CASE REPORT

Thymic carcinoma presenting with an unusual and delayed metastasis to the neural foramen, mimicking thoracic spinal radiculopathy

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SUMMARY

We report a case of metastatic thymic carcinoma which presented as an enhancing mass located in the neural foramen of the thoracic spine. More common tumours which arise in the neural foramen would include a neurogenic tumour or developmental anomalies such as a foregut duplication cyst. This case is singular firstly because the lesion present as radiculopathy which mimics a neurogenic tumour. Secondly, the presentation was unusually delayed as the patient presented to our centre more than a decade after the resection of the primary tumour in another institution.

KEY WORDS:
Metastatic thymic carcinoma, neurogenic tumour, radiculopathy, thymic tumour

CASE REPORT

We report a 79-year-old gentleman who presented to the spine clinic with four months of worsening back pain and truncal radiculopathy. Initial thoracolumbar radiographs and laboratory tests were normal. An MRI scan of the thoracolumbar spine was arranged which (Figs. 1A to C) showed an irregular lesion at the left T8-9 neural foramen which was hypointense on both T1 and T2 weighted sequences. It also showed enhancement following the administration of intravenous contrast. Differential diagnoses include a neurogenic tumour as well as lymphoma or a metastatic deposit from another primary tumour. The subsequent CT thorax (Figs. 1D and E) further revealed multiple subpleural nodules in the lungs while the bone scan (Fig. 1F) demonstrated increased tracer uptake at the site of the primary lesion and those of the pleural nodules, with no evidence of distant metastases.

Biopsy of the neural foraminal lesion revealed sheets of epitheloid cells and small amounts of T lymphocytes. The epitheloid cells were positive for cytokeratin (AE 1/3), CD5 and CD117 and negative for thyroid transcription factor-1 (TTF-1). The lymphocytes reacted with CD3 and C5 but were negative for terminal deoxynucleotidyl transferase (TdT). Nonetheless, the immunophenotype of the epithelial cells raised the possibility of a primary thymic tumour.

Given the unexpected histology, further history was sought and only then did the patient recall having partial resection of a thymic tumour in another institution 12 years ago, after which he had defaulted follow-up. The histology report from the surgery was retrieved, revealing both epithelial cells and lymphocytes which reacted for CD5 and CD1a respectively. Features were characteristic for a thymic carcinoma, of a mucoepidermoid subtype. In addition, there were two left

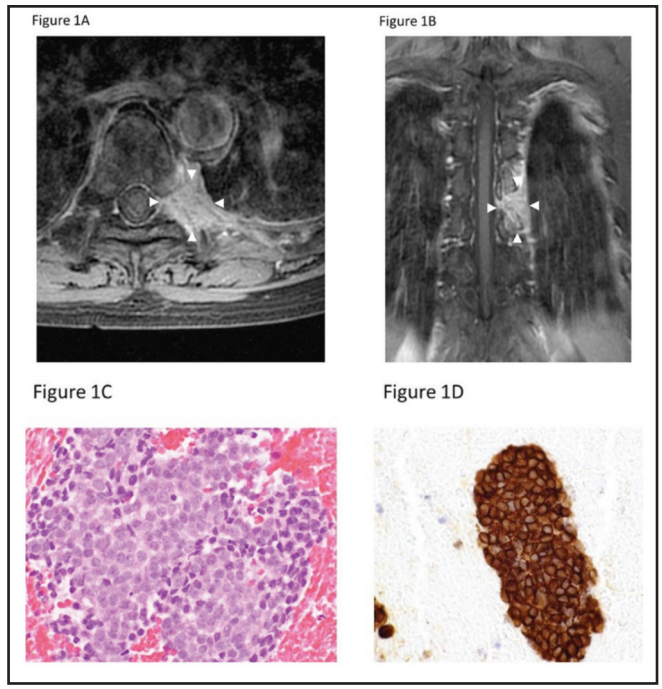

Fig. 1: 79-year-old gentleman presenting with four months of back pain and truncal radiculopathy

Fig. 1A & 1B: Contrast-enhanced MRI axial and coronal images show an irregular enhancing lesion at the left T8-9 neural foramen (arrowheads), which is also hypointense on T1 and T2 weighted sequences (not shown).

Fig. 1C & D: Cluster of epithelial cells with enlarged, irregular nuclei and small nucleoli in a background of blood. These epithelial cells are strongly and diffusely positive for cytokeratin (AE1/3).

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lung lesions which were concurrently excised during the initial surgery 12 years ago, both revealed to be metastases. The patient was then arranged for radiotherapy after the biopsy and is currently well after one year of follow-up.

DISCUSSION

Thymomas and thymic carcinomas (TC) are rare tumours.[1,2] They are of thymic epithelial origin, with TC being rarer than thymomas, making up 20%.[3] It is difficult to distinguish between the two entities based on imaging alone, and histology is often required to establish the diagnosis.[4] Suster and Rosai divided TCs into high and low grade tumours.5 High-grade tumours are associated with a dismal clinical outcome while the converse is true for low-grade tumours.[5] The histology of our patient's tumour was a low-grade mucoepidermoid tumour,[5] which may explain his survival for over 10 years.

The average time interval from the diagnosis of the primary thymic tumour to metastases is shorter in TC compared to thymomas.[1] Indeed, TC metastasise early, with 50-65% of tumours demonstrating distant metastases at the time of diagnosis.[2,3] This was similar to our patient having lung metastases at initial presentation. However, the current finding of a metastatic lesion at the neural foramen after 12 years is more unusual. Extra-thoracic metastases are rare, with an incidence of 3-6%.[1] In a review of 35 patients with extra-thoracic metastases of thymic origin,[1] 22 of which were thymic carcinoma, the three most common locations for metastases were in the liver (11 cases), lymph nodes (10 cases) and brain (4 cases). No spinal metastases were recorded in this series1, which makes our case unique.

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