

Lower Back Pain: Multiple Disciplines for Optimal Outcomes: Surgeon's Perspective

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Disclosures

- None

To recap...

- The first step with an acute LBP patient is to perform a focused history and physical examination.
- 3 categories:
 - Potentially serious conditions / red flags present
 - Symptoms suggesting radiculopathy that may indicate spinal stenosis or herniated disc
 - Non-specific low back pain

Physical exam

- [J Clin Rheumatol](https://doi.org/10.1097/RHU.0b013e31816b2f99). 2008 Apr;14(2):87-91. doi: 10.1097/RHU.0b013e31816b2f99.
- **The sensitivity and specificity of the Slump and the Straight Leg Raising tests in patients with lumbar disc herniation.**
- The Slump test was found to be more sensitive (0.84) than the SLR (0.52) in the patients with lumbar disc herniations. However, the SLR was found to be a slightly more specific test (0.89) than the Slump test (0.83).

Red Flag Conditions

- Cancer
- Vertebral infection
- Cauda equina syndrome
- Vertebral compression fracture
- Severe progressive neurological deficits
- Ankylosing spondylitis

Could it be malingering?

TEST	SYMPTOMS	DESCRIPTION	EVIDENCE/OUTCOMES	SOR
McBride's	Back pain with radicular symptoms	Stand on one leg. Flex symptomatic leg and raise to chest. Refusal or pain = nonorganic	No published studies	C (expert opinion)
Mankopf's	Back pain	1700 g pressure applied to the middle phalanx of the second finger of the nondominant hand. True pain should increase heart rate.	Did not correlate with organic pain	C (small inconclusive diagnostic case-control study)
Waddell's	Back pain	Positive signs from 3 or more categories (TABLE 2)	Cannot discriminate organic from nonorganic	C (from SR)
		Associated with poorer treatment outcomes		C (from SR)
		Not associated with secondary gain		B (from SR)
Hoover's	Leg paresis	Cup heels and have patient press down with paretic limb. Then have patient raise opposite limb. True paresis if no difference in downward pressure at heels	Indicates nonorganic paresis	C (extrapolated from small diagnostic case-control study using strain gauge)
Abductor	Leg paresis	Ask patient to abduct paretic leg to resistance. In true paresis, opposite leg should abduct.	Indicates nonorganic causes	C (small, lower-quality case-control study)

Source: Greer and Mackler, VOL 54, NO 8 / AUGUST 2005 THE JOURNAL OF FAMILY PRACTICE

Waddell's test: controversial

Waddell's signs	
CATEGORY	SIGNS
Tenderness	<i>Superficial:</i> light pinching causing pain = positive <i>Nonanatomic:</i> deep tenderness over a wide area = positive
Simulation	<i>Axial loading:</i> downward pressure on the head causing low back pain = positive <i>Rotation:</i> Examiner holds shoulders and hips in same plane and rotates patient. Pain = positive
Distraction	Straight leg raise causes pain when formally tested, but straightening the leg with hip flexed ninety degrees to check Babinski does not
Regional	<i>Weakness:</i> multiple muscles not enervated by the same root <i>Sensation:</i> glove and stocking loss of sensation.
Overreaction	Excessive show of emotion



Probably not a culturally sensitive criterion!

Source: Greer and Mackler, VOL 54, NO 8 / AUGUST 2005 THE JOURNAL OF FAMILY PRACTICE

Typical scenario

35 year old man injures himself (not work-related) lifting a heavy object over the weekend

Presents to PCP with severe low back pain

Neurological examination is normal

No signs of nerve root irritation

Prescribed NSAIDs and limited amount of opioid

What is the next step?

Treatment options

- A) Bedrest x 2 weeks
- B) Follow up in 4 weeks
- C) MRI before determining treatment
- D) Physical therapy

Answer:

B+D

Alternate scenario

- Would the same be applicable to a 50 year old woman with known Stage III breast CA?
- No, history of malignancy should prompt earlier imaging with MRI or CT scan

Typical referral scenario

PCP evaluates patient with acute low back pain, without previous history of low back pain. No red flag symptoms present.

- Treatment initiated, patient does not improve within 1-2 weeks
- Patient has a family member with herniated disc, and asks for an MRI because that's what the family member had done
- PCP obliges and obtains MRI of lumbar spine

Report states:

At L5-S1, there is a disc protrusion with associated annular tear. There is contact with the left S1 nerve root.

What next?

