Upper gastrointestinal complaints as a consequence of thoracic spinal tumor

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Abstract

A rare case of a 43-year-old male with chronic epigastric complaints and atypical diffuse osseous pain for two years, which were finally found to be caused by a benign thoracic spinal tumor (lipoma) and was successfully treated by neurosurgical resection, is presented. At three years follow-up postoperatively he remains completely asymptomatic. This report discusses the case and the potential pathophysiology of the patient's symptoms. (Acta gastroenterol. belg., **2005**, 68, **388-391**).

Key words : dyspepsia, spinal tumor, lipoma.

Introduction

Primary thoracic spinal tumours are very rarely reported in the literature and may have atypical presentation(1-8). In the majority of reported cases, the main initial symptoms of patients with spinal tumor are back pain and neurological manifestations as a consequence of spinal cord pressure from the tumor (1,2). However, the diagnosis is often very difficult and may be delayed, for considerable time, due to the absence of typical symptoms at the initial stages (1,2,9).

We present a patient in whom the diagnosis of spinal tumor was delayed for two years due to atypical symptoms, which were mainly gastrointestinal.

Case report

A 43-year-old male, referred to the outpatient Gastroenterology department complaining of two years of intermittent, severe, chronic epigastric pain, nausea, regurgitation and retrosternal burning. During the same period, he also reported severe, vague, dull, non well-localized, non-specific, back pain from the middle thoracic to the lumbar region. The pain radiated to upper and lower limbs, ameliorated during the day, but never totally disappeared and deteriorated again at night or at supine position. It also caused significant sleep disturbances and was not related to the abdominal complaints. The patient also reported morning lumbar stiffness, which decreased during the day and exacerbated again during the night. It is worthy to mention that the abdominal complaints preceded the appearance of osseous pain, while the patient has not taken non-steroidal anti-inflammatory drugs (NSAIDS). Repeated, detailed clinical and laboratory examinations in the internal medical department as well as the orthopaedic clinic were completely normal. All other personal and family history was non-contributory, and the patient denied smoking, alcohol, or other drug use.

The patient had been seen by numerous clinicians in various specialties and centres, yet no definitive explanation of his symptoms was reached. Specifically, a complete haematological and blood chemistry examination, erythrocyte sedimentation rate (ESR), electrocardiograms (ECG), repeat chest and abdominal radiograms, as well as conventional spinal cord radiograms, were without pathological findings. Rheumatoid factors (Ra-test), auto-antibodies (—, —, ASMA, p-ANCA, anti-Jo-1, anti-Scl-70, anti-ds DNA, anti-DNA, anti-SS–, and anti-SSB) and HLA-B27 were also negative. The symptoms were finally attributed to functional disease and the diagnosis of non-ulcer dyspepsia was made. Regarding the back pain the diagnosis of ankylosing spondylarthropathy was initially made.

The patient was treated symptomatically for the osseous pain with common analgesics as needed, while for the dyspeptic complaints he received, at various times, over the counter antacids, proton pump inhibitors, and histamine-H2 blockers, with only mild and temporary relief of his symptoms.

The patient's quality of life was severely disturbed due to persistent symptoms, especially affecting his quality of sleep due to nocturnal exacerbation of epigastric complaints as well as the osseous pain. Furthermore, he experienced significant weight loss (10 kg) due to diminished food intake and severe reactive depression. A psychiatric examination was performed and confirmed the diagnosis of reactive depression and the absence of other psychiatric illnesses. The patient was intermittently administered anxiolytics and antidepressants for one year before recent referral, with only slight improvement of his symptoms.

