Malignant spinal cord compression in cancer patients may be mimicked by a primary spinal cord tumour

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Although it is quite rare, second primary neoplasms in cancer patients may present with the signs and symptoms of malignant spinal cord compression. Primary spinal cord tumours in the cancer patients may be deceptive and considered as the recurrent first cancer. Therefore, it should be precisely differentiated and appropriately managed. We report such a case of intramedullary ependymoma of the cervical spinal cord mimicking metastatic recurrent lymphoma and causing cord compression. A 50-year-old man developed intramedullary ependymoma of the cervical spinal cord 1.5 years following chemoradiation for Waldeyer’s ring lymphoma. He presented with a 2-month history of neck pain, progressive upper- and lower-extremity numbness and weakness, and bowel and bladder dysfunction. Magnetic resonance imaging revealed an intramedullary expansive lesion extending from C4 to C6 levels of the cervical spinal cord. The clinical and radiological findings were suggestive of malignant process. A comprehensive investigation failed to detect another site of disease. He underwent operation, and the tumour was subtotally resected. The patient’s neurological deficits improved subsequently. The development of the intramedullary ependymoma following treating lymphoma has not been reported. We describe the clinical, radiological and pathological findings of this case and review the literature.

Keywords: malignant spinal cord compression, Waldeyer’s ring lymphoma, intramedullary ependymoma, chemoradiation.

INTRODUCTION

Primary intramedullary spinal cord tumours are a rare entity, and represent about 4–10% of all the primary central nervous system neoplasms and only 20% of all the primary spinal cord tumours. In this category, ependymomas and astrocytomas are the most common histology. Although ependymomas are the most common primary intramedullary spinal cord neoplasm in adults, the development of these tumours either in coincidence with or following treating lymphoma is extremely rare (Koeller et al. 2000; Ogino et al. 2002; Van Goethem et al. 2004). The development of primary spinal cord tumours in cancer patients may be deceptive and lead to a mistake, considering malignant cord compression induced by a metastatic disease. Differentiation between the primary and metastatic intramedullary lesions can be problematic, particu-
larly in cancer patients in whom a primary spinal cord tumour is unlikely and it may be mismanaged as a metastatic disease.

CASE SUMMARY

In December 2002, a 50-year-old man presented with a 2-month history of sore throat and progressive dysphagia. On physical examination, he had a large oropharyngeal mass extending to the nasopharynx accompanied by cervical lymphadenopathy. A biopsy of the oropharyngeal mass disclosed non-Hodgkin’s lymphoma. At that time, he had a bulky Ann Arbor stage IIA malignant lymphoma of the Waldeyer’s ring. Therefore, the patient was treated by combined therapy (external radiation therapy followed by chemotherapy). Radiation therapy was carried out using the cobalt 60 teletherapy unit, and a total dose of 40 GY was delivered through parallel-opposed lateral fields. Radiation fields encompassed oropharynx, nasopharynx, and nearly the entire cervical lymph nodes, as well as the cervical spinal column. He then received six cycles of chemotherapy with CHOP (cyclophosphamide, doxorubicin, vincristine and prednisolone) regimen. Complete response was achieved during the treatment course.

Follow-up was negative until April 2004, when the patient presented with a 2-month history of progressive weakness and numbness of the upper- and lower-extremity, which progressed to the bowel and urinary bladder incontinence. On physical examination, he had Quadriplegia, impaired sensory and areflexia. An emergent magnetic resonance imaging revealed an intramedullary tumour at the level of C4–C6 [Figs 1 and 2]. A systemic investigation was carried out to detect the metastatic disease. At that time, although it is very unusual, a primary or isolated solitary metastatic intramedullary spinal cord tumour was the most likely differential diagnoses. He underwent operation, and the tumour was subtotally resected. The patient’s neurological deficits improved subsequently. Interestingly, the pathologic report was ependymoma and not lymphoma. On histological examination, the tumour consisted mostly of elongated cells with cytoplasmic processes arranged radially around vessels producing perivascular pseudorosettes. There were also small and large true ependymal rosettes. Necrosis was absent, and mitosis was exceptional. No anaplastic change was seen in the individual cells [Fig. 3].

