

Bouncebacks

The Case of a 51-year-old Man with Back Pain

In *Bouncebacks*, which appears periodically in JUCM, we provide the documentation of an actual patient encounter, discuss patient safety and risk management principles, and then reveal the patient's "bounceback" diagnosis.

Cases are adapted from the book *Bouncebacks! Emergency Department Cases: ED Returns* (2006, Anadem Publishing, www.anadem.com; also available at www.amazon.com and www.acep.org) by Michael B. Weinstock and Ryan Longstreth. The book includes 30 case presentations with risk management commentary by Gregory L. Henry, past president of The American College of Emergency Physicians, and discussions by other nationally recognized experts.

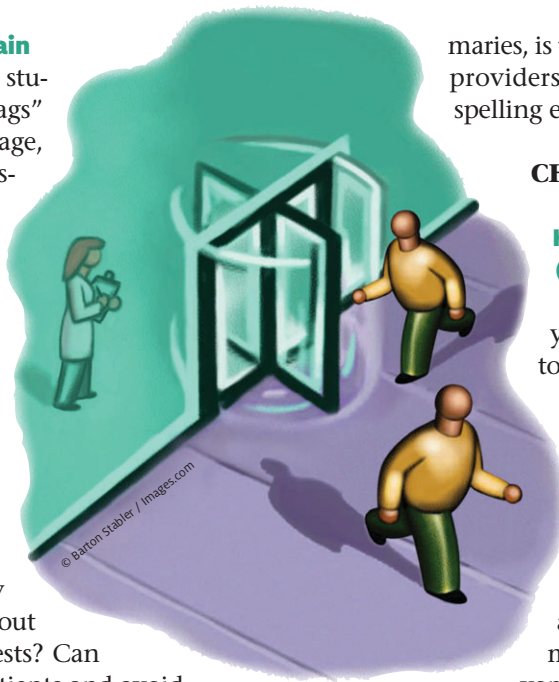
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A 51-year-old Man with Back Pain

Most new third-year medical students can recite the "red flags" of back pain: extremes of age, fever, history of cancer, history of trauma, failure to improve after one month of therapy.

Few would fail to consider metastatic disease in a 64-year-old woman with a history of breast cancer and new-onset low back pain, but what about the 51-year-old male without a significant past medical history?

The following case forces us to consider some important questions: Can we effectively triage urgent care patients without an onslaught of unnecessary tests? Can we tease out the concerning patients and avoid missing life-threatening diagnoses?



maries, is the actual documentation of the providers, including punctuation and spelling errors.)

CHIEF COMPLAINT: Back pain

HISTORY OF PRESENT ILLNESS (at 08:50):

This is an otherwise healthy 51 y/o male who presents with a three to four week history of waxing and waning lower back pain. He denies any definite injury prior to symptom onset. He denies saddle paresthesias, bowel or bladder incontinence, weakness or numbness in the arms or legs. No fever or IV drug abuse. No prior back surgery. No meds prior to arrival. No fever, vomiting, chest pain, dysuria, urinary

frequency, paresthesias.

Initial Visit

(Note: The following, as well as subsequent visit sum-

PAST MEDICAL HISTORY/TRIAGE:

No private physician

Vital Signs								
Time	Temp (°F)	Rt.	Pulse	Resp	Syst	Diast	Pos	Pain Scale
08:15	96.8	T	88	18	164	107	8	8

No known allergies.

Meds: The patient is not taking medications at this time

No significant medical history.

No significant surgical history.

EXAM (at 08:52)

General: Well-appearing; well-nourished; A&O X 3, in no apparent distress

Head: Normocephalic; atraumatic.

Nose: The nose is normal in appearance without rhinorrhea

Abd: Non-distended, non-tender, soft, without rigidity, rebound or guarding

Back: There is pain with palpation musculature low back. No midline cervical/thoracic/lumbar sacral tenderness to palpation = + lipoma on lower T-spine

Neuro: Strength 5/5 for flexion and extension bilateral lower extremities, patellar DTR's normal X2, straight leg raise negative X2, sensation grossly intact bilateral lower extremities. No evidence of urinary incontinence

PROGRESS NOTES (at 09:05):

His blood pressure remained 160/100 on recheck. He has no chest pain, shortness of breath, or lateralizing weakness or paresthesias. I suspect this blood pressure elevation is due to acute pain. I have given him instructions on blood pressure and he is to follow-up with his physician in the next few days for a recheck of his blood pressure. He received ibuprofen 600mg at 09:04.

PROCEDURES:

Urine dip stick: WNL except: Trace protein

DIAGNOSIS:

LBP (Low back pain)

DISPOSITION:

Aftercare Instructions for LS strain and elevated blood pressure, prescriptions for ibuprofen and vicodin. Patient left the ED at 09:14.

Discussion of Documentation and Risk Management Issues at Initial Visit

Error 1: Inadequate history.