During follow-up, the epigastric complaints persisted and back osseous pain worsened. A repeat detailed neurological examination revealed bilateral sensation disturbances at T7-T9 dermatomes, mainly dorsally, and no further other neurological abnormalities (10). Particularly, the patient did not have lower limb paresthesias, motility or micturition disorders. Subsequently, emergent spinal computed (CT) and magnetic (MR–) tomography revealed a well-demarcated 2.5×0.8 cm midline

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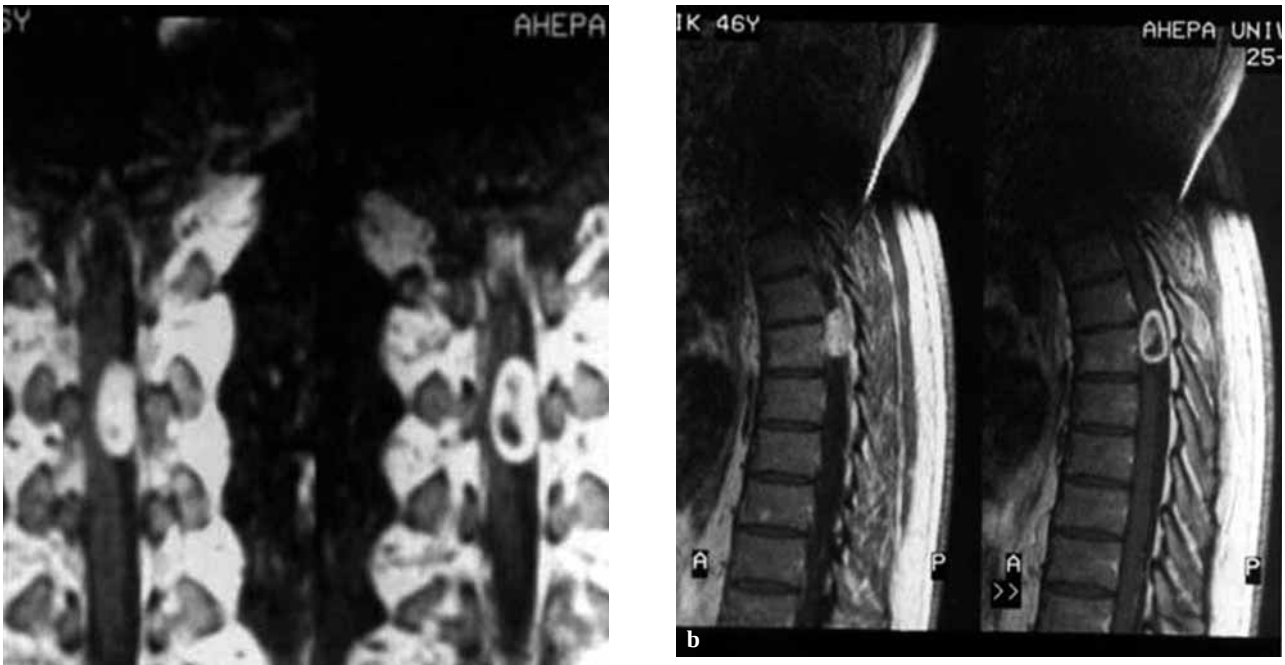

Fig. 1 a,b. — Spinal MRI shows a well-demarcated 2,5 × 0,8 cm midline posterior, intradural, extramedullary thoracic spinal tumor at the T5-T6 level.

posterior, intradural, extramedullary thoracic spinal tumor at the level of T5-T6 vertebral bodies. Severe external cord compression, without invasion to the spinal cord or to the surrounding structures was also present (Fig. 1a,b).

Neurosurgical resection of the spinal tumor, via the posterior approach, using microsurgical technique, followed. The mass was flexible and was easily enucleated. A complete removal of the intradural mass was finally performed without complications and the patient was discharged from the neurosurgery department two weeks later. Pathological examination of the rejected spinal tumor demonstrated findings typical of a lipoma.

The patient showed rapid clinical improvement soon after removal of the spinal tumor. Within three weeks post operatively the patient's symptoms dramatically improved, and totally disappeared. He remained in an excellent general condition and stopped all the medications. Three years post-resection of the spinal tumor, he remains in excellent general condition, while his quality of life as well as his quality of sleep has dramatically improved.

