

Cauda Equina Syndrome

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Cauda Equina Syndrome

What is it?

How it will (likely) present?

Classifications

Our role

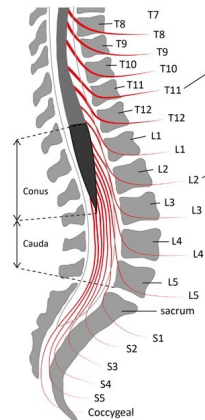
When to act

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CES – What is it?

Cauda Equina contains all the nerves supplying the bladder, bowel, sexual organs, 'saddle area' and legs
Cauda Equina "Syndrome" results from injury to one or more of these nerves which stops the bladder, bowel and sexual organs from working

CES is considered a potential emergency within spinal surgery
(Fraser et al, 2009)



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CES – What is it?

Commonest cause - massive central lumbar herniation compressing roots of CE in lower spinal canal
L4-5 (57%), L5-S1 (30%), L3-4(13%)

Degenerative stenosis much less common cause



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CES – What is it?

This compression leads to loss of function of one or more of the nerve roots S2 and below which comprise the cauda equina (Lavy et al. 2022)

CE nerve roots are vulnerable, and pressure from compression reduces their blood supply and compromises function

Nerve roots show mild demyelination after mild cauda equina compression

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graph TD
    Start(( )) --> Triage{Triage}
    Triage --> Recent[Recent <2/52 onset CES Sx]
    Triage --> Sudden[Sudden onset B radicular P or unilateral radicular leg P -> B w/o CES Sx or Onset of CES Sx >2/52]
    Recent --> Emergency[Emergency referral to hospital]
    Emergency --> Secondary1[Secondary Care]
    Sudden --> Urgent[Urgent referral to MSK triage]
    Urgent --> Triage2{Triage pt for CES Sx}
    Triage2 --> Deteriorating[Deteriorating or new CES Sx]
    Deteriorating --> Emergency
    Triage2 --> NoNew[No new CES Sx]
    NoNew --> Pathway[Pathway for Decompression or Discectomy]
    Secondary1 --> Secondary2[Secondary Care no CE compression visible]
    Secondary2 --> Urgent
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National Suspected Cauda Equina Syndrome Pathway
Primary and Community Care Presentation

Recent (<2/52) onset CES Sx → **Emergency referral to hospital** → **Secondary Care**

Sudden onset (B) radicular (P) or unilateral radicular leg (P) → (B) w/o CES Sx or Onset of CES Sx >2/52 → **Urgent referral to MSK triage**

Urgent referral to MSK triage → **Triage pt for CES Sx**

Triage pt for CES Sx → **Deteriorating or new CES Sx** → **Emergency referral to hospital**

Triage pt for CES Sx → **No new CES Sx** → **Pathway for Decompression or Discectomy**

Secondary Care (no CE compression visible) → **Urgent referral to MSK triage**

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CES – GIRFT?

Emphasis on making good decisions and taking correct action early

Primary & Community Care Presentation

- Presentation in Primary & Community Care
- Triage assessment of patient and symptoms*
- Sudden onset bilateral radicular pain or unilateral radicular leg pain that has progressed to bilateral without CES symptoms or
- Onset of CES symptoms >2 weeks
- Refer as an Emergency to nearest hospital with Emergency MRI provision†
- Urgent referral to CES triage service**
- Declining / New CES symptoms since referral
- Triage patient for CES symptoms
- State / No new CES symptoms
- Follow pathway for Posterior Lumbar Decompression / Discectomy (L2/3)
- Acquisition / urgency of MRI is at clinician's discretion

Hospital Presentation & Diagnosis

- Presentation in secondary care†
- Triage assessment of patient and symptoms
- Patient has onset (>2 weeks) onset of CES symptoms
- Perform bladder scan
- Emergency MRI as soon as possible, and certainty within 4hrs if required
- Outcome of imaging reviewed
- No cauda equine compression but neurone compression to explain radicular pain localised
- No cause for symptoms found
- Cauda Equina compression confirmed

Surgery

- Keep patient nil by mouth
- Immediate emergency referral to spinal surgical services
- If transfer required: arrange blue-light Category 2 ambulance transfer
- Assessment and documentation by surgical team
- Consent
- Register patient on British Spine Registry
- Catheterisation prior to surgery (if not catheterised)
- Surgery performed as an emergency CES sits between NICEPOD levels 1 and 2. It is time-sensitive and life-changing, but not re-thesing

