

Editorial

British Association of Spine Surgeons standards of care for cauda equina syndrome

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Received 5 January 2015; accepted 5 January 2015

Introduction

In 2012, the annual general meeting of the British Association of Spine Surgeons (BASS) gave overwhelming support to the proposition that the society should produce documents describing what it believed to be the best management in aspects of spinal pathology. In particular, it was considered important that any such documents should be completely independent of any other organization. It was decided that the initial project should be to produce guidelines for the standard of care for patients with possible cauda equina syndrome (CES). This was chosen because of an overwhelming impression among the membership that some patients may well be suffering from this condition because of delayed diagnosis and subsequent surgery. It was also considered that the evidence available to determine best practice was insufficient to refute the a priori argument that the earlier a compressed nerve root is decompressed, the more likely it is to recover function. At the same time, in the absence of better evidence, we consider a genuine consensus of members of our society to be valuable.

FDA device/drug status: Not applicable.

Author disclosures: **TG**: Nothing to disclose. **SA**: Others: Depuy Synthes (D, Fund a fellowship for the Unit), Nuvasive (E, Fund a fellowship for the unit); Personal Fees: Globus Medical (B, Consulting fee for convening a course in 2013, B, Consulting fee for teaching on a course in 2012). **ATHC**: Nothing do disclose. **NVT**: Nothing to disclose. **AR**: Nothing to disclose.

The disclosure key can be found on the Table of Contents and at www.TheSpineJournalOnline.com.

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Neurosurgical members of our society directed us to a document published in 2009 by the Society of British Neurological Surgeons entitled, “Standards of Care for Established and Suspected Cauda Equina Syndrome.” This formed the starting point for our own document which we thought needed to be more dogmatic if it was going to have any chance of helping patients. We were particularly keen that the document should help assist colleagues in primary and secondary care access magnetic resonance image (MRI) scanning. We were very aware that as specialist practitioners, we have a very low threshold for investigating patients with back pain in association with any form of urinary disturbance. It seems paradoxical that less specialist practitioners should have to be more dependent on clinical diagnosis but that they will be heavily criticized if they make a mistake. We are also aware that the strength of document we produced would lie with it being accepted by the spinal surgical fraternity. For this reason, the document was posted on our society forum, and all further posts were responded to.

We hope that we have produced a document that is in the best interests of the patients potentially affected by this devastating condition. We now need to consider how to promote our opinion and consider the implications for service provision. Our ambition is to work with colleagues in other specialties (eg emergency medicine, GP’s etc) to collect data on all patients presenting with potential CES secondary to compression. If we can collect these data on the national spinal registry, it should give us information on the positive predictive value of symptoms and signs.

We are grateful to all those who have contributed to the evolution of this document.



Standards of care for suspected and confirmed compressive CES

Background

Cauda equina syndrome is a relatively rare but very disabling condition. It causes misery to affected patients, which is reflected in the cost of managing the disability and litigation that results from it. It is possible that a proportion of established CES *may be* avoidable with appropriate and timely management. We have produced these guidelines to try and improve the care for patients with this condition.

Definitions

A patient presenting with acute (de novo or as an exacerbation of preexisting symptoms) back pain and/or leg pain with a suggestion of a disturbance of their bladder or bowel function and/or saddle sensory disturbance should be suspected of having a CES. Most of these patients will not have critical compression of the cauda equina. However, in the absence of reliably predictive symptoms and signs, there should be a low threshold for investigation with an emergency scan. The reasons for not requesting a scan should be clearly documented.

Imaging

The appropriate investigation of these patients is an MRI scan except where specifically contraindicated. The investigation should be undertaken as an emergency. It is very difficult to justify waiting until the end of an elective MRI list.

There are four potential outcomes from the investigation:

1. Cauda equina compression confirmed. This should precipitate an urgent referral to the appropriate surgical service.
2. Cauda equina compression excluded but a potential structural explanation of pain identified. This should precipitate appropriate advice which may include referral to the appropriate surgical service.
3. Noncompressive pathology may be identified (eg, demyelination) which should precipitate referral to the appropriate service.
4. No explanation of the patient's symptoms may be apparent. In these circumstances, an appropriate plan for further management is required.

Surgery

Nothing is to be gained by delaying surgery and potentially much to be lost. Decompressive surgery should be undertaken at the earliest opportunity, taking into consideration the duration of preexisting symptoms and the potential for increased morbidity while operating in the small hours. We do not consider that there is anything in the literature that justifies contravention of this principle. We recommend reasons for any delay in surgery are documented.

Counseling

All patients undergoing surgery for CES should be counseled that the aim of surgery is to preserve that function present at the time of surgery. There is scope for improvement, but there is a small risk of making matters worse including paralysis of the legs, complete loss of bladder and bowel control, and impotence/sexual dysfunction.

Summary of feedback from members via discussion forum on the BASS Web site

The aforementioned guidelines were drawn up by the BASS executive committee (2012–2014) after a fair amount of discussion. This was presented to the BASS membership at the Annual General Meeting at BritSpine 2014 at Warwick. The consensus was to publish the guidelines on the discussion forum of the BASS Web site for opinion from the members. Over the 6-month period, the important themes from the subsequent discussion are summarized in the following section.