Discussion

Primary thoracic spinal tumours are extremely rare and in the majority of the reported cases the main early symptom is usually back pain (1-3,8). However, their diagnosis is often very difficult and may be delayed, occasionally for long periods, until symptoms developed such as myelopathy or radiculopathy as a consequence of spinal cord pressure from the tumor (2,8,11).

An interesting point In our case the absence of clear clinical manifestations, such as neurological deficits at the initial stages, or other alarm symptoms, which could have lead to suspicion of spinal cord pathology. The atypical clinical presentation in combination with the rarity of spinal tumours as a cause of abdominal complaints resulted in the long delay to the correct diagnosis, despite thorough and repeated clinical and laboratory examination by different specialists in various centres. It was only after a detailed neurological examination by an experienced neurosurgeon that the diagnosis was made. He only found localized sensation disturbances at T7-T9 dermatomes, which lead to subsequent spinal MRI and to correct diagnosis of spinal tumor at the level of T5-T6 neurotomes. In patients with spinal cord tumours the dermatomic level may be two or more vertebral segments away from the anatomic level because the spinal nerves emerged from the spinal cord at the level of one vertebra lower and there is overlapping between the dermotomes (Fig. 2a,b) (10). As a result, a lesion (i.e. spinal tumor) at the level of T5-T6 neurotomes may give rise to sensation disorders at the level of T7-T9 dermotomes (10). This is another interesting point of our case.

Literature reports of cases with spinal cord tumours and unusual clinical presentations, such as recurrent

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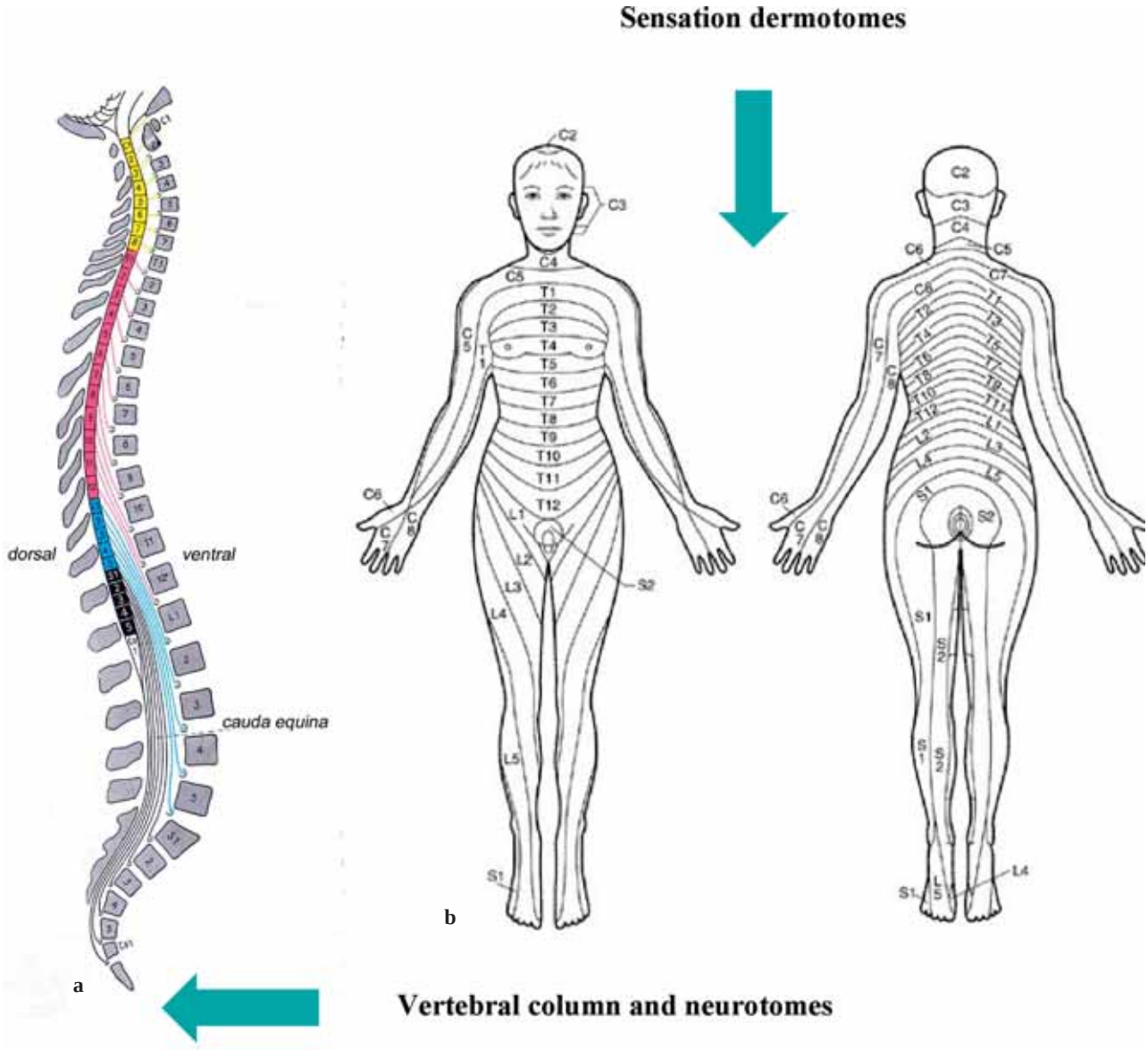

