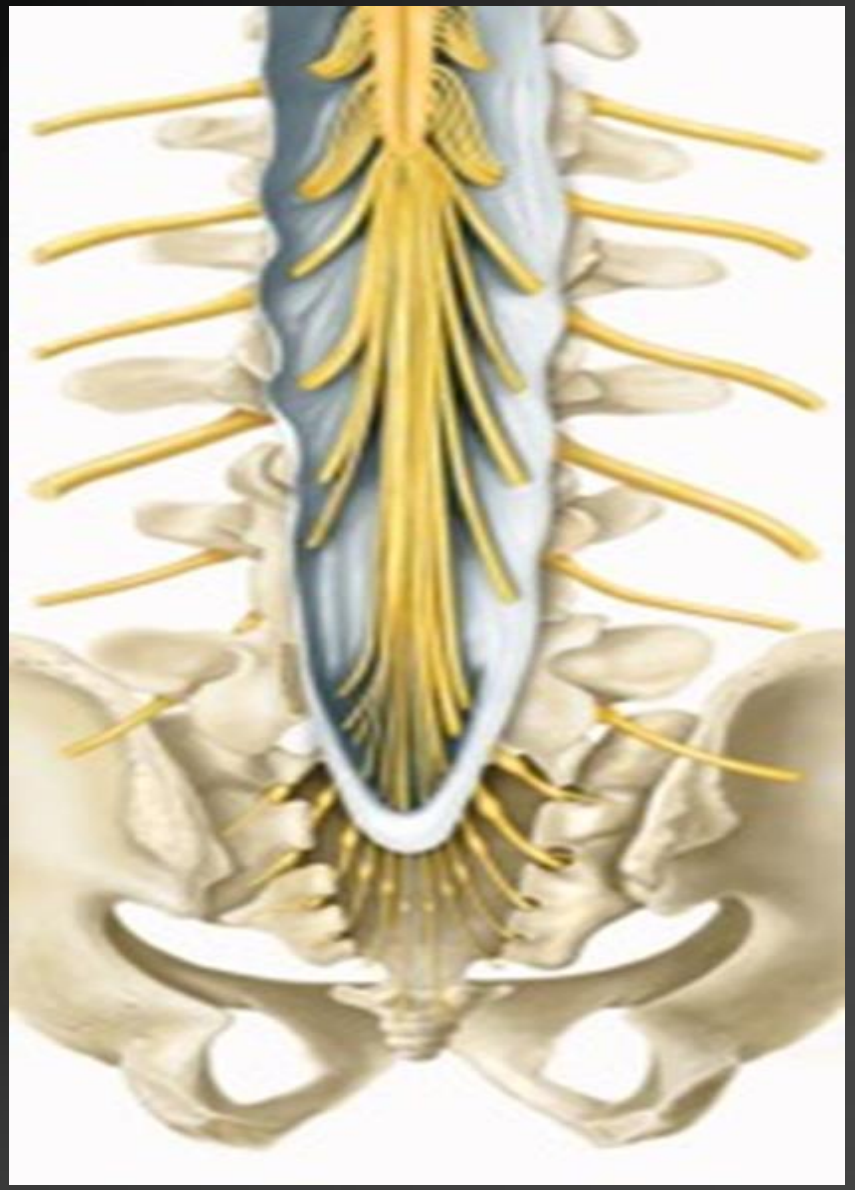


WHAT EVERYONE WORKING WITH BACK PAIN NEEDS TO KNOW ABOUT CAUDA EQUINA SYNDROME

CHRIS MERCER

&

LAURA FINUCANE

www.csp.org.uk/ces

THE CHALLENGES OF CES

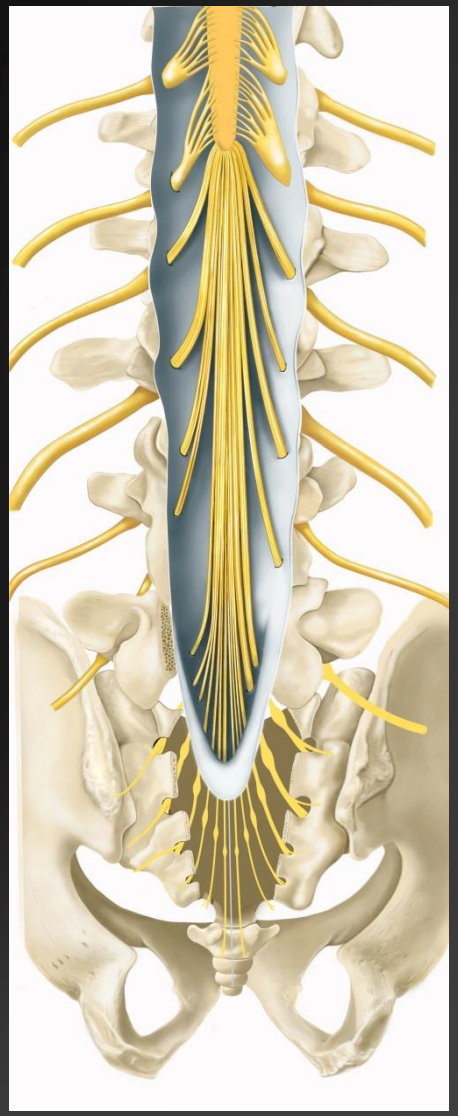
- Definition
- Early diagnosis
- Assessment
- Medico-legal
- Research trials

LIFE CHANGING CONSEQUENCES

- 1/5 patients will have poor outcome;
- on-going treatment for sexual dysfunction
- self catheterisation
- colostomy
- psycho-social/psycho-sexual issues
- Rarely return to same job/work
- Post –operative complications management

HALL AND JONES SPINAL CORD 2017
DOI:101038/SC2017.92 11 PATIENTS

- Dissatisfaction with care: '**I felt very abandoned**', captured experiences of feeling neglected and disbelieved by the healthcare system and a wish for symptoms to be validated.
- Hidden to others: **'Nobody knows. It's horrible',** spoke to a struggle to gain a social identity in relation to a hidden disability.
- Changing identities: **'You become someone totally totally different'** versus 'You're still the same person', captured a process of renegotiating identity following CES.

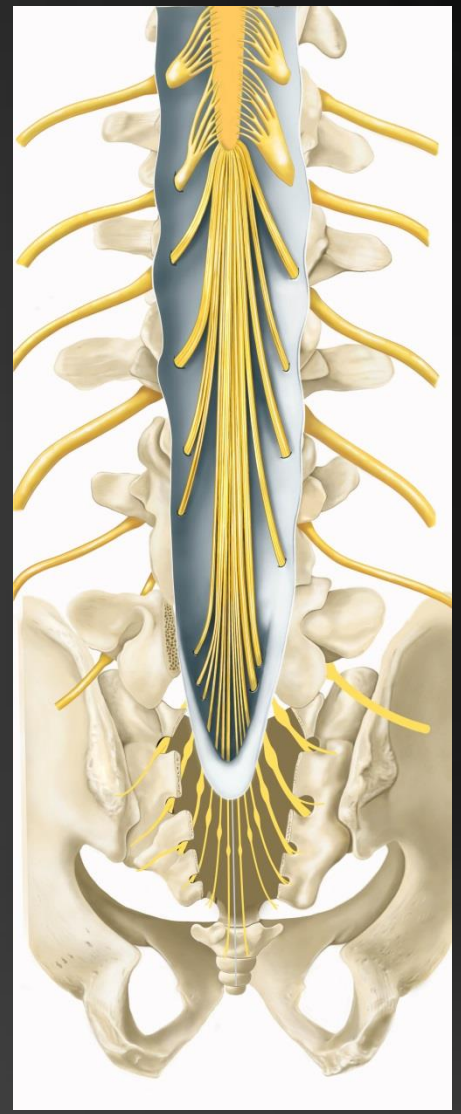


VULNERABLE ANATOMY; A SURGICAL EMERGENCY

CE provides innervation to lower limbs, sphincters, sensory innervation to saddle and parasympathetic innervation to bladder and distal bowel.

