The New Suspected Cauda Equina Syndrome (CES) Pathway – GP Study Day 2017

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Cauda Equina Syndrome (CES)

- The cauda equina: nerve roots caudal to the level of spinal cord termination.
- CES: loss of function of nerve roots below conus medullaris
- Clinical diagnosis of CES is not easy!

Clinical Signs and Red Flags for Cauda Equina Syndrome

**History**
- Back pain with uni / bilateral sciatica
- Lower limb weakness
- Altered perianal sensation
- Faecal incontinence
- Acute urinary retention / incontinence

**Examination**
- Limb weakness
- Other neurological deficit / gait disturbance
- Hyper-reflexia, clonus, up-going plantars
- Urine retention
- DRE: Saddle anaesthesia
- DRE: Loss of anal tone

National Pathway of Care for Low Back and Radicular Pain
Society of British Neurological Surgeons 2014
Why is CES Important?

• CES is a neurosurgical (NS) emergency.
• CXH is a tertiary NS referral centre.
• The prevalence: 1-3 per 100,000 population.
• Accounts for approximately 0.04% of all patients presenting with low back pain.
• Rare but potentially disabling.
• Early diagnosis and surgical decompression crucial for a favorable outcome.
• Missed CES diagnosis often results in litigation!
SBNS Recommendations for Standards of Care

• All cases of suspected CES should be assessed promptly in ED with ortho/NS advice.
• ED should have an agreed protocol with their local spinal service for assessment, referral and imaging.
• MRI is the preferred imaging modality with a low threshold for prompt scanning
• Access to 24 hour MRI scanning
• Proven CES: Nothing is gained by delaying surgery and potentially much to be lost!
Sagittal MRI images demonstrating large central disc extrusion at L5-S1 (arrows) with compression on the cauda equina.

Challenges in Primary Care

• Clinical diagnosis of CES is challenging
• Back Pain a common presentation
• Exclude red flags in vague historians
• Opiate analgesia confound bowel symptoms
• <10mins for complete neuro assessment!
• Difficulty getting neurosurgical advice
• Managing patient expectations
Current Practice in ED

- Back Pain ?CES is a common presentation
- Several challenges for ED, NS & Radiology
- Long wait for NS review
- MRI can only requested by NS Team
- Long wait for scan
- These patients often breach in ED
- No out of hours MRIs at St. Mary’s Hospital
- No formal trust wide pathway
Objectives

• To evaluate current practice for referrals for NS review & MRI in patients with suspected CES.

• Evaluate if there evidence to suggest that senior ED doctors [consultants & registrars] should be able to request out of hours MRI

• Create a trust wide suspected CES pathway
Methodology

• Retrospective case note analysis of all patients [N=668] presenting ED with back pain:
  ▪ CXH [N=393]
  ▪ SMH [N=275]
• 3-month period [15 June – 15 Sept 2016]
Data Summary: All Patients

**CXH**
- N= 393
- Age 49.5 ± 18.5
- Referred to NS: 49 [12.5%]
- IP MRI: N=41 [10.4%]
- OP MRI: N=6 [1.5%]
- Delayed IP MRI: N=2 [0.5%]
- No MRI: N=344 [87.5%]

**SMH**
- N= 275
- Age 45.4 ± 17.5
- Referred to NS: 15 [5.5%]
- IP MRI: N=12 [4.4%]
- OP MRI: N=3 [1.1%]
- Delayed IP MRI: N=0
- No MRI: N=344 [94.5%]
CXH: IP MRI Data [N=41]

- Mode of referral
  - Self: 63.4%
  - Hospital transfer: 26.8%
  - GP: 9.8%
- Out of hours attendance: 51.2% [24.4% W/E]
- Specialty assessment:
  - ED: 68.3%
  - Direct NS: 24.4% & Direct Onc MSCC: 7.3%
- Previous NS Hx: 73.2%
CXH: IP MRI Data [N=41]

- Presenting complaint: Pain +
  - Weakness: 51.2%
  - Sensory deficit: 61%
  - Saddle anaesthesia: 39%
  - Urinary dysfunction: 63.4%
  - Bowel dysfunction: 36.6%

- Objective neurological deficits:
  - Weakness: 53.7%
  - Sensory deficit: 58.5%
  - Reduced perianal sensation: 51.2%
  - Reduced anal tone: 26.8%
CXH: IP MRI Breakdown

- OOH: 78%
- Ordered by:
  - NS: 58.5%
  - ED with NS discussion: 36.6%
  - Onc: 4.9%

Attendance to MRI Result - 8.09 Hours

- Time to Request: 46.2%
- Request to Scan: 36.1%
- Scan to Report: 17.7%
CXH: Time in ED [Mins]

No MRI (n=344) - 225.9 Mins
MRI (n=41) - 332 Mins
CXH: Percentage Breached

No MRI (n=344) 19.2%
MRI (n=41) 58.5%
CXH: IP MRI Outcome

- Admitted: 65.9%
  - NS: 24.4%
  - CDU: 22%
  - Onc: 7.3%
  - AEC: 4.9%
  - Medicine: 7.3%
- CES on MRI: 14.6%
- NS Intervention: 24.4%
  - Emergency surgery: 12.2%
  - Refused: 2.4%
  - Palliation: 2.4%
  - Elective: 4.9%
  - Injection: 2.4%
- Total Hospital stay: 3.7 days
CXH: ED vs. NS Agreement

- ED Assessment by SHO: 84.6%
- Neuro Exam: 80.8% Agreement
  - Signs suggestive of CES: 7.7%
  - Signs against CES: 11.5%
  - Change in management: 3.8%
- ?CES as Diagnosis: 84.6% Agreement
  - Change in management: 11.5%
  - No MRI: 3.8%
  - Verdict of 4 disagreements:
    - 3 NS correct
    - 1 ED SHO correct
Conclusions

• Delays in requesting & arranging MRI
• Long wait from door to MRI report
• NS assessment not always before MRI
• MRI results in longer time in ED
• MRI leads to greater number of breaches
• Good agreement between ED and NS assessment
Recommendations

• Need for Trust wide CES Pathway
• Need for OOH MRI at SMH [avoid delays due to transfers]
• ED Senior should be able to request MRI to reduce delays.
Ideal Primary Care Referral

• Comprehensive history & examination
• Change in symptoms
• Key red flags

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Questions?
Thank You