On-line Case Report

Insidious onset neck pain – a symptom not to be dismissed

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ABSTRACT

Chronic neck pain is an extremely common symptom in the general population. Most cases have underlying musculoskeletal aetiologies and are managed conservatively. However, a very small number of patients presenting with chronic neck pain will have significant underlying pathology, e.g. a spinal cord tumour. Intramedullary spinal cord tumours are uncommon at all ages, particularly in adults, and there are some controversies in their treatment. The case of an 18-year-old man with chronic neck pain who was subsequently shown to have a pilocytic intramedullary astrocytoma is presented. This report highlights the need to consider rare, but potentially serious, diagnoses in individuals presenting with non-resolving, but seemingly innocent, symptoms over a prolonged period.

Keywords: Neck pain – Spinal cord neoplasms – Astrocytoma

Neck pain is a very common symptom constituting a significant proportion of the caseload of general practitioners (GPs) and orthopaedic surgeons. Most patients can be managed with simple conservative measures. However, a very small minority who present insidiously have an underlying sinister cause for their symptoms. In this report, the unusual case of an intramedullary spinal cord astrocytoma in an adult is presented which illustrates this scenario.

Case report

An 18-year-old man was referred to the orthopaedic department with a 3-year history of progressively worsening neck and upper thoracic pain. There was no history of trauma and no significant previous medical history. He had consulted his GP several times over this period and, on each occasion, the presumed diagnosis

was musculoskeletal in origin. On the final visit, the patient reported right-hand weakness which prompted hospital referral.

He was seen in the orthopaedic clinic by which time his neck pain had worsened and he was experiencing sleep disturbance. He was also suffering from weakness of his right hand and wrist movements and occasional right thumb paraesthesia. His left upper limb and both lower limbs were symptom-free and there was no sphincter disturbance. Clinical examination revealed mild tenderness over the spinous processes from C4 to T5, wasting of the right hand thenar and hypothenar eminences with associated reduced power and diminished sensation in the right C6, C7 and C8 dermatomes.

Urgent spinal magnetic resonance imaging was requested (Fig. 1). This revealed an area of cystic expansion within the cord between the C5 and T2 vertebral levels with posterior scalloping of the C5, C6

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Figure 1 (A) T1-weighted sagittal and (B) T2-weighted axial magnetic resonance imaging demonstrating eccentrically-placed cystic lesions within the spinal cord between the C5 and T2 vertebral levels.

and C7 vertebrae. The lesion was slightly eccentrically placed, lying just to the right of the midline and showed peripheral enhancement with gadolinium contrast, suggesting that it was likely to be neoplastic.

An urgent referral to a neurosurgical unit was made and he was admitted within a fortnight for spinal surgery. A cervical laminoplasty was performed from C5 to T2 to expose an extremely swollen spinal cord. An intra-medullary tumour was easily identifiable dorsally and only a small myelotomy was required to decompress the tumour, which extended all the way through the cord to

Figure 2 Photomicrograph (magnification x20) of H&E-stained tumour specimen (pilocytic astrocytoma). The majority of tumour cells have round, regular nuclei but cells with elongated hair-like nuclei are also present. No mitotic activity is apparent.

its ventral surface. By the end of the operation with the mass aggressively removed, the ventral dura was identifiable and it was apparent that the cord had been bisected by the tumour. The laminae were repaired using vicryl rather than titanium plates to avoid artefact from the latter on subsequent imaging. Postoperatively, he was left with a right Horner's syndrome, impaired sensation in both lower limbs but globally worse throughout the left leg, and absent vibration sense and proprioception in both feet. Motor function in the legs was preserved and in the arms was no worse than pre-operatively.

Histology of the resected tumour revealed a grade I pilocytic astrocytoma (Fig. 2).

The patient made a good initial postoperative recovery and was discharged home 2 weeks following surgery. He experienced walking difficulties due to the lower limb sensory deficits but progressed well with physiotherapy.

Discussion

Intramedullary spinal cord tumours are rare lesions, most frequently seen in children.¹ Their natural histories vary according to histological type, the majority in adults being ependyomas.² Intramedullary astrocytomas (IAs) are very uncommon, representing only 6–8% of all cord tumours. Most are of low histological grade and follow indolent clinical courses, their presentation pattern depending upon the tumour's anatomical location which poses diagnostic challenges.

Most IAs occur in the cervicothoracic cord where they progressively damage decussating spinothalamic neurones in the anterior grey and white commissures, anterior horn

cells and lateral corticospinal tract and sympathetic fibres. In adults, a suspended level of spinothalamic sensory loss (pain and temperature) may initially be seen in a cape-like distribution with sparing of posterior column-mediated discriminative touch. Anterior horn cell and corticospinal tract involvement lead to upper limb weakness with small hand muscle wasting and upper motor neurone signs in the legs. The commonest symptom is pain which may be radicular or diffuse in nature. Infants may present with abdominal pain and motor regression, *e.g.* refusal to stand or crawl after having learned to walk.

Histological grade is the most significant prognostic factor for IAs.³ Tumour subtype also appears to be important: 5-year survival rates are much higher for pilocytic astrocytomas than non-pilocytic diffuse fibrillary astrocytomas (81% versus 15%, respectively, in one study).⁴ Good pre- and post-treatment clinical status also has notable prognostic significance.³

The traditional treatment of IAs involved biopsy and dural decompression followed by radiotherapy.² In recent times, modern neurosurgical techniques including ultrasonic aspiration, laser, evoked potential monitoring and intra-operative ultrasonography have become available facilitating safer attempts at radical excision.¹ Aggressive tumour resection reduces chances of local tumour recurrence but carries risks of major postoperative neurological impairment.⁵

Postoperative radiotherapy has been considered to be an effective therapy for IAs, improving survival in all tumour subtypes but has inherent risks of chronic radiation myelopathy and spinal deformity.⁴

Postoperative pain and dysaesthesia are well recognised sequelae following surgical resection and are difficult to manage. Postoperative proprioceptive disturbance may also occur but is usually transient. These symptoms are caused by posterior column disturbance as tumour resection requires spreading and retraction of these structures.⁵

Severe spinal deformities can follow resection of cord tumours, most commonly kyphosis and kyphoscoliosis, particularly in children.¹ Many factors including the extent of laminectomy are contributory.⁵ Currently, no measures completely prevent this complication, although osteoplastic laminotomy techniques are gaining momentum.¹

Conclusions

This case illustrates the need for clinicians to be aware of the infrequent occurrence of rare but serious pathology such as an intraspinal tumour in a small minority of patients who present repeatedly with seemingly innocuous symptoms over a prolonged period. Whilst musculoskeletal pain is a common complaint, it is rare in adolescence and early adulthood in the absence of previous trauma. In addition, nocturnal pain is classical of an intraspinal tumour and should be regarded as suggesting its presence until proven otherwise. Attention to such 'red flags' in the presentation may enable earlier diagnoses to be made.

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