5 CHARACTERISTIC FEATURES

- Bilateral neurogenic sciatica
- Reduced perianal sensation
- Altered bladder function
- Loss of anal tone
- Sexual dysfunction



CLINICAL DIAGNOSIS

- No broadly accepted definitive diagnostic criteria; 17 different definitions of CES (Fraser et al, 2009)

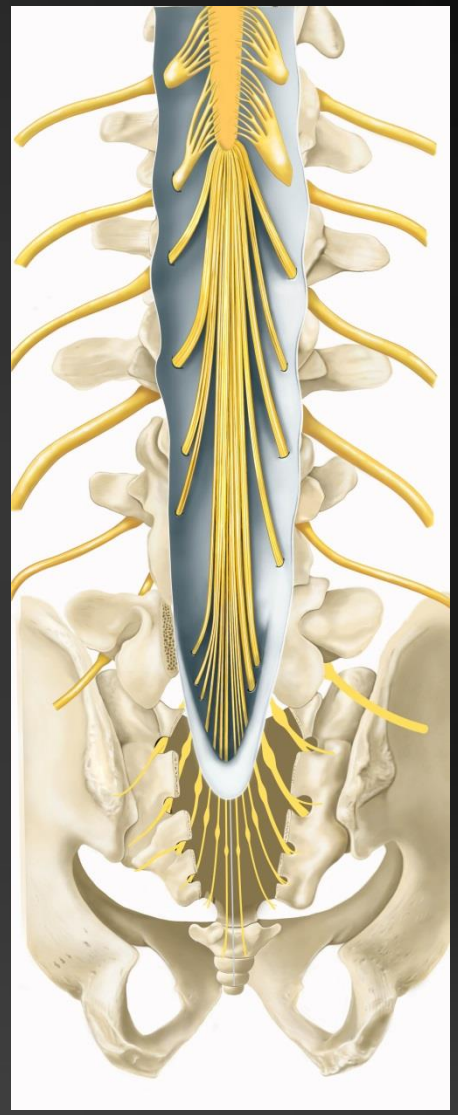
- Signs and symptoms can be subtle and vague, varying in intensity and evolution (Bin et al, 2009)

Definitions: Fraser

Arch Phys med Rehab 2009 90(11):1964-8

- 100% unanimity
- 75-99% consensus
- 51-74% majority
- 0-50% no consensus

- No unanimity or consensus in 105 papers
- Majority view: bladder and sensory disturbance (74% 66%)



BRITISH ASSOCIATION OF SPINAL SURGEONS

(GERMON ET AL, 2015)

A patient presenting with acute 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 or developing a cauda equina syndrome*.

…in the absence of reliably predictive symptoms and signs, there should be a low threshold for investigation with an EMERGENCY MRI scan. The reasons for not requesting a scan should be clearly documented.

Subjective history key to early diagnosis

NATIONAL PATHWAY OF CARE FOR LOW BACK AND RADICULAR PAIN (2017)

- ‘ Emergency referral to secondary care to access urgent investigations and spinal/neuro surgeon opinion same day’
- Diagnosis requires both clinical symptoms and imaging to be concordant

Significantly more patients are referred on for further investigation compared with those having a radiologically confirmed diagnosis of CES (Woods et al, 2015)

(90% negative 10% positive for CES)

81% of patients with CES symptoms did not have CES (Hoeritzauer et al 2020)

BUT 1 in 5 DID have CES

Cauda Equina Syndrome Groups

(Todd & Dickson, 2016)

CESS suspected	Bilateral radicular pain (progressing unilateral)
CESI incomplete	Urinary difficulties of neurogenic origin, altered urinary sensation, loss of desire to void, poor urinary stream, need to strain to micturate
CESR retention	Painless urinary retention and overflow incontinence
CESC complete	Loss of all CE function, absent perineal sensation, patulous anus, paralysed insensate bladder and bowel

Cauda equina syndrome (CES) White Paper, February 2019

22 February 2019

A White Paper produced by Connect Health's Medical Director, Dr Graeme Wilkes

All felt patients are at risk of harm if presenting with bilateral sciatica. Rapid access to urgent same-day MRI is needed to add to the existing standard of that where traditional “red flags” are present.

https://mattlowpt.wordpress.com/2019/03/05/a-disconnect-with-connect-health-a-reasoned-view-of-bilateral-leg-pain-and-cauda-equina-syndrome/

A Disconnect with Connect Health: A Reasoned View of Bilateral Leg Pain and Cauda Equina Syndrome

05/03/2019

NLBP CN Recommendations for assessment and referral for Cauda Equina Syndrome 2019

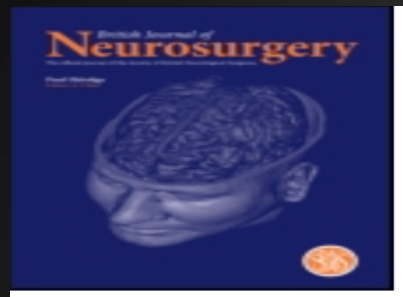
- Unilateral back pain progressing to bilateral leg pain is a concerning presentation.
- In isolation bilateral leg pain is not necessarily a red flag for suspecting Cauda Equina Syndrome.
- Patients with bilateral leg pain should always be safety-netted
- Patents with urinary or bowel disturbance >4/52 not likely to need emergency MRI scan

Bilateral leg pain with any CES symptoms	**Emergency referral:** **Patient needs MRI as soon as possible. Follow local pathway**
Bilateral leg pain with abnormal neurology but no CES symptoms	Urgent Referral: Management depends on degree of deficit- If motor loss<3/5 or deteriorating- MRI within 1 week. Follow local pathway and safety net patient for CES
Bilateral leg pain with normal neurology, positive neurodynamic tests but no CES symptoms	Treat as per radicular pain pathway. Routine MRI if symptoms sufficiently troublesome. Safety net patient
Bilaterla leg pain with normal neurology, normal neurodynamic tests and no CES symptoms	Treat as per radicular pain pathway. Safety net patient

ASSESSMENT

- Most information gained in the subjective

- Physical tests have limited validity and reliability



British Journal of Neurosurgery

ISSN: 0268-8697 (Print) 1360-046X (Online) Journal homepage: http://www.tandfonline.com/loi/ibjn20

Does rectal examination have any value in the clinical diagnosis of cauda equina syndrome?

Benjamin W. T. Gooding, Mark A. Higgins & Denis A. D. Calthorpe

To cite this article: Benjamin W. T. Gooding, Mark A. Higgins & Denis A. D. Calthorpe (2013) Does rectal examination have any value in the clinical diagnosis of cauda equina syndrome?, British Journal of Neurosurgery, 27:2, 156-159, DOI: 10.3109/02688697.2012.732715

To link to this article: https://doi.org/10.3109/02688697.2012.732715

57 patients in one year in Derby, 13 positive on MR
DRE did not predict CES on MR
odds ratio 1.43 p= 0.89 diagnostic accuracy 51%

No combination of factors (UP TO 8) combined to predict the presence of CES on MR

SADDLE SENSATION; LIGHT TOUCH AND PIN PRICK?

Sensitivity of the following tests is relatively poor;

- Perianal sensation
  - Altered urinary and perineal sensation
  - Loss or diminution of the bulbocavernosus reflex (Bell et al, 2007; Fairbank et al, 2011 Delitto et al 2012).

