Cauda Equina Syndrome (CES) is the number one ‘spinal’ patient safety issue for orthopaedic surgeons providing on call and emergency care. A major source of litigation against GPs, emergency care doctors and orthopaedic surgeons, the average compensation following missed or delayed diagnosis of CES is £336,000 per case in the United Kingdom and $549,427 per case in the United States. HES data were used by the Spine Task Force to show that in England alone ~1000 operations are done each year for CES, so it is not a rare condition. The number of cases coming to litigation each year in the UK is uncertain. Gardner et al estimated between 30-40 cases per year in UK.

Well-known features of Cauda Equina Syndrome

Bilateral sciatica, perineal and perianal sensory loss, incontinence or retention of urine, incontinence or retention of faeces, and disturbance of sexual function are well recognised features of CES. Clearly it would be a breach of duty to ignore these.

McFarlane and Gleave, in a much quoted paper, distinguished between Cauda Equina Syndrome Incomplete (CESI) and CES Retention (CESR). What is less well recognised are the symptoms leading up to the status of CES. A recent analysis from China of the current literature on CES cases has been helpful in specifying the main patterns of progression of this condition. It is at this initial stage of symptom onset that ‘Early CES’ should ideally be recognised and treated before established urinary incontinence or retention. The Chinese authors, whilst not the first to suggest a further category this group, have done a much more exhaustive systematic review than anyone else, with ranking of the frequency of presentation of each feature. They state: ‘The result of sequential pattern mining demonstrated that the progression process of CES could be divided into three stages: early stage of CES (CESE), with bilateral peripheral nerve dysfunction characterised by progressive sensory-motor defects from unilateral to bilateral in lower extremities; incomplete CES, with reduction of sphincter functions; and CES in retention, with sphincter dysfunction’. They go on to say: ‘Our analysis revealed that the most common initial CES symptoms were perineal paresthesia and bilateral lower extremity pain, paresthesia, and motor power abnormality. These CESE symptoms usually developed from unilateral symptoms of primary diseases. Sphincter dysfunction, on the contrary, was only the initial symptom in patients with acute onset or ankylosing spondylitis. To achieve timely diagnosis, clinicians should consider the possibility of CES when these characteristic symptoms are present, especially when they progress from unilateral to bilateral.

Claimants’ experts are now suggesting that Breach of Duty may occur when patients’ symptoms are ignored in this spectrum. Emergency MR is indicated in this group of patients, even though it recognised that many will have no evidence of cauda equina compression, and the symptoms are associated with severe pain. Clinicians should also consider lesions higher up the neuraxis, and whole spine MR scans may be indicated when no lesion is found in the lumbar spine.

The cause and level of the spinal pathology in Cauda Equina Syndrome can only be established with an MRI scan. This is one of the main reasons for hospitals providing emergency care to have access to out of hours MRI scan available 24/7. There is good evidence that expedient surgery in CES will improve the outcome. If surgery is delayed more than 24 hours from onset, the results are significantly worse (and even worse if delayed for >48-hours). There is a strong indication for out of hours surgery in this group. It seems logical, but unproven, to say that surgery in the CESE group should be offered as an emergency too. For patients with CESR, surgery is much less likely to reverse the neurological deficit and in these circumstances operating the next day is reasonable. The problem for doctors is to try to diagnose CES when it presents in the early stages. I believe we need to rethink our training in this area to take into account CESE.

In the Chinese analysis of the initial symptoms in non-acute cases, they ranked the early symptoms in order of frequency (Table 1). Reduction of sexual function and sexual dysfunction were not common presenting complaints in this population. Unfortunately, these symptoms are also frequent in people who do not subsequently develop Cauda Equina Syndrome.
We are exploring the sensitivity and specificity of these symptoms in our Oxford Triage Database at present.

Table 1: Symptoms of CES suggesting immediate MRI

<table>
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<tr>
<th>Symptom</th>
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<tr>
<td>1. Bilateral sciatica</td>
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<td>2. Bilateral parasthesiae</td>
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<tr>
<td>3. Bilateral motor deficit</td>
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<tr>
<td>4. Perineal pain</td>
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<tr>
<td>5. Perineal parasthesia</td>
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<tr>
<td>6. Altered bladder / anal function</td>
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<td>7. Bladder dysfunction</td>
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It is the misinterpretation of these early presenting features, especially when viewed in retrospect, which often lose the legal case in Cauda Equina Syndrome. Misdiagnosis and procedural delay are also expensive causes of problems. Trainees and their consultants need to pay particular attention to these cases and be assertive in obtaining out of hours MRI. The raw data do suggest that about 40% of out of hours MRI scans requested will be ‘normal’ but this seems to me (and to CES patients) to be a reasonable price to pay to prevent what is a deeply unpleasant condition. The clinical message is that if you think someone might have CES, even without signs, you should consider getting a scan and you MUST warn of the symptoms of deterioration and advise immediate re-attendance.


References:


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Sagittal and Axial MRI scan of a patient with a massive L4/5 central disc herniation with CES