- Is this a concerning MRI report?
 - No, as many as 27% of asymptomatic patients have disc 'protrusions' (focal extension of disc beyond disc space), *Jensen et al, NEJM 1994*
- Should the patient be referred to a spine surgeon (neuro/ortho)?
- What about pain management, or physiatry?

Should the patient have received an MRI to begin with???

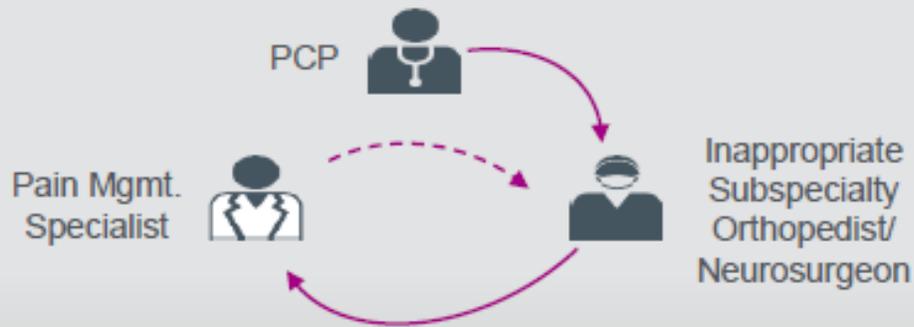
This example highlights a common problem with inefficient triage of patients with low back pain

The concept of triage

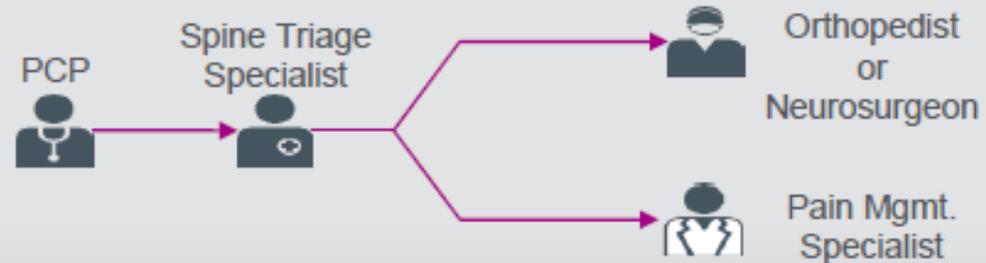
Triage Driven Patient Pathway Enables Efficiency

Reduces Burden of Inappropriate Referrals and Wait Times

Standard Care Pathway is Repetitive and Time Consuming



Triage Driven Pathway is Efficient and Productive



Adapted from:

Vickrey et al., General neurologist and subspecialist care for multiple sclerosis: Patients' perceptions, *Neurology*, 1999.

Models of surgical triage for the acute low back pain patient (symptoms < 6 weeks)

- Nurse intake of history for radicular symptoms, red flag exclusion, and MD review of imaging, if available
- Early appointment with physician assistant, especially if no imaging is available
- Delayed appointment with MD until imaging is available AND non-operative measures have been performed

- *Within an integrated multi-specialist system, there is an opportunity to refer patients in faster and streamline the process*
- *Inherently, referring providers may need to slightly modify referral patterns or expected consultations in order to make the process work.*

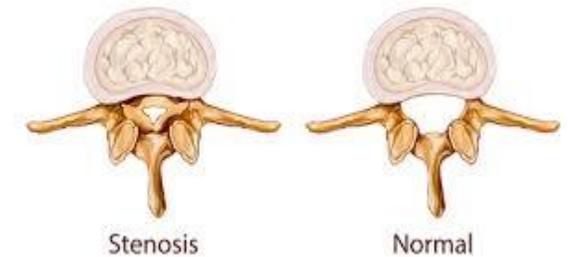
How often does non-operative treatment fail?