Peri-anal sensation not different between groups with and without radiologically confirmed CES. Subjective report helpful

(Angus et al, 2018)

RESIDUAL BLADDER VOLUME

European Journal of Neurology 2009, **16:** 416–419 doi:10.1111/j.1468-1331.2008.02510.x

SHORT COMMUNICATION

Predictive value of clinical characteristics in patients with suspected cauda equina syndrome

P. M. Domen[a], P. A. Hofman[b], H. van Santbrink[c] and W. E. J. Weber[a]

Departments of [a]Neurology, [b]Neuroradiology, and [c]Neurosurgery, Maastricht University Medical Centre, AZ Maastricht, the Netherlands

- >500ml retention correlates with +ve MRI in CES (bilat sciatica , retention)

13. Is post-void bladder scan a useful adjunct to the clinical examination for prediction of cauda equine syndrome?

Muralidharan Venkatesan, Luigi Nasto, M.P. Grevitt, Magnum M. Tsegaye; The Centre for Spinal Studies and Surgery, Queen's Medical Centre, Derby Rd, Nottingham NG7 2UH

- >400ml pre void - >200ml post void

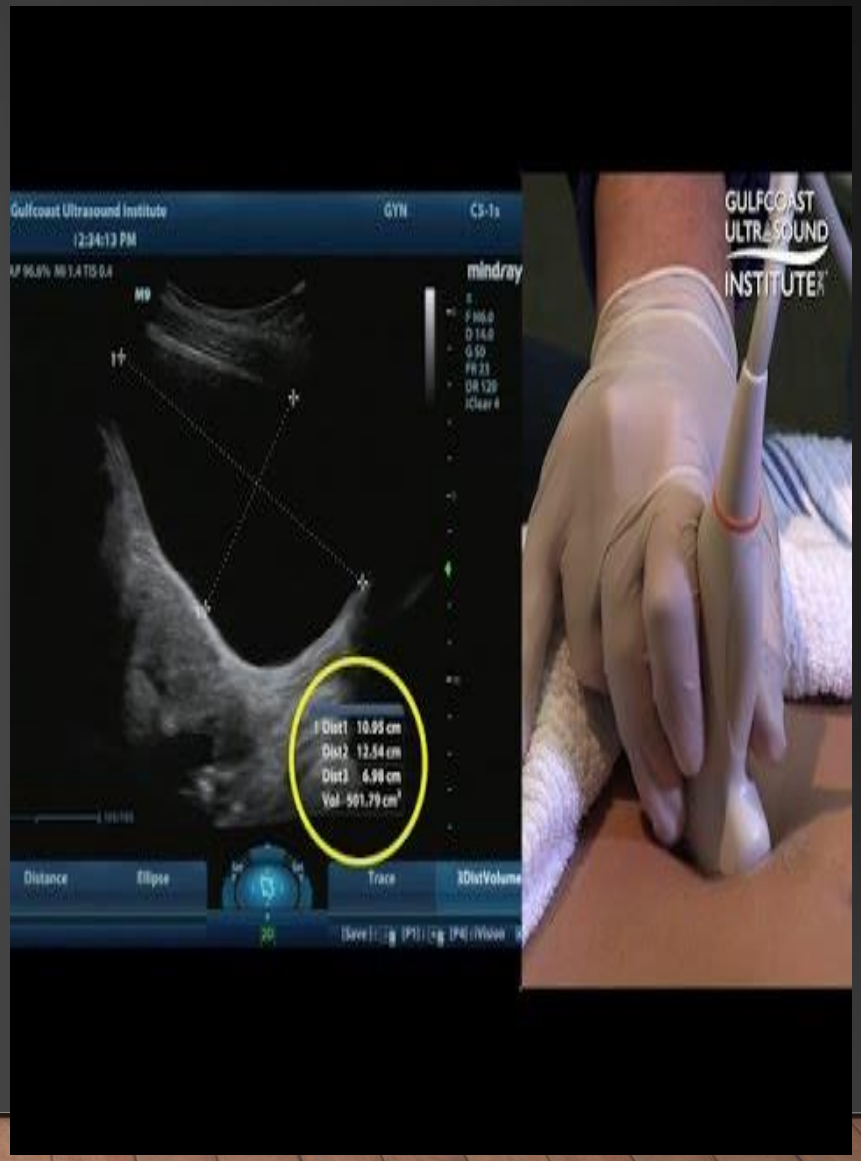
(P09)

The utilisation of post micturition bladder scan in the assessment of patients with suspected cauda equina syndrome (CES)

Main Author: Michelle Angus

Co Authors: Mohammed Elmajee, Rajat Verma, Saeed Mohammad, Irfan Siddique

Affiliation: Salford Royal NHS Foundation Trust (SRFT), Stott Lane, Salford M6 8HD



BLADDER POST VOID U/S RESIDUAL VOLUME SCAN?

13. Is post-void bladder scan a useful adjunct to the clinical examination for prediction of cauda equine syndrome?

Muralidharan Venkatesan, Luigi Nasto, M.P. Grevitt, Magnum M. Tsegaye; The Centre for Spinal Studies and Surgery, Queen's Medical Centre, Derby Rd, Nottingham NG7 2UH

- Venkatesan BASS Spine 17,3,S7 2017 92 pts over 6 months
- 18% positive CES; emergency surgery
- 60% perineal PP sensory loss
- 40% reduced anal tone
- >400mls pre void >200mls post void
- 87% sensitivity (61-98)
- 76% specificity (65-85)
- Odds ratio 20.7

Clinically predictive factors

- Perineal/sacral sensory impairment
- Urological dysfunction

Qureshi and Sell: Eur Spine J 2007 16(12) 2143-2151

Balasubramananian et al: Br J Neurosurg 2010,24 (4) 383-386 p 0.03

Jalloh and Minhas: Emerg Med J 2007 24(1) 33-34

McCarthy et al Spine 2007 32:2;207-216

Bladder post void volume >200mls Venkatesan 2017 BASS

Is urinary retention a predictive factor in outcome?

- Better outcome in the continent

  Qureshi and Sell Eur Spine J 2007 16(12); 2143-2151

  Back and leg pain, QOL, urinary symptoms $p<0.05$

- No difference in outcome with urinary retention at presentation

  McCarthyMJH et al Spine 2007 32: 2;207-216

PREDICTORS OF OUTCOME

- Konig et al 2017 Eur Spine Journal
- Retrospectve study 2001-2010
- Perineal and perianal sensory loss strongly associated with very poor outcome
- Decreased anal tone associated with poor outcome
- Surgery <24 hours leads to better urinary outcomes