Fig. 2 a,b. — Diagrams showing the spinal neurotomes and the spinal nerves as they emerged from the vertebral column (2a) and the correlation of the respective dermotomes (2b). (Published after permission from : Richard Snel. Clinical anatomy for medical students. Little, Brown and Company. Boston/Toronto 3rd Edition, 1984, p. 44-45).

abdominal or chest pain, are rare (2-9). In these cases, as in our case, the clinical presentation may mimic various intra-abdominal disease, or even heart disease, in such a degree that the tumor could remain undiagnosed for a long time. It has been also reported in the literature that some of these patients had even undergone abdominal operations for their abdominal complaints due to spinal tumor (2). On the other hand, chronic gastrointestinal complaints are frequently reported in patients with spinal cord injury, which in many occasions significantly disrupt their quality of life (11-15).

Although chronic gastrointestinal complaints in patients with spinal cord diseases, especially spinal cord injury, have been well described in the literature, the underlying pathogenic mechanism remains generally unclear. Some authors propose that the abdominal pain in patients with spinal tumours is referred pain from stimulated spinal roots or spinal tract fibres (2,12,13). Another possible cause of abdominal pain in patients with spinal cord tumours is vascular compression and bleeding within the tumor, which may result in swelling of the tumor and paroxysmal pain due to transient increase in cerebrospinal fluid pressure (2,11-14). This was not the case in our patient, however, as the spinal tumor was well demarcated and no intra-tumor haemorrhage was found.

Another possible, and most likely mechanism of dyspeptic symptoms in these patients is the imbalance between sympathetic and parasympathetic innervation of the gastrointestinal tract, which could lead to

gastrointestinal dysmotility and subsequent abdominal complaints (2,16,17). The sympathetic nerve outflow from the spinal cord to upper gastrointestinal tract is generally considered to come from the T5-T9 neurotomes. In cases with spinal cord pathology at this level, as in our case, the thoraco-lumbar sympathetic connection with the upper cerebral centres is disrupted (level T5 to L3), while the parasympathetic pathway via the vagal nerve remains intact (2,11,15-18). According to our view this might be the most likely pathogenic mechanism in our case. However, in order to prove this hypothesis, oesophageal and/or gastrointestinal manometry would be necessary (19,20). Unfortunately, no gastrointestinal manometry or gastric emptying study was performed in our patient, due to patients' non-compliance and the urgent neurosurgical intervention.

In conclusion the presence of spinal tumor should not be overlooked in patients with unusual clinical manifestations and unexplained abdominal complaints in the presence of normal clinical and laboratory examination. Detailed neurological examination in these cases can significantly contribute to an appropriate and early diagnosis of spinal tumor.

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