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in conjunction with the
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for Family Physicians

Tuesday, December 6, 2011
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Cervical Spondylotic Myelopathy

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Disclosures

- I have nothing to disclose

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Objectives

- At the end of this talk the participant will be able to:
- Define cervical myelopathy
- Name etiologic factors
- Describe the natural history
- Name the components of the clinical evaluation

Myelopathy

- Symptomatic spinal cord dysfunction due to a decrease in the spinal canal diameter
- Associated with a constellation of signs and symptoms
- Generally a “cervical” and “degenerative” condition

Etiologies of Myelopathy

- Degenerative spondylotic disease
  - Disc/osteophytes complex
  - Facet hypertrophy
  - Thickened ligamentum flavum
  - Deformity – kyphosis
  - Subluxation/ spondylolisthesis
- OPLL (Ossified posterior longitudinal ligament)
- Trauma, tumor, syringomyelia, other
- Congenital spinal stenosis

Natural History

- The course of CSM is mixed and variable
  - Generally a slow stepwise deterioration (Class III)
  - Long periods of quiescence are not uncommon (Class III)
  - Acute deteriorations are less common
- Longstanding stenosis can be associated with demyelination and potential irreversible deficit (Class III)

Natural History

- The onset of symptoms may be acute or insidious
  - Depending on the spinal cord's ability to adapt to compression
- Longstanding stenosis can be associated with impressive radiographic findings without neurology
  - Acute deterioration in such cases can occur following trivial injuries

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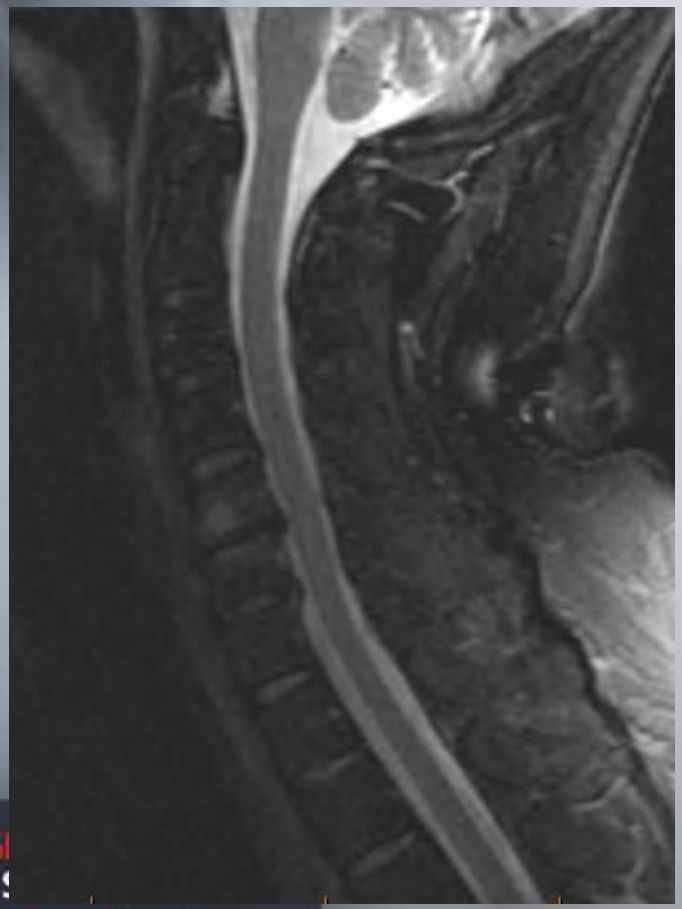
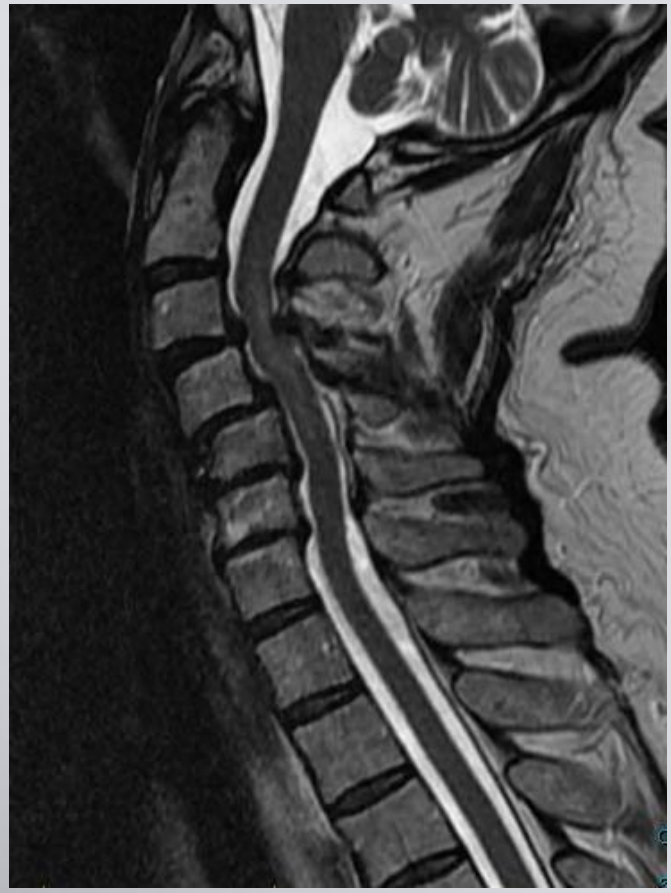
Natural History

