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Case Report Open Access

An Unusual Case of Spinal Myoclonus

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Abstract

Study design: A case report of Spinal myoclonus.

Objectives: To illustrate an unusual case of spinal myoclonus and its management.

Setting: Changi General Hospital, Singapore.

Case report: A 48 year old male was admitted with minor trauma to his lower back for which he needed epidural analgesia. He later developed focal myoclonus of the left lower limb. He was subsequently investigated and treated with a combination of valproate and clonazepam and responded well.

Conclusion: There are various known predisposing factors for the development of spinal myoclonus, which can be challenging to diagnose and treat. Clonazepam with or without sodium valproate can be used as first line agents. Some patients may require more than 2 agents for controlling the movements.

Keywords: Movement disorders; Epidural analgesia; Myoclonus; Spinal cord

Introduction

Myoclonus involves rapid, uncontrollable movements of one or more group of muscles. Myoclonus can affect function and can be quite disabling for the person depending on its severity. Lower back injuries leading to pain are very common and some patients may result in being treated combination of analgesics along-with physiotherapy. A small minority of these patients may receive treatment with epidural analgesia. Physicians should be aware that one of the complications of this procedure is spinal myoclonus. If this is not anticipated to be a risk, the patient may be subjected to unnecessary investigations adding to their sufferings.

Case presentation

A 48 year old male was admitted in with history of lower back pain following a minor fall from a chair leading to injury to his lower back. His past medical history included degenerative disc disease of the lumbar spine with prolapsed intervertebral disc (L4/L5) for which he underwent surgery (Transforaminal Lumbar interbody fusion). Subsequently he had 2, relatively minor, traumatic events to his lower back. As a result of these events he had chronic lower back pain radiating and shooting to the left leg for which he was being followed up by the pain team.

During the latest episode of fall leading to worsening of his back pain he underwent an MRI scan followed by review by the orthopaedics team and pain team in order to control his pain.

Due to the severity of his pain he initially received trial of oral analgesics with combination of Paracetamol, Ibuprofen, Tramadol and Opioids.

As his pain was peristent, he received epidural analgesia.

Once his pain control was optimum; he was restarted on oral analgesics and underwent in-patient rehabilitation. During this period he was noted to have involuntary movements (myoclonus) of his left leg which were sudden, unpredictable and exacerbated his back pain. He sustained about 4 to 6 episodes per day, each lasting between 45 to 60 minutes, with no identifiable trigger factors.

On examination, he had localised spinal tenderness over the L3 to S1 region, decrease in power over the L5 and S1, Grade 4/5 (limited by pain) and decreased sensory acuity over the L4 and S1 dermatomes. The onset of myoclonus affected his rehabilitation process, mood and independence.

He continued to have regular physiotherapy input.

Investigations

Investigations done during admission included: full blood count, electrolytes, liver function tests, calcium and magnesium levels which were all normal. Other investigations done were: triphasic bone scan, electromyographic studies (EMG), nerve conduction studies (NCS) as well as an electroencephalogram (EEG) that came back unremarkable (Figures 1 and 2).

Treatment

Whilst awaiting the investigations to confirm the diagnosis he was started on Escitalopram (for depression). After all the investigations came back normal, a working diagnosis of focal segmental spinal myoclonus was made, based on his clinical presentation, history of trauma and spinal epidural analgesia.

He was then started on clonazepam, along with a gradually titrated dose of sodium valproate. The frequency of his episodes decreased gradually from 4 to 6 episodes a day with each episode lasting about 45 to 60 minutes to only 1 to 2 episodes a day, each episode lasting less than 5 to 10 minutes. His mood improved significantly as a result of the improvement of his symptoms. He was discharged subsequently with independent mobility and activities of daily living.

Outcome and follow-up

Upon his latest follow up at the clinic for 24 months, his frequencies of movements were reported to be occasional 1-2 per week and lasting a few minutes only.