DISCUSSION

Malignant spinal cord compression is one of the most ominous morbidity and the second most frequent neurological complication of cancer. Malignant spinal cord compression can be either metastatic or primary; however, in cancer patients, metastases are most likely, and metastatic diseases should be presumed at top of the list of differential diagnosis [Yalamanchili & Lesser 2003]. Metastases causing cord compression are mainly epidural, and intramedullary metastatic lesions make up only less than 4% of all the spinal cord metastases and only less than 2% of autopsies [Koeller et al. 2000; Mathur et al. 2000; Cavaliere & Schiff 2004; Klimo & Schmidt 2004]. Lung and breast carcinoma are the most common primary sites, followed by malignant melanoma, renal cell carcinoma, colon cancer and lymphoma [Koeller et al. 2000]. Intramedullary spinal lymphomas are extremely rare and
Spinal cord compression and spinal cord tumour

represent only 1% of all lymphomas (Koeller et al. 2000; Klimo et al. 2004). Primary intramedullary spinal cord neoplasms are rare and constitute 4–10% of all the primary central nervous system tumours. Primary intramedullary spinal cord tumours are more common than intramedullary spine cord metastases; however, in cancer patients the development of metastases is more likely. The development of primary spinal cord tumour mimicking malignant spinal cord compression in cancer patients is deceptive and can lead to a mistake, considering as a metastatic disease. Intramedullary ependymomas are slow-growing tumours, usually present with mild clinical symptoms and having a long antecedent history before the diagnosis. Pain, sensory deficit and motor weakness are the most common presentation of these tumours. Intramedullary ependymomas are typically demarcated lesions, having central location. They are iso- or hyperintense on T1-weighted, hyperintense on T2-weighted, and have well-defined margins on the contrast-enhanced magnetic resonance images (Koeller et al. 2000; Schwartz & McCormick 2000). Although the signs and the symptoms indicative of malignant cord compression in cancer patients are mainly induced by a metastatic disease, a primary spinal cord tumour cannot be excluded. It is particularly more likely in patients presenting with a solitary intramedullary lesion. According to the different prognosis and management of the primary and metastatic intramedullary lesions in cancer patients, a precise differentiation is mandatory. Clinical features including short duration of the symptoms, the presence of prior or synchronous metastatic disease particularly in the central nervous system, primary sites of lung and breast, and advanced cancer disease are all in favour of a metastatic disease rather than a new primary spinal cord tumour in this setting (Schiff & O’Neill 1996; Koeller et al. 2000; Loblaw et al. 2003). Intramedullary ependymoma either in coincidence with or radiation-induced following treating lymphoma has not been reported in English language literature. In our case, a radiation-induced event is less likely, because the latency period (the time interval between the radiation and the development of the second neoplasm) of 1.5 years is not sufficient; however, it cannot be ruled out. The coincidence of intramedullary ependymoma and Waldeyer’s ring lymphoma is more likely, although there was no evidence of the patient’s neurological compliant and neurological finding at the first presentation. At that time, the patient’s neurological symptoms might be minimal and subsided by the initiation of cervical irradiation for more than 1 year. The clinical course in our patient was brief in comparison with other reports in which there is a mean duration of 36.5 months for these patients with intramedullary ependymoma of the spinal cord (Koeller et al. 2000).

In conclusion, in cancer patients presenting with malignant spinal cord compression induced by an intramedullary lesion, a primary spinal cord tumour should be kept in mind as a differential diagnosis. In this setting, magnetic resonance imaging findings are non-specific and cannot differentiate it precisely and with certainty. We therefore recommend the need for histological diagnosis of any intramedullary cord lesion, even in cancer patients with a solitary intramedullary lesion.

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REFERENCES