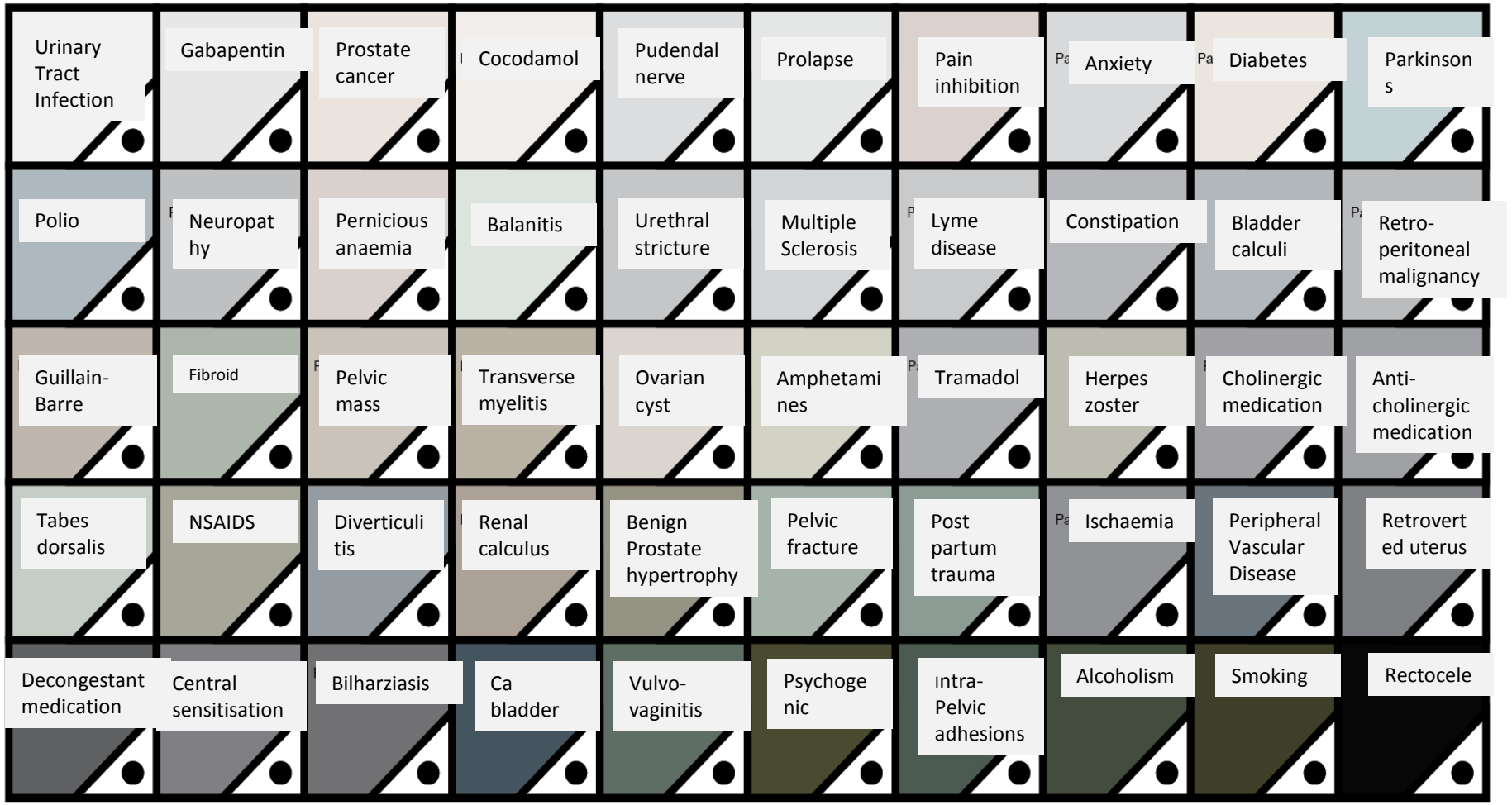
Medication Masqueraders

Opioid Salts	Tramadol, Codeine,	Constipation, reduced gastric motility, reduced bladder sensation
Anticonvulsants	Gabapentin, Pregabalin	Urinary incontinence
Antidepressants	Amitriptyline, Nortriptyline	Retention, sexual dysfunction, reduced awareness of need to pass urine
NSAIDS	Naproxen, Ibuprofen	Retention twice as likely in men than women

CONFOUNDERS

Medication	• Opioids • NSAIDs • Neuropathic pain meds
Other pathologies	• Prostate, SUI, Infection • MS, Prolapse, fibroids
Sensory changes	• Trauma, Parkinson’s • Cord compression, Guillain Barre

Cauda Equina Syndrome Masqueraders

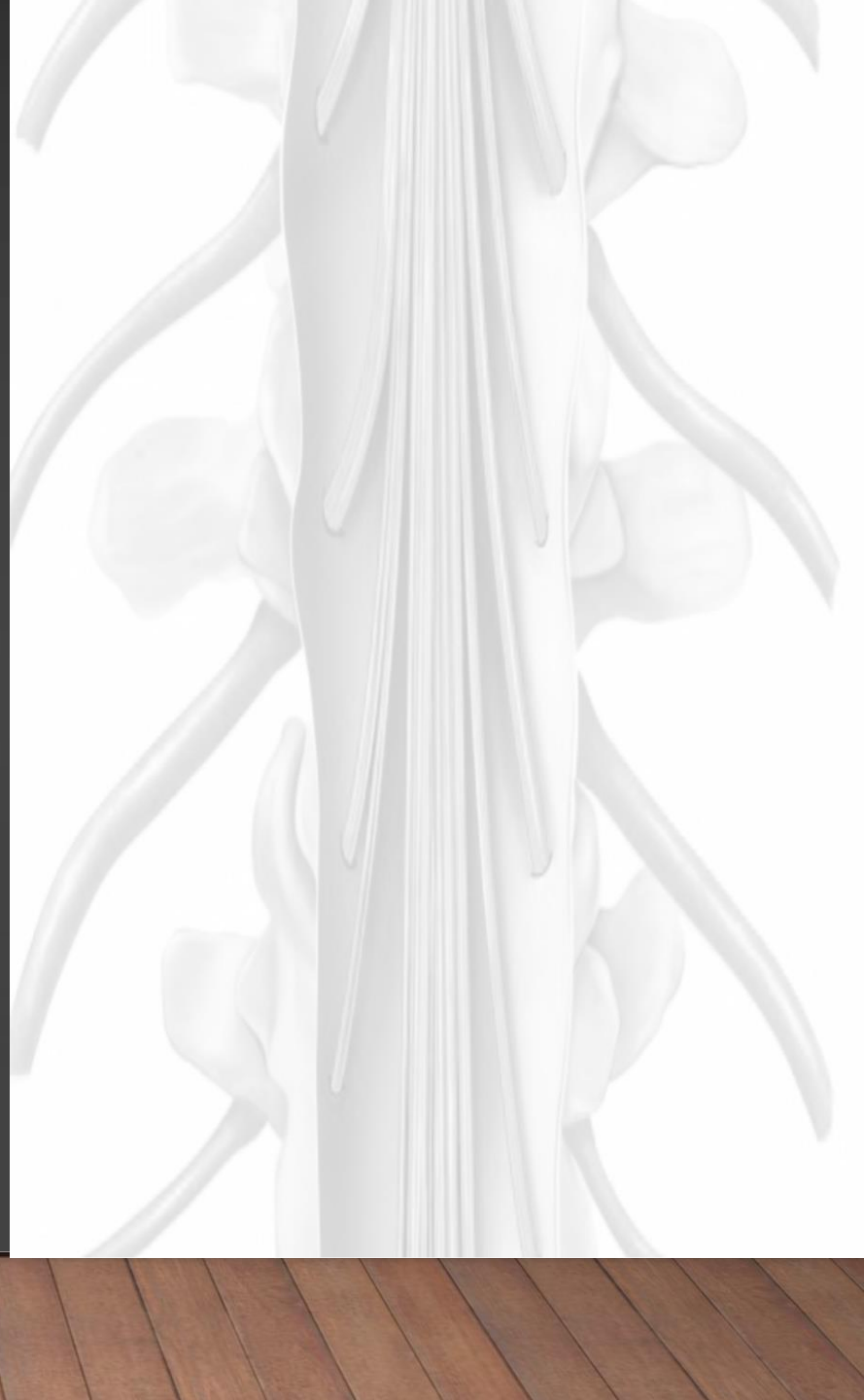


Scale of the medicolegal problem

- Average for each settlement £250000
- 2005-16 150 MDU cases
- 92% against GPs
- 70% successfully defended
- £350,000 defence costs
- £2250 to 670,000 paid to claimants
- £8 million in compensation
- £4.5 million in legal costs to claimants solicitors