Discussion: This history is an argument, a way to build your case to support the diagnosis. Though this may seem backward (the history *really* is about collecting data and then forming a diagnosis based on the evidence), if you are going to diagnose all back pain patients as having a strain, at least try to have the history

to support your diagnosis.

This history lacks most of the basic supporting evidence. There is no mention of exacerbating or relieving factors; in fact, this true history only describes two elements: duration and lack of mechanism. This history is much more of a review of symptoms than a history at all.

Teaching point: When diagnosing a back strain, document if the pain is worse with motion.

Error 2: Lack of consideration of serious causes of back pain.

Discussion: If a back pain patient is presented at a morbidity and mortality conference, the audience would focus on the most serious possible causes:

1. *Epidural compression syndrome.* Is there an abscess or mass pressing on the cord which could result in paralysis? Is there a massive midline disk herniation? Surprisingly, the most sensitive historical factor is urinary retention, *not* urinary incontinence. Risk factors include history of intravenous drug use and/or fever (abscess) or weight loss (mass).
2. *Abdominal etiology.* Is there epigastric pain representing pancreatitis or an ulcer? Could this be pain referred from an ovarian cyst/abscess/torsion? How about retrocecal appendicitis?
3. *Is there an impending vascular emergency?* Though this patient is a bit young, the classic missed diagnosis in a back pain patient is abdominal aortic aneurysm (AAA) or ruptured AAA, often attributed to low back strain or stone (ureterolithiasis). The classic triad of back pain, hypotension, and pulsatile abdominal mass is present less than half the time, but this diagnosis needs to be considered in all back pain patients over the age of 50.

Teaching point: Think worse first.

Error 3: The patient was not informed of diagnostic uncertainty.

Discussion: I try to be as confident as possible, never letting a patient know I have any doubt. I give all my patients definitive diagnoses and prescribe meds for everyone. If I don't know their diagnosis, I just make one up. Patients love me! Recently, however, I was surprised when I told a patient I *thought* they had a certain diagnosis but that if their symptoms changed or persisted they would need to return. They did return, were correctly diagnosed, and loved me even more.

Teaching point: Inform patients when there is diagnostic uncertainty. Aftercare instructions should be time- and action-specific

VISIT TWO: 14 DAYS LATER

- Chief Complaint: Back Pain
- Vitals: Temp 98.0, pulse 84, respir 16, BP 170/107, pain scale 10/10
- HPI: Persistent low back pain radiating down right leg to knee. No heavy lifting. No additional history but extensive neg. ROS
- Exam: No cervical/thoracic/lumbar tenderness to palpation. Full ROM of back without much difficulty. 5/5 strength bilaterally, 2+ DP / PT pulses bilaterally, normal sensation to light touch bilaterally, normal gait, neg straight leg bilaterally
- Urine negative except for blood
- Diagnosis: Sciatica
- Disposition: Discharged to home. Prescriptions for naproxyns, percocet, prednisone. After care instructions for sciatica.

Risk Management Issues for Return Visit

Whoa baby, talk about diagnosis momentum! Is there *anything* in this history or exam suggesting strain? The

patient is certainly high risk, as this is now a bounceback (though some would call it an annoyance), but with a totally negative exam and no mechanism is still diagnosed with mechanical back pain (sciatica).

Additionally, untreated hypertension is a risk factor for AAA; with the second reading, we do not have a definitive diagnosis, but this is more suggestive of hypertension than one isolated reading.

Visit Three (ED): Two Days Later

- Chief Complaint: Back pain
- Vitals: Temp 98.5 pulse 90 respir 18 BP153/103 pain scale 10/10
- HPI: Persistent right back pain for 7 weeks. Today he has also developed upper abdominal pain and dizziness. Has taken vicodin, Percocet and prednisone with some temporary relief of his symptoms. He denies urinary symptoms, fever, vomiting, chest pain, SOB or headache.
- Exam: ABD: Non-distended, minimal epigastric tenderness-no RUQ tenderness, soft without rigidity, re-



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bound or guarding. Back: Pain with palpation musculature low back. No midline tenderness to palpation. Neuro: Strength 5/5, patellar DTR's normal x2, straight leg raise negative x2, sensation grossly intact bilateral lower extremities. No evidence of urinary incontinence.

- CT: There is a huge 15.6x13.0 cm mass likely representing a renal cell carcinoma of the right kidney with evidence for multiple intrahepatic metastasis and bony metastasis to the lumbar spine.
- Diagnosis: Cancer-urinary system

Discussion: Diagnosis and Management of Acute Low Back Pain

The prevalence of back pain is enormous. Between 70% and 85% of adults will have back pain at some point in their lives; the annual prevalence ranges from 15% to 45%.¹ One of the difficulties in the evaluation of back pain is that it is most often of a benign etiology, and the clinician can be lulled into complacency.

Back pain can be divided into two groups: mechanical/discogenic and non-mechanical.