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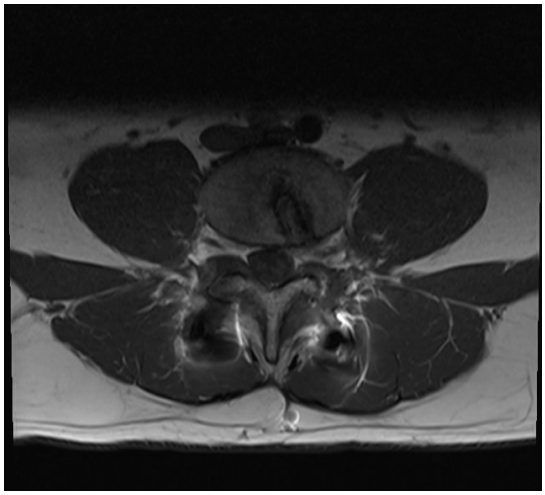

Figure 1: MRI of lumbar spine.

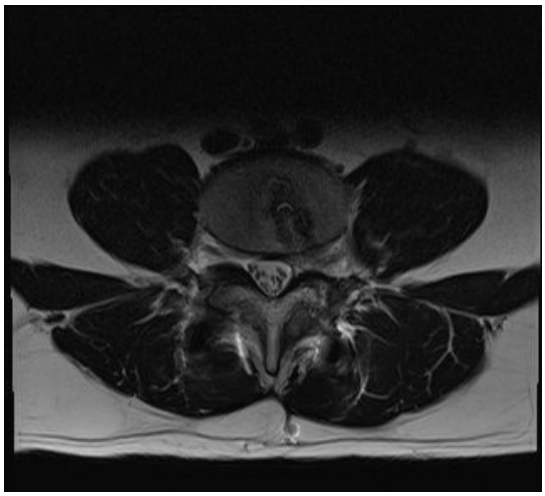

Figure 2: MRI of lumbar spine.

After his myoclonic movements completely resolved, his valproate and clonazepam were slowly tapered off over 4 weeks.

He has remained symptom free from the myoclonus since then until further 12 months follow up.

Discussion

Spinal myoclonus has been described to occur after many conditions, ranging from spondylitis, epidural anaesthesia, viral infections, neoplastic lesions, trauma to the spinal cord and laminectomy [1,2].

It can prove to be a diagnostic challenge to label such a condition and precludes barrage of biochemical and neuro-physiological tests. In our patient, initially it was difficult to diagnose myoclonus, as all tests were normal and no characteristic EMG findings of myoclonic bursts confined to myotomes [3] were seen to suggest a diagnosis of spinal myoclonus.

During earlier part of his presentation, his movements were suspected to be due to underlying psychological disturbance (as the clinical features of myoclonus are easily mimicked). A potential means of determining if there is psychogenic origin is the detection of a Bereitschaftspotential which picks up activity in the motor cortex that subsequently leads to voluntary movement. It has been shown to be a useful adjunct when deciding if spinal myoclonus is psychogenic or organic. In our patient, this investigation was not done as it was unavailable and moreover he had definite history of spinal surgery with recent history of epidural analgesia for his worsening back pain.

Our initial treatment for his myoclonus was with clonazepam as supported by case reports and other literature [1,2].

In additon to Clonazepam he also received Sodium Valproate which controlled his movements within a period of one week.

Pharmacological options that have been explored to be beneficial in spinal myoclonus treatment include leviracetam, clonazepam, tetrabenazine and valproic acid [1-4].

Intrathecal baclofen for the treatment of spinal myoclonus has been also been found to be beneficial [5].

It often involves more than one drug to achieve satisfactory control and amelioration of symptoms. However, no large studies have been done to evaluate the true efficacy of these drugs in the treatment of spinal myoclonus. All of the agents have mainly been proven useful in small isolated case studies. Other therapies that have shown in isolated studies to be useful include autogenic training and EMG-bioefeedback [6] and injection with Botulinum toxin A [4]. However, pharmacological methods are the mainstay of treatment and other methods mainly serve as adjuncts to potentially reduce the need for multiple drugs at high doses.

Conflict of Interest

The authors declare no conflict of interest.

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