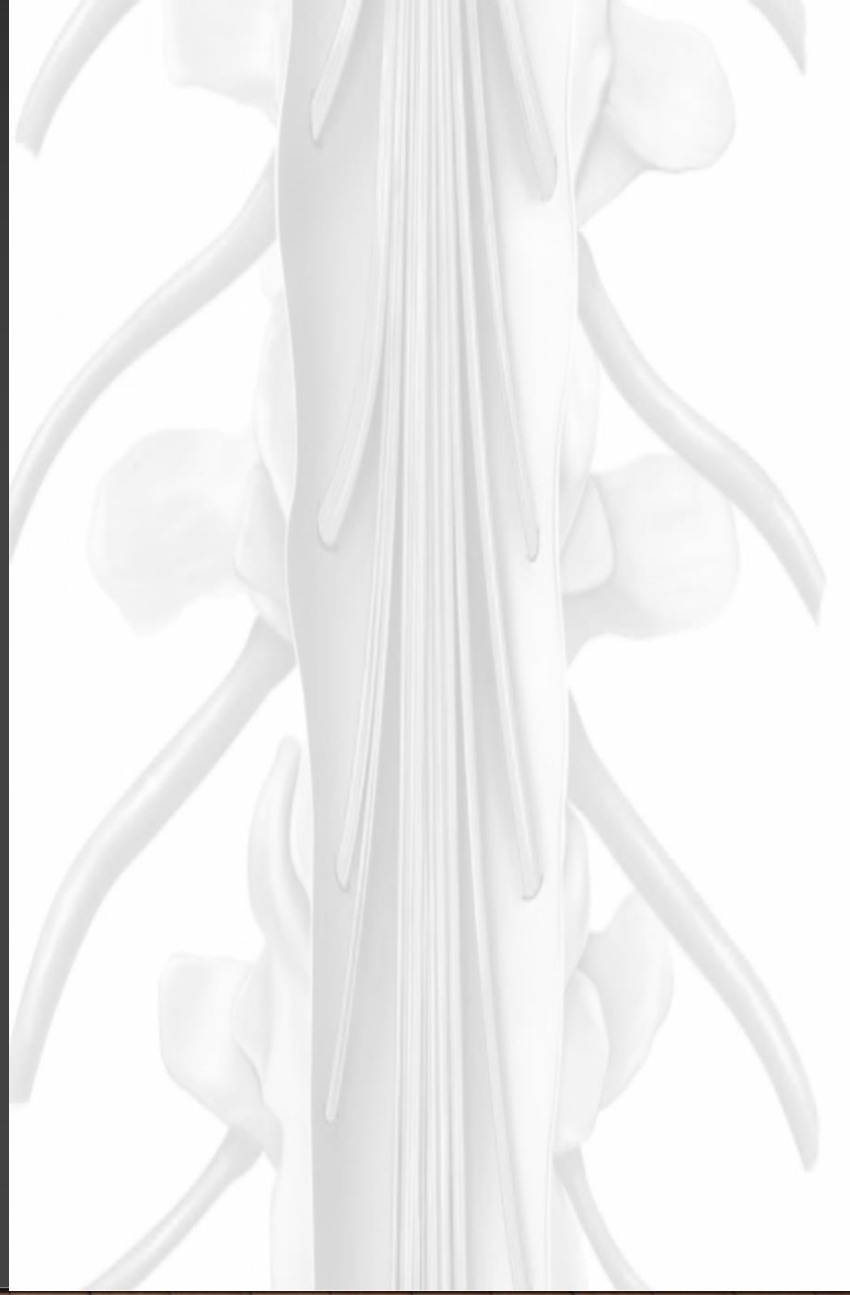
LITIGATION

- MDU 2016 (Taylor)
  - 150 claims from 2005-16
  - 92% against GPs 70% defended
  - 8 million paid out 12% of claims over 500K
- NHSLA 2016
  - 293 claims for CES 2010-15
  - 70% 31-50 y/o
  - 25 million paid out



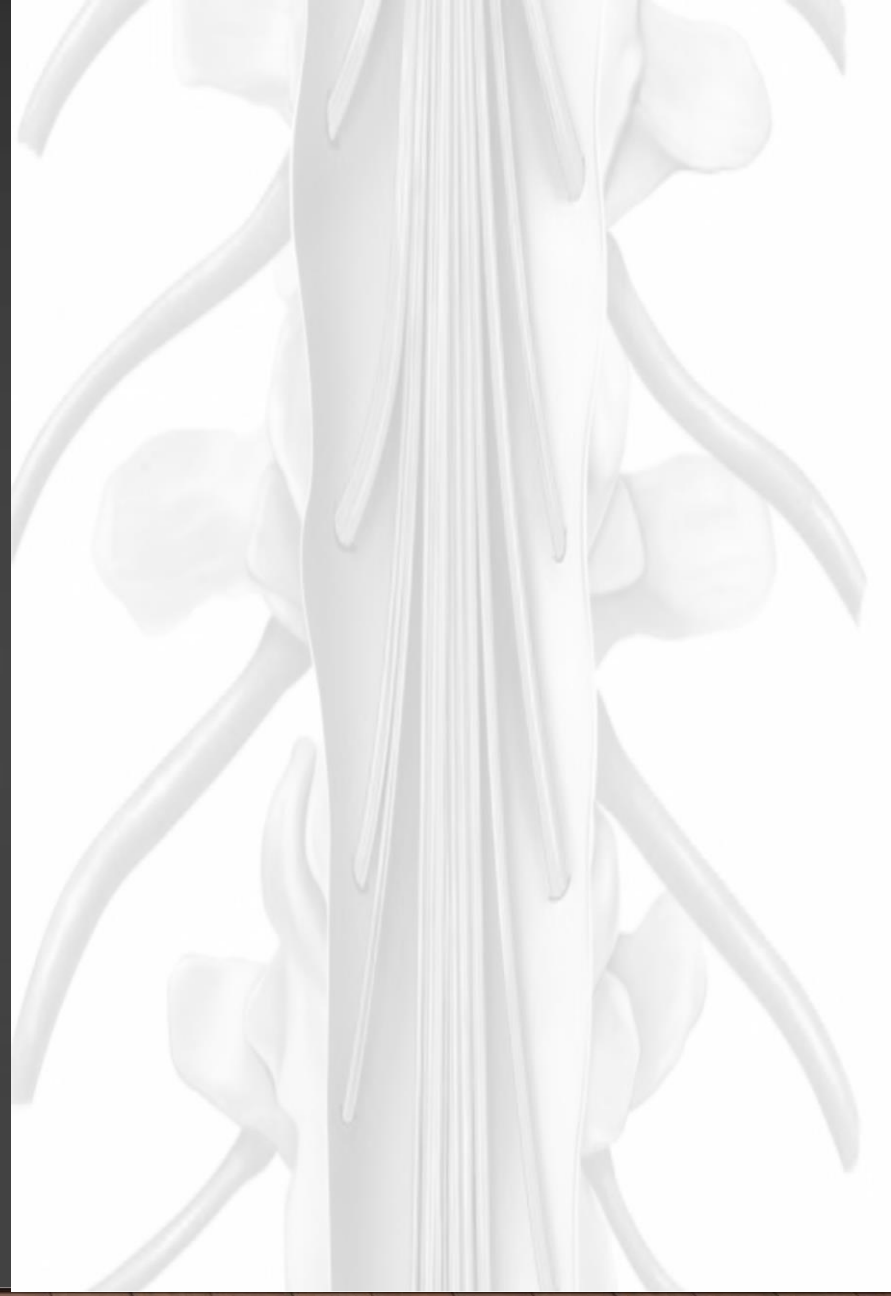
LITIGATION

- Medical Protection Society (MPS)- 2/5/18
- NICE Clinical Knowledge Summary on CES
- MPS stats 2013-2017
- 105 claims 80% primary care
- Fairbank 2014
  - 30-40 cases per year go to litigation
  - Average compensation 336,000
  - 1000 operations per annum for CES