In patients with unequivocal clinical features suggestive of CES, an emergency scan and urgent referral to the local spinal unit for timely intervention.

There was general agreement that the presenting symptoms and clinical signs for CES are varied and there was no sound evidence with regards the predictive values for the presenting symptoms and the clinical signs. But one of the members made a very pertinent comment about the guidelines, “as a pragmatic approach to CES for generalist and specialists this has my full support.”

The timing of MRI scan was also discussed as most admitting units do not have a 24/7 MRI facility and as some of the members pointed out that vast majority of scans for suspected CES are negative, that is, more than 90% as per their local audits. One of the members used the analogy of head injury referrals to neurosurgical centers. According to this specific post, the suggestion as per the Royal College of Surgeons report on units dealing with head injury patients was to perform the computed tomography scan locally before referral and transfer to the local neurosurgical center. Cauda equina syndrome has been incorporated into the cancer pathway in one of the regions as CES can be due to metastatic spinal cord compressions which helped in emphasizing to the admitting units to provide a 24/7 MRI scan facility as per one of the members. Perhaps, BASS should

make such recommendations rather than using the regional spinal centers as the default nocturnal MRI scanning center for patients presenting with suspected CES.

Also, another member commented that some patients have symptoms for a few days before their presentation and these could have a scan first thing in the morning rather than the middle of the night.

Patients presenting repeatedly with CES-like symptoms were another point of discussion. Although repeat scans for these individuals were questioned, it was generally accepted that it is safer to repeat a scan and rule out CES if the presentation warranted it.

There was general agreement that surgery for confirmed CES should be performed as soon as possible. One of the members suggested timing of intervention based on the duration of presenting symptoms, that is, if they are recent, then urgent intervention, but if they are delayed, then intervention as soon as practicable.

Commentary on the guidelines from a medicolegal perspective

These guidelines reflect the evidence base. The clinical diagnosis of CES lacks sensitivity and specificity; no symptom or sign, including direct rectal examination, allows us to diagnose or exclude CES unless and until the lesion is severe and often irreversible [1–4]. Emergency MRI is part of the triage of the suspected CES patient; MRI should ideally be performed in the district general hospital.

We have learnt to dichotomize the CES patient by the extent of neurologic deficit and by the time to decompression. In terms of deficit, we think of three subgroups: CESS (suspected/suspicious), CESI (incomplete), or CESR (painless urinary retention). In terms of time, we think of achieving a decompression within 12, 24, or 48 hours of symptom onset. However, these dichotomies are artificial and may lead us to make poor decisions. Patients deteriorate within each deficit subgroup (ie, the subgroups by deficit are not homogeneous). This is easy to see if a patient develops motor weakness or more bladder dysfunction. It is less easily seen in the CESR patient, but more prolonged compression can be associated with further neurologic loss after CESR [5] and, probably and independently, reduces the probability of functional recovery [6]. The weight of evidence suggests that loss of function in CES is a continuous process [6]; the longer the cauda equina nerve roots are compressed, the less good the outcome. There are no safe time thresholds (such as 48-hour “safe” time window by Ahn et al. [7]).

Neurologic deterioration in CES can occur rapidly. In a series of 99 medicolegal cases (NVT unpublished observations), 10% deteriorated to CESR within 12 hours of first contact with a health professional and a total of 26% within 24 hours. This is a rate of deterioration to severe, often irreversible, CES of 1% per hour. This mandates emergency MRI. Surgery should be carried out as soon as practically

possible, and with modern spinal rotas, this will usually be emergency surgery by day or night.

There are commonly poor outcomes in CES patients leading to a lifetime of misery and, often, unemployment. The only way of maximizing good outcomes is to diagnose and treat the CES patient as a true spinal emergency. We need a prospective longitudinal database.

Summary

This group of articles looks at the BASS guidelines for CES. TG and AC gave us the background on the long journey taken in publishing this, SA summarized the forum discussion on the BASS Web site, and NT gave us a medicolegal comment.

The guidelines are concise, highlighting the need for prompt MRI scanning and as a consequence emergency surgery in appropriate cases. This has resource implication in terms of MRI availability and a comprehensive spinal on-call system. The question of whether operating “in the small hours” carries increased risk or whether we are using this as an excuse not to get out of bed needs to be addressed. CES discs tend to be more difficult than standard ones and probably associated with a higher complication rate. Literature on complications from night-time trauma surgery has considerably reduced out-of-hour operating in trauma.

Guidelines on CES will allow the spinal community to prospectively collect data on a national registry which in time will allow us to further improve our understanding and treatment of this condition.

Spinal surgery is quickly evolving into a separate specialty. These guidelines further highlight the need for a single spinal society to help set standards, educate, and revalidate our members. It is important that we all engage in this debate to get a consensus opinion to improve spinal practice across the United Kingdom.

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