulk and blood supply. This case serves to illustrate another example of this rare phenomenon.

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