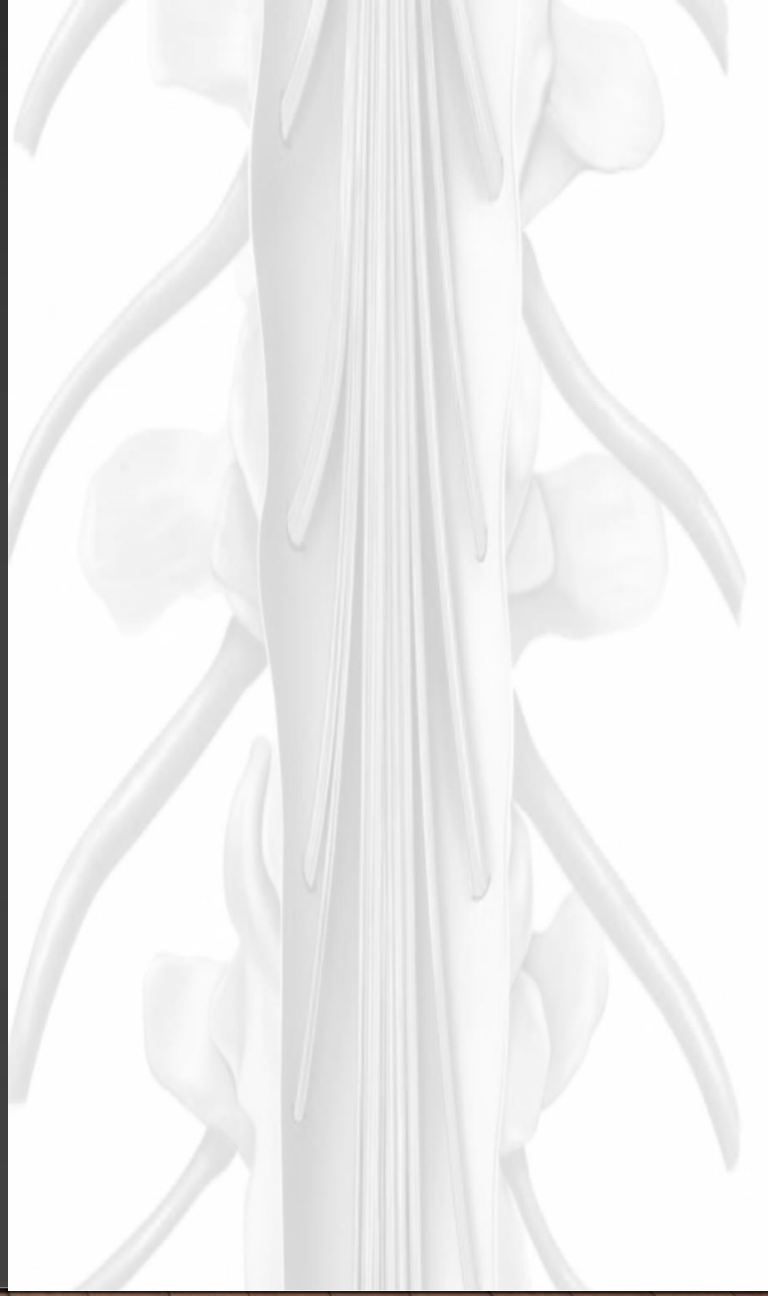
QURAISHI ET AL (2012) EUROPEAN SPINE JOURNAL

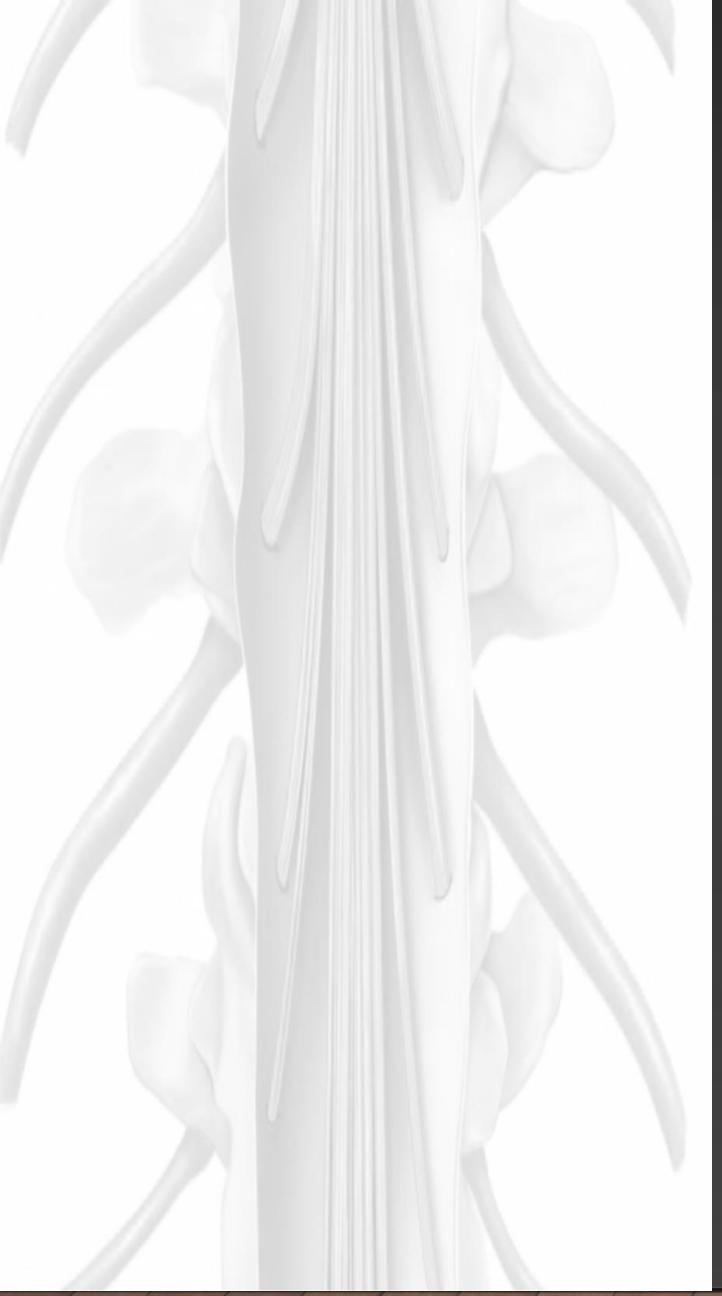
- NHSLA data for all spinal disease 2002-10
- 235 cases-144 trauma/acute
- Missed fractures 41% 75000
- Missed CES 24% 268,000
- Missed infection 12% 433,000
- Cord damage 20% 367,000



GIRFT REPORT ON SPINAL SERVICES UK FEB 2019

- 29 million spent on CES litigation
- 23% of all legal cases in spinal surgery
- Most referrals to specialist centres made out of hours (73%)
- £334K in 2014- £636K in 2018 average payout