- Depends on condition
- Lumbar disc herniation: 10-15%
- Saal, *Spine* 1996:

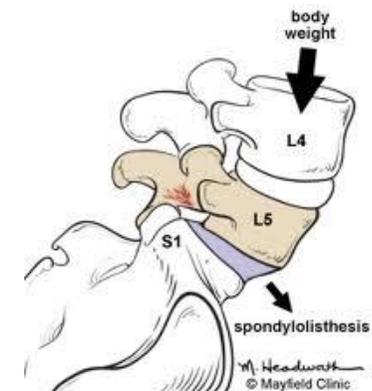
“The imaging test results may help predict the speed and probability of natural recovery. The likelihood of resorption increases with size of the disc herniation and with the degree of migration from the disc space. Small contained herniations present the greatest challenge to nonoperative interventions and natural history.”
- *Ironically, large disc herniations are also the most amenable to surgery*

Lumbar stenosis and listhesis

- Lumbar **stenosis**: 15% worsen (*Johnsson et al, Clin Ortho Rel Research, 1992*)
- SPORT suggests convergence of surgery and non-surgery groups at 5 years in randomized as-treated groups, but sustained improvement in observational cohort for surgical group (*Lurie et al, Spine, 2015*)
- Lumbar **spondylolisthesis**: 30% have progressive slippage (*Matsunaga et al, Spine, 1990*)



Spinehealth.com



Does surgery work?

The New York Times

Study Questions Need to Operate on Disk Injuries

By [GINA KOLATA](#)

Published: November 22, 2006

- The most scrutinized example is lumbar disc herniation:
- SPORT (Spine Outcome Research Trial): *JAMA 2006*
 - At 2 years, randomized trial intent-to-treat analysis showed **no** difference between surgery and non-surgery, due to significant cross-over
 - **However**, both the randomized as-treated analysis, as well as the observational cohort **avored** surgery
 - Extended follow up over 8 years indicates that the results are sustained (Spine, 2014)

Is surgery cost-effective?

- The Cost Effectiveness of Surgical Versus Nonoperative Treatment for Lumbar Disc Herniation Over Two Years Evidence From the Spine Patient Outcomes Research Trial (SPORT) – *Spine, 2008*
- Conclusion: Surgery for IDH was moderately cost-effective when evaluated over 2 years.

What is the surgeon's role?

Determine:

- if surgery is indicated
- type of surgery
- Additional testing / imaging
- Are there any other surgical diagnoses, e.g. cervical/thoracic myelopathy
- Educate patient about surgical options

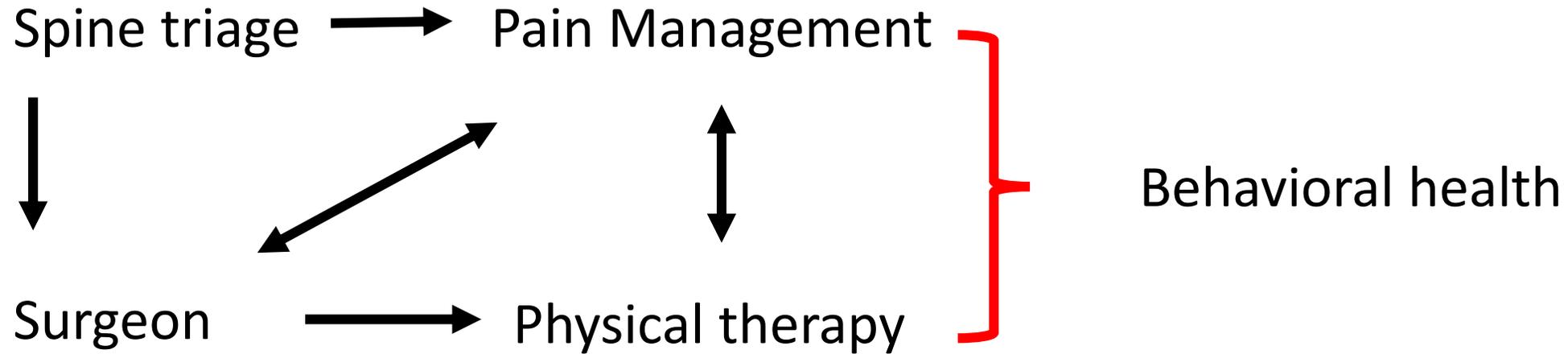
What does the surgeon do poorly?

- Diagnose / render treatment plans for new patients without recent axial imaging
- Manage chronic pain
- Manage behavioral health

The role of behavioral health in spine care

- **Psychiatric illness and chronic low-back pain. The mind and the spine--which goes first?** Polatin et al. (*Spine*, 1993)
 - Examined prevalence of depression, anxiety, and substance abuse in low back pain patients
 - Depression preceded LBP in 54% of LBP patients with depression
 - Anxiety preceded LBP in 95% of LBP patients with anxiety
- In addition to physical treatment, psychotherapy for major depression may give the patient more of a sense of control
- Start a “positive spiral” toward physical and mental re-conditioning.

The value of integrated spine care



Thank you

