



# The Royal College of Emergency Medicine

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## Position Statement

### Cauda Equina Syndrome

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Cauda Equina Syndrome (CES) is a rare surgical emergency caused by narrowing of the spinal canal (usually due to a prolapsed intervertebral disc) that requires urgent specialist assessment and intervention. If the condition is not managed in a time efficient manner, it can lead to severe permanent disabilities including permanent limb paralysis, permanent loss of bowel, bladder and sexual function [1].

Back pain is a frequent presenting symptom to the Emergency Department (ED), not all patients have a lumbar disc prolapse. Lumbar disc prolapse is the most common cause of back pain in the presence of signs of peripheral neuropathy. A significant central disc prolapse has been reported as being present in about 3% of all lumbar prolapses and CES occurring in 0.07%-0.12% of these cases [2]. CES is a very uncommon cause of back pain in patient presenting to the ED, estimated population incidence 1.0-1.9 per 100,000 [3]

Features of CES include: bilateral sciatica, progressive neurological deficits, difficulty initiating micturition or impaired sensation of urinary flow, urinary retention with overflow urinary incontinence, loss of sensation of rectal fullness, faecal incontinence, saddle anaesthesia or paraesthesia, laxity of the anal sphincter [4] and loss of sexual function [5]. CES may present with any or many of these symptoms and signs and onset may be insidious or rapid. None of these clinical features are able to reliably confirm the diagnosis of CES, they have very limited sensitivity. MRI is considered the gold for the diagnosis of CES. The correlation of clinical findings with MRI findings is poor [6].

CES may be classified in a number of different ways including; partial or complete as well as suspected or that associated with urinary retention. CES should be diagnosed as soon as possible to allow for surgical options with the aim of preventing permanent neurological deficit. The type of the clinical features of CES (often subjective) mean that the MRI positive rate is low (14-33%) and the rates of emergency surgery for such patients are even lower (4-7%). The timing of surgery may vary considerably (12-72hrs) [7]. Approximately 70% of possible CES referrals are in the 'out of hours' period [1].

The consequences of potentially missing a case of CES, given its potentially life changing sequelae and the possibility of litigation if the diagnosis is missed or delayed is of considerable concern to emergency physicians. One medical defence

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organisation reported that whilst successfully defending 70% of cases it still paid out £8 million in compensation in an 11 year period [8].

The Society of British Neurological Surgeons and British Association of Spinal Surgeons [9] also recognise the key role MRI has in making the diagnosis of CES and state that it should be available 24/7 in referring hospitals and the decision to undertake an MRI scan in a patient suspected of having CES does not require discussion with a spinal surgeon, unless MRI is contra-indicated. Furthermore they believe surgery should be undertaken '*at the earliest opportunity, considering the duration and clinical course of symptoms and signs, and the potential for increased morbidity while operating in the night*'.

RCEM welcomes the recent report published by GIRFT on Spinal Services and CES [1] and supports its desire to provide high quality emergency care for those that need it the most. However as the report recognises, the key factor is the ability of hospitals to access MRI scans 24/7. RCEM believes that the majority of hospitals with an Emergency Department are currently unable to access this level of service in a timely fashion. These patients should not spend prolonged periods of time (more than 4 hours) in the Emergency Department, awaiting specialty review or for scans to take place. RCEM is in agreement with GIRFT that given the relatively low positive rate of these scans, patients are generally best served having MRI scans in their local hospital without resort to secondary transfers and all the delays and anxiety that this engenders in patients and their relatives.

For patients in whom CES is suspected, there should be local policies in place (agreed between tertiary service (Spinal Surgery) and local Hospital). These should outline the processes whereby out of hours scans are requested and reported (including clinical criteria for deferring scan to working hours). These policies should also clarify acceptable timing of investigation, and responsibility for managing the patients whilst awaiting scan results (especially if delays occur); within many hospitals, this is the responsibility of the Orthopaedic surgical team.

It is the responsibility of ED to be involved with developing systems that reduce the risk of failure to diagnose CES, whilst not over-investigating patients. It is also the ED responsibility to manage the patient clinically (e.g. pain, discharge safety etc) whilst within the ED.

RCEM considers it best practise in cases of possible Cauda Equina Syndrome, if appropriate imaging (MRI scan) cannot be performed within 4hrs, that these cases are referred to the local orthopaedic team. On-going care for these patients needs to be with the local orthopaedic team who should liaise with their sub-specialty colleagues.

RCEM supports the need for further research into the diagnosis of CES both to define those clinical features which most accurately predict CES and the need for MRI but also those patients with CES who truly benefit from emergency surgery, rather than urgent surgery. Given the widespread availability of CT scanning compared to MRI, research into CT specific signs of CES which may lead to effective triaging processes for urgent MRI scans is also to be welcomed.

## References

1. Hatton M. Spinal Services, GIRFT. NHS Improvement. January 2019. <https://gettingitrightfirsttime.co.uk/spinal-surgery-report/>. Accessed 30.09.2019
2. Todd V. Cauda equine syndrome. Bone Joint J 2015; 97-B: 1390-4
3. Woodfield J, Hoeritzauer I, Jamjoom AAB, et al. Understanding cauda equina syndrome: protocol for a UK multicentre prospective observational cohort study. BMJ Open 2018;8:e025230. doi:10.1136/bmjopen-2018-025230. Accessed 30.09.2019
4. Sciatica (lumbar radiculopathy), Red Flag Signs. NICE. March 2018 <https://cks.nice.org.uk/sciatica-lumbar-radiculopathy#!diagnosisSub:1>. Accessed 30.09.2019
5. Long B, Koyfman A, Gottlieb M. Evaluation and management of cauda equine syndrome in the emergency department. Am J Emerg Med 2019; 0: 0. <https://doi.org/10.1016/j.ajem.2019.158402> Accessed 30.09.2019
6. Dionne N et al. What is the diagnostic accuracy of red flags related to cauda equine syndrome (CES) when compared to Magnetic Resonance Imaging (MRI) ? A systematic review. Musculoskeletal Sci an Practise 2019; 42: 125-133.
7. Todd NV. Guidelines for cauda equine syndrome . Red flags and white flags. Systemic review and implications for triage. B J Neurosurg 2017; 31: 3, 336-339
8. Taylor C. Analysis of cauda equina syndrome claims. Medical Defence Union. <https://mdujournal.themdu.com/issue-archive/spring-2017/analysis-of-cauda-equina-syndrome-claims>
9. Standards of Care for Investigation and Management of Cauda Equina Syndrome. December 2018. <http://www.spinesurgeons.ac.uk/news/standards-of-care-for-investigation-and-management-of-cauda-equina-syndrome-ces/>