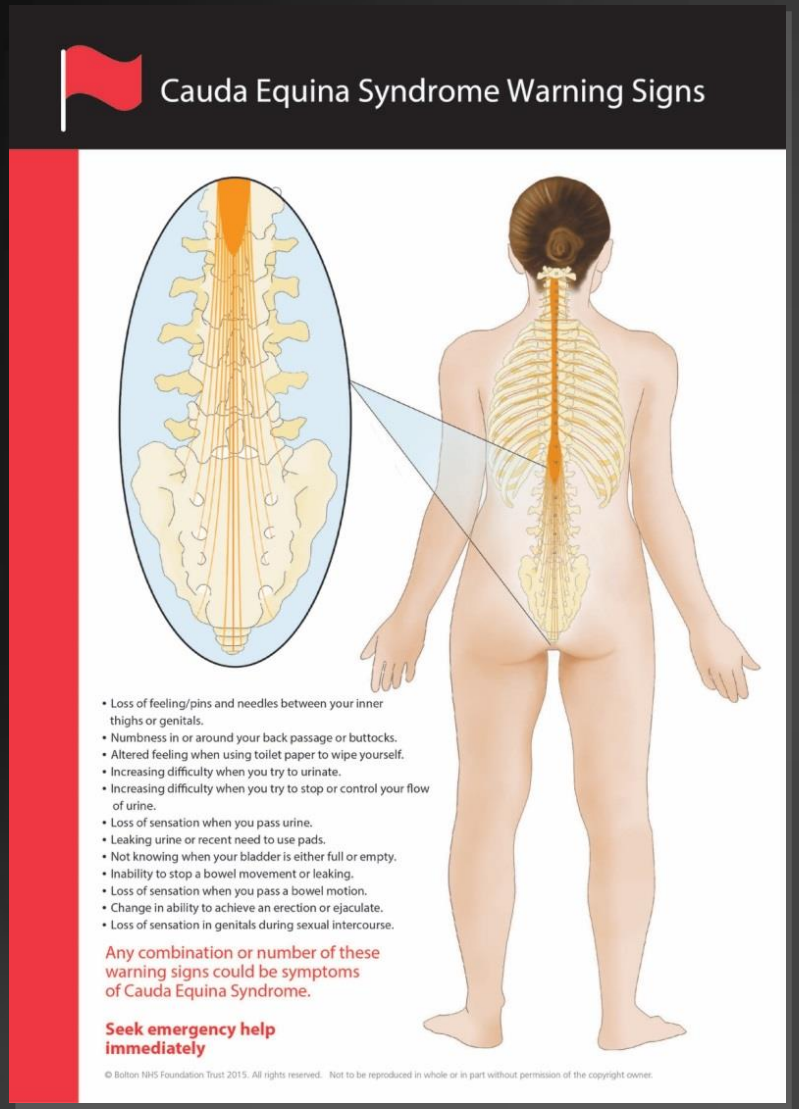
LITIGATION

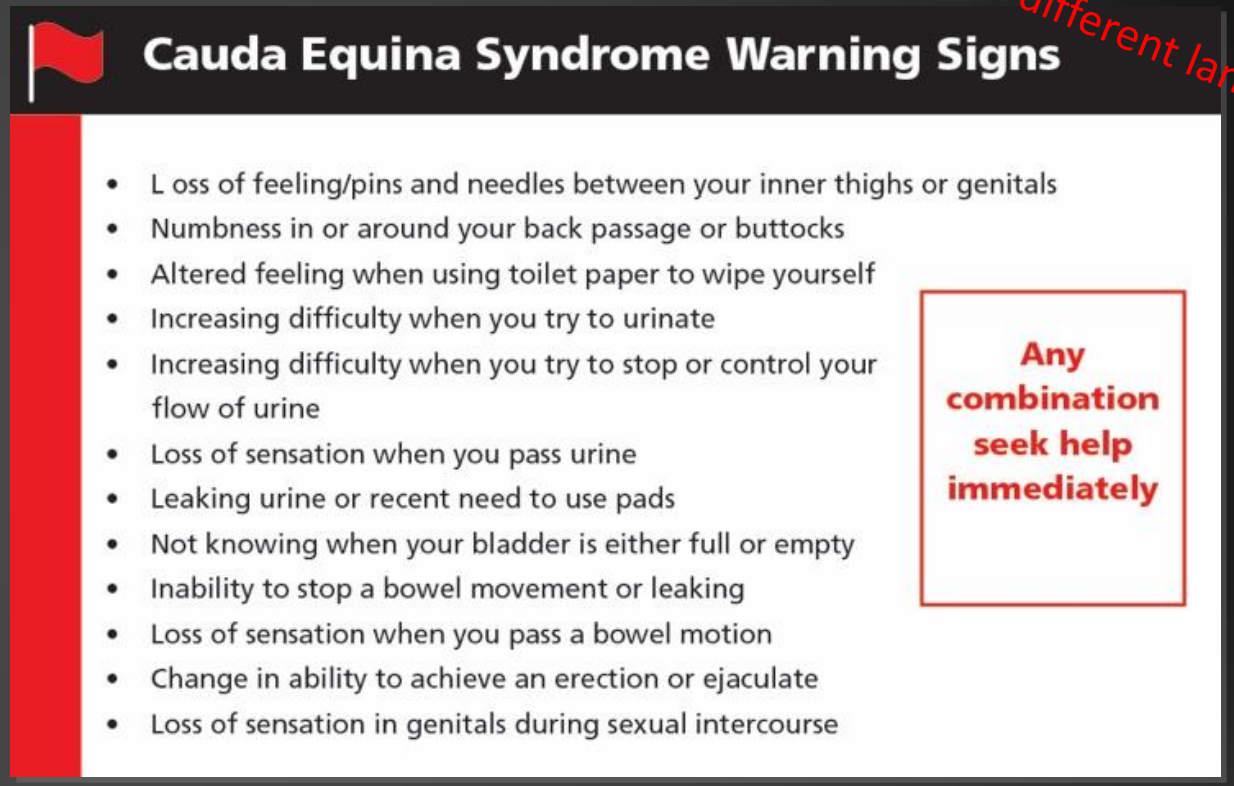
- Pts say not asked about bladder function
- Challenge clinical notes
- Timing of contacts not recorded
- Fail to examine properly, act on red flags, refer on or investigate with insufficient urgency
- No mention CES considered as differential diagnosis
- Not safety netted when at risk
- Documentation

- Record history and findings, and negative findings
- Examine carefully
- Use information cards
- Refer where clinical suspicion appropriate to existing guidelines; as an emergency if need be
- Follow up on the referral; be clear who is going to act on the result

SUGGESTIONS TO AID EARLY DIAGNOSIS

Available in 31 different languages





Safety netting is key

These CES cards have international transferability across medical professionals to safety net many non-English speaking patients and reduce the catastrophic and life changing effect that CES can have upon an individual.

Free access has been made available on the Dynamic Health and MACP website.

http://www.eoemskservice.nhs.uk/advice-and-leaflets/lower-back/cauda-equina

https://macpweb.org/home/index.php?p=548

Gleave and Macfarlane 2002

- Definition: complete (CESR) and incomplete (CESI)
- Outcome: subjective, and time dependant

- 4 studies show no benefit from early surgery (Jennett 14,Kostuik,31,Gleave 33,Stephenson 45)
- 3 studies (Shapiro44, Kennedy19, and Ahn 332) showed benefit of early surgery (48 hours)
- Literature demonstrates no benefit from early surgery for CESR

A QUALITATIVE INVESTIGATION INTO PATIENTS EXPERIENCE OF CAUDA EQUINA SYNDROME

GREENHALGH S, TRUMAN C, WEBSTER V, SELFE J (2015)
PHYSIOTHERAPY RESEARCH FOUNDATION (PRF) GRANT

Exploring patient experience of signs and symptoms associated with CES including changes in bladder, bowel and sexual function

- what symptoms patients actually suffer
- patients own reasoning of these symptoms
- the patient experience of divulging this information

7 THEMES EMERGED “JANENE’S STORY”

- Catastrophic Pain
- Impact on Life
- Common Symptoms / Varying Chronology
- Sense of change / Seriousness
- Contact with Health Professionals
- Carers Experience
- Suggestions to aid early diagnosis

Musculoskeletal Science and Practice

journal homepage: www.elsevier.com/locate/msksp

Professional issue

SHADES of grey – The challenge of 'grumbling' cauda equina symptoms in older adults with lumbar spinal stenosis

Christine Comer[a,*], Laura Finucane[b], Chris Mercer[c], Susan Greenhalgh[d]

[a] Leeds Community Healthcare NHS Trust, UK
[b] Sussex MSK Partnership, UK
[c] Western Sussex Hospitals NHS Foundation Trust, UK
[d] Oxleas Foundation Trust, UK

ARTICLE INFO

Keywords:
Lumbar spinal stenosis

ABSTRACT

Diagnosing cauda equina syndrome is challenging in older adults with lumbar spinal ste
these challenges is vital for clinicians who are faced with difficult decisions about when to r

Musculoskeletal Science and Practice 37 (2018) 69–74

Contents lists available at ScienceDirect

Musculoskeletal Science and Practice

journal homepage: www.elsevier.com/locate/msksp

Masterclass

Assessment and management of cauda equina syndrome

Sue Greenhalgh[a,*], Laura Finucane[b], Chris Mercer[c], James Selfe[d]