52 y.o. man whiplash accident 10y follow-up

Presented acutely with CCS following a fall





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Evaluation

- Clinical Findings:
  - Gait instability and loss of balance
  - Inability to manipulate small objects
    - Loss of hand dexterity
    - Handwriting, buttons, eating, recognizing coins
  - Numbness
    - None-dermatomal
  - Weakness
  - Bowel and bladder dysfunction

Evaluation

- Sensory “Level”
  - Last normal level of sensation
  - Generally approximates the level of compression

- Long-Tract Findings
  - Occur below the level of compression

Evaluation

- Long-Tract Findings:
  - Hyperreflexia in the UL and/or LL
    - spasticity
  - Weakness in multiple myotomes
  - Sensory loss
    - Light touch, vibration, proprioception, sharp/dull, pain
  - Specific Signs:
    - Clonus, Babinski, Hoffman's, Romberg, L'Hermitte's

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Algorithm for Cervical Myelopathy

Mohan Radhakrishna MD, FRCPC

Jean Ouellet, MD, FRCSC, Peter Jarzem MD, FRCSC, Jeff Golan MD, FRCSC

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Objectives

- To develop an organized approach to cervical myelopathy

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Disclaimer: Red Flag Conditions

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Red Flag conditions

- Trauma
- Tumor
- Infection
- Severe loss of function: Rapidly progressive deterioration, loss of gait, loss of use of hands, loss of bowel, bladder function and eventually loss of respiratory function are all late manifestations of severe spinal cord compromise

Symptoms and Signs

Symptoms

- Upper extremities
  - Numb, clumsy fingers
  - Decreased dexterity of hands
  - Difficulty with buttons, hand writing
  - Loss of strength, wasting of hand muscles
- Lower extremities
  - Numbness, clumsy gait, falls
  - Weakness

Signs

- Hyperreflexia, increased tone , spread of reflexes
- Positive Hoffman, acromion reflex, Babinski
- Decreased rapid alternating movements
- Decreased fine motor (finger nose)
- Poor tandem gait
- Scissor (crouched) gait
- Diminished sensation
- Decreased power (prox>dist)

How do you diagnose cervical myelopathy?

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Literature Review

- Search for physical exam and cervical myelopathy.

- Found 500 abstracts.
- Parsed to 36 papers
- Downs and Black on these 36 papers

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What physical maneuver has the highest sensitivity for detecting cervical myelopathy?

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SPINE Volume 34, Number 9, pp 890–895

Prevalence of Physical Signs in Cervical Myelopathy

A Prospective, Controlled Study

John M. Rhee, MD,* John A. Heflin, MD, Takahiko Hamasaki, MD, and Brett Freedman, MD

- Myelopathic signs more common in true cervical myelopathy group but..
- High prevalence in neck pain only group

	CM n = 39	Control n = 37	*P**
Any (≥1) myelopathic sign	79%	57%	0.05†
Any (≥1) provocative sign	69%	32%	0.003†
Hoffmann	59%	16%	0.0001†
IBR	51%	19%	0.004†
Babinski	13%	0%	0.05†
Clonus	13%	0%	0.05†
Any (≥1) hyperreflexia	72%	57%	0.2

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What historical feature is most sensitive for cervical myelopathy?

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- Loss of manual dexterity
- Concomitant cervical radiculopathy often present
- Gait unsteadiness
- Loss of balance

Level affected

- Both arms and legs, cervical--MRI cervical spine
- Legs only, low cervical, thoracic

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A good neurologic exam

- Begins in the waiting room
- Includes functional tasks e.g. crouching, repetitive hand opening
- Is comprehensive: motor, sensory, reflex
- Is reliable

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When cervical myelopathy is suspected in the office…

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Imaging

- MRI imaging should be obtained quickly in patients with suspected myelopathy.
- If the MRI is normal, the patient can be managed conservatively but consider work-up/referral for other diagnoses

Cervical Myelopathy

Status	Action	Referral Time
Ambulatory Patient , Non-progressive myelopathy	Investigate Refer to surgeon	High priority
Ambulatory Patient, progressive myelopathy	Investigate Refer to surgeon	Urgent (weeks)
Non-Ambulatory Patient, rapidly progressive myelopathy	Refer to surgeon for urgent transfer	Immediate, emergent, referral

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Management (non-emergent)

- Educate patient: Risky activities

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Pain Management

- Neck pain variable present with cervical myelopathy.

- Manage similarly to McGill Low Back Pain algorithm.

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Therapy

Physiotherapy

Occupational Therapy

MRI findings

- Variable terminology used by radiologists

- Some words to look out for: severe central stenosis, cord effacement, spinal cord deformity, spinal cord signal change

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Summary

- Cervical myelopathy is not easy to diagnose
- No one symptom, sign correlates perfectly.

http://www.mcgill.ca/spineprogram/