Post-Operative Care

- TWOC post-operatively (as soon as possible) and obtain pre/post void bladder scan
- Patient mobilised (usually day 1) following surgery
- Information booklet provided during inpatient stay
- Surgical, medical and physiotherapy assessments made
- Spinal brachial plexus block if required
- Assess requirements for ongoing support with pain, psychology, sexual health, bladder & bowel health
- 6-8 week post-surgical face-to-face outpatient review
- Re-assess requirements for ongoing support with pain, psychology, sexual health, bladder & bowel health
- Are ongoing symptoms present?
- No
- Yes
- PHU for 6 months
- Refer to Spinal Cord Injury Team in Urology Team
- Signpost to patient support groups
- Consider alternative diagnoses
- Consider referral to other specialists

*Consider Same Day Emergency Care model run outside the ED

Further reading and resources:

- Access: Search engines
- BACS CES toolset
- Cauda equina charities charity
- Multidisciplinary Association of Spinal Cord Injured Professionals
- NICEPOD Classification of Intervention
- NICE NG180
- NICE NG189
- NICE NG190
- NICE NG191
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CES – How will it present?

Symptoms are new and are deteriorating (<2weeks)

Development often takes a familiar pattern which you might encounter at any point along the pathway

- initially presents as low back pain
- then sudden severe sciatica
- sciatica often bilateral but not necessarily so
- may have associated weakness
- severe and sharp nerve pain

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CES – How will it present?

- patient then notices difficulty initiating peeing
- then notices less frequency and 'some numbness in saddle area'
 - May then start to notice episodes of incontinence

Can be a variation on this timeline so important to ask questions

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CES – Classification

- Suspected CES (CESS)
- Early CES (CESE)
- Incomplete CES (CESI)
- CES with retention (CESR)
- Complete CES (CESC)

- Lavy et al. 2021

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CES – Classification

Suspected CES (CESS)

- no BBSA sx, but bilateral sciatica or motor/sensory loss in legs
- Or
- known large disc herniation on MRI

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CES – Classification

Early CES (CESE)

- normal bladder, bowel and sexual function but some sensory loss in perineum or change in micturition

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CES – Classification

Incomplete CES (CESI)

- alteration in urinary sensation but maintained executive bladder control
- +/- perineal sensory changes, bowel or sexual sensation or function

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CES – Classification

CES with retention (CESR)

- As with CESI but with painless bladder retention and overflow

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CES – Classification

Complete CES (CESC)

- Insensate bladder, overflow incontinence, loss of perineal, anal or sexual sensation
- loss of anal tone

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CES – Our role....

Careful questioning and case history is essential

- Don't be afraid to ask awkward questions
- Use simple language
- Avoid leading questions

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CES – Our role....

Bladder

- “Have you noticed changes in your ability to go for a wee?”
 - “Can you feel when your bladder is full?”
 - “When you wee, does it feel normal?”
 - “Is the stream normal for you?”
-
- Be aware of other factors that may impact e.g. meds, prostate, UTI

Bowels

- “Have you noticed any changes in your ability to have a poo?”
 - “Do you get an urge to go?”
 - “When you do, does it feel normal?”
 - “Can you push properly?”
-
- Constipation vs CE – full uncomfortable with urge to push vs no urge

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CES – Our role....

Saddle anaesthesia

- Clarify where you are referring to
- Genitals, anus, perineum, cheeks, inner thighs
- “Have you noticed a change in your ability to feel touch between your legs?”

Sexual Dysfunction

- “If you are sexually active, have you noticed any changes in your ability to have sex which are not related to pain?”
- “Does it feel normal?”
- “Are you able to climax?”

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CES – Taking Action

Take time to consider your decision – don’t rush

Organise your thoughts

Talk to a colleague/on-call spinal fellow

Focus on the decision and not the outcome

Accept the uncertainty of the decision

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CES – Taking Action

Referring to A&E

Explain why and how to your patient

Call ahead to on-call surgeon

Write a hand-over letter (clear and direct)

Follow up call to patient

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CES – Taking Action

Not Referring to A&E

Explain why to your patient

Safety netting – reassure, information, literature

DOCUMENT!!