[a] Bolton FT, UK
[b] Sussex MSK Partnership, UK
[c] Western Sussex Hospitals NHS Foundation Trust, UK
[d] Department of Health Professions, Faculty of Health, Psychology and Social Care, Manchester Metropolitan University, UK

ARTICLE INFO

Keywords:
Cauda equina syndrome
Red flags
Masqueraders
Safety netting

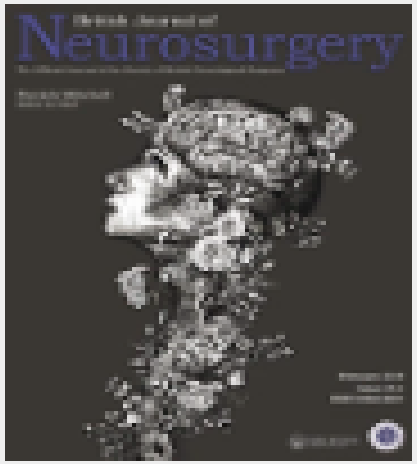
ABSTRACT

Introduction: Cauda equina syndrome (CES) is a rare condition that affects the nerves in the spine supplying the bladder, bowel and sexual function. Identification and subsequent urgent action is required to avoid permanent damage to these essential organs. Delays in diagnosis can have devastating and life changing consequences for patients and result in high cost negligence claims.

Purpose: The purpose of this masterclass is to examine the current evidence and provide an evidence-based, clinically reasoned approach in the safe management of patients presenting with CES. It will include a focus on the importance of communication, documentation and a practical approach to safety netting those at risk.

Implications for practice: CES has significant implications for patients and clinicians alike. Timely, effective diagnosis and management of patients with CES results in a better outcome.

DEC 12TH CONSENSUS STUDY DAY



Journal

British Journal of Neurosurgery ›

Volume 32, 2018 - Issue 3

Rectangular Snip

Submit an article

Journal homepage

Original Article

Quantifying the clinical aspects of the cauda equina syndrome – The Cauda Scale (TCS)

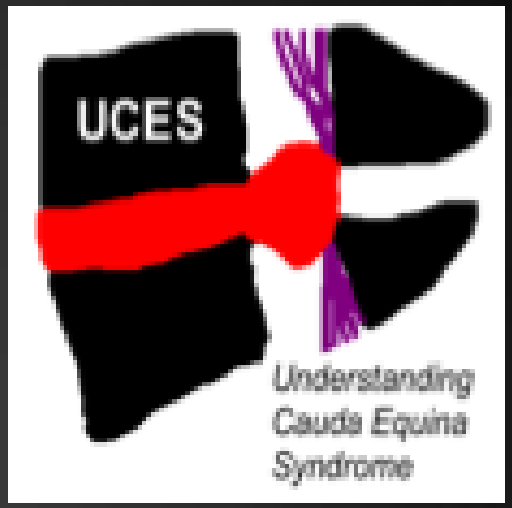
Nicholas V. Todd

Pages 260-263 | Received 16 Feb 2017, Accepted 13 Feb 2018, Published online: 08 Mar 2018

THE CAUDA SCALE

- Scale based on 3 aspects of examination:
- Bladder
- Sensation
- Anal tone
- Scored out of 9- 3 for each. 9 normal

UNDERSTANDING CAUDA EQUINA SYNDROME STUDY



- Prospective observational cohort study
- Identification during emergency admission
- Trainee data collection to describe clinical presentation, investigation & treatment
- Outcome measures by email questionnaire at 6 and 12 months

ENTICE

Evaluation of National Treatment and investigation of cauda equina syndrome

Daniel Fountain, Ellie Edlmann, Simon Davies, Aimun Jamjoom, Julie Woodfield, Mohammed Kamel, Paulina Majewska, Ingrid Hoeritzauer, Patrick Statham, Andreas Demetriades ENTICE Collaborators

- Patients suspected of CES should undergo an emergency MRI by the receiving hospital prior to referral to spinal unit.

BUT

- > 50% referred without imaging
- 63% of referrals were made out of hours
- 16% underwent decompression

ENTICE FINDINGS

- Most patients were referred out-of-hours and many were transferred for an MRI without subsequently requiring surgery. Adherence to guidelines would reduce the number of referrals to spinal services by 72% and reduce the number of patient transfers by 79%

BUT

- Those scanned prior to referral experienced longer delays from MRI to decompression

An evidence informed clinical reasoning framework for clinicians in the face of serious pathology in the spine

Finucane, Selfe , Mercer, Greenhalgh, Downie, Pool, Boissonault, Beniuck, Leech

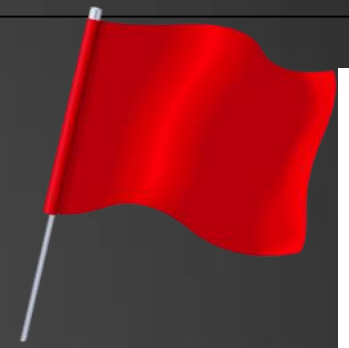
Phase 1-Systematic reviews
CES, malignancy, #, Infection

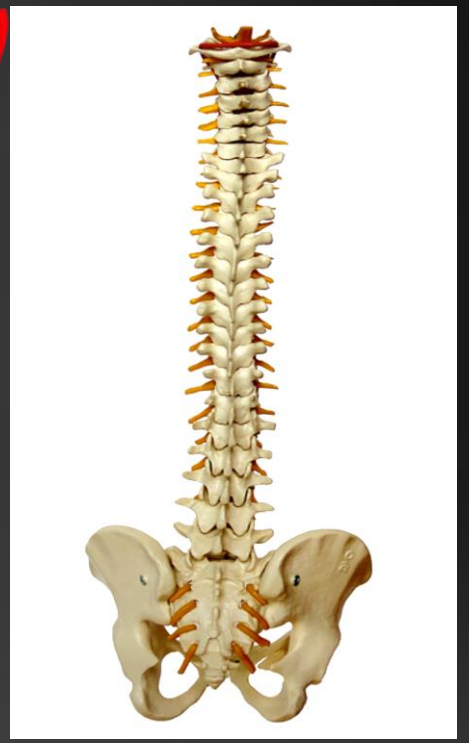
Phase 2
Consensus stage

Phase 3
drafting of framework

Phase 4
Expert Review

Phase 5
FRAMEWORK DEVELOPMENT

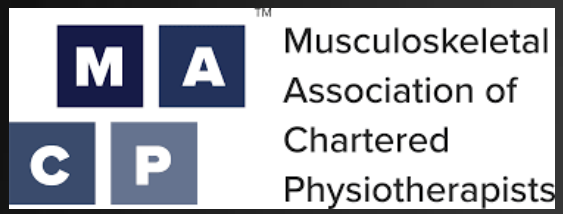





ppef
HELPING PHYSIOTHERAPY MAKE A DIFFERENCE


Sussex MSK Partnership
NHS
Central

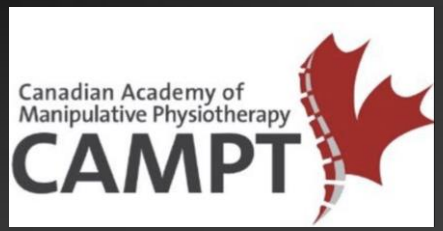

Manchester
Metropolitan
University


M A
C P
Musculoskeletal
Association of
Chartered
Physiotherapists


IFOMPT
The Global Leader
in OMPT Excellence


NHS
Western Sussex Hospitals
NHS Foundation Trust


CHARTERED
SOCIETY
OF
PHYSIOTHERAPY


Canadian Academy of
Manipulative Physiotherapy
CAMPT


svomp
Schweizerischer Verband Orthopädischer Manipulativer Physiotherapie
Association Suisse de Physiothérapie Manipulative Orthopédique
Associazione Svizzera di Fisioterapia Manipolativa Ortopedica


NHS
Bolton
NHS Foundation Trust

THANKYOU

www.csp.org.uk/ces