Mechanical etiologies include idiopathic or non-specific (strain/sprain) low back pain, discogenic pain, spinal stenosis, and chronic low back pain.

Non-mechanical etiologies include malignancy, infection, inflammation (rheumatologic), gynecologic, renal (urinary tract infection, pyelonephritis, renal colic, renal artery occlusion), gastrointestinal (peptic ulcer disease, pancreatitis), and vascular (ruptured AAA).

Red flags for more serious disease include age >65, history of malignancy, unexplained weight loss, recent trauma, fever, failure to improve after one month of therapy, nocturnal pain, injection drug use, morning stiffness, and history of peripheral vascular disease.²

History and Physical Exam

A directed history should attempt to exclude serious causes of back pain. Inquire about mechanism of injury, onset, and modifying factors, including over-the-counter or other medications which have been tried. Ask about any past history of back pain and the red flags listed previously.

Physical exam includes visual inspection of the back; palpating for vertebral tenderness; percussion for costovertebral angle tenderness; lower extremity strength, sensation and reflexes; and the straight leg test.

Many studies have unsuccessfully attempted to correlate physical exam findings with pain, with the



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Table 1. Representative Results of MRI Studies in Asymptomatic Adults⁴

Study	Subjects	Anatomical findings				
		Herniated disk	Bulging disk	Degenerative disk	Stenosis	Annular tear
		Prevalence (%)				
Boden	Volunteers, <60 yrs old	22	54	46	1	NR
	Volunteers, ≥60 yrs old	36	79	93	21	NR
Jensen	Volunteers, mean age 42 yrs	28	52	NR	7	14
Weishaupt	Volunteers, mean age 35 yrs	40	24	72	NR	33
Stadnik	Patients referred for head or neck imaging (mean age, 42 yrs)	33	81	72	NR	56

NR, not reported

available. The sensitivity for plain film is low in most of these conditions (e.g., infection and cancer), so if there is a concern for these entities, MRI should be performed; if this is unavailable in the urgent care center, then the patient should be referred. The main current indication for plain back films is to evaluate for fracture with a traumatic mechanism.

The reflex MRI is controversial, as there are almost no normal results and patient's symptoms are often attributed to incidental findings. The main indication for emergent MRI is for evaluation of an epidural compression syndrome (for example, an abscess, hematoma, or mass causing neurologic symptoms such as urinary retention). **Table 1** illustrates the exceedingly high incidence of abnormal findings in asymptomatic patients.

exception of straight leg raise testing. The straight leg raise test is performed by using one hand to lift the heel while using the other hand to keep the knee extended. A positive test is the reproduction of sciatica with leg elevation between 30% and 60%. Sciatica is a sharp or burning pain radiating down the posterior or lateral aspect of the leg, often associated with numbness and paresthesia.

Cauda equine syndrome is a rare finding, but worth mentioning since it is one of the true back emergencies. Symptoms include saddle anesthesia (a sensory deficit over the buttocks, posterior superior thighs, and perineal regions), urinary retention, sciatica, sensory and motor deficits, diminished anal sphincter tone and abnormal straight leg raises. Sensitivity of urinary retention is 90% and specificity is 95%.³

Testing

Non-mechanical causes of back pain can be further evaluated if indicated with urinalysis, radiology, and chemistries. Previously, plain films were recommended in those patients who were deemed suitable for further evaluation, such as those with fever, history of cancer, trauma, or weight loss,² but these criteria were established 11 years ago based on earlier data, before MRI was widely

available.

Prognosis and management

Between 60% and 70% of patients recover from an acute episode of back pain by six weeks; by 12, weeks 80% to 90% have recovered.

Recovery of patients with herniated disks is no different. Recurrences of pain occur in up to 40% of patients by six weeks.³

Management of acute idiopathic back pain, as well as pain that is caused by a herniated disk, is the same, including non-steroidal anti-inflammatory drugs, muscle relaxants, pain medications, and rapid return to normal activities. Spinal manipulation and physical therapy have a limited effectiveness and should be delayed until pain has persisted for at least three weeks, as 50% of patients will improve in this time.

Therapies shown to be ineffective include bed rest, back exercises in the acute phase, lumbar supports, facet joint injections, and acupuncture.⁴

Evaluation of the drug-seeking patient

It is well known that back pain is a favorite complaint of the narcotic-seeking patient. Is it possible to separate

those patients who have organic disease from those seeking narcotics? In 1980, Waddell devised a set of physical signs to differentiate these patients.⁵ Three or more of the following “Waddell’s signs” on exam strongly suggest a non-organic component to back pain:

1. Overreaction to the physical exam
2. Widespread superficial tenderness that does not correspond to an anatomical distribution
3. Pain on axial loading of the skull or simultaneous rotation of the shoulders and pelvis
4. Severe limitation on straight leg raise in patients able to sit forward with legs extended
5. Weakness or sensory loss that does not correspond to a nerve root distribution

In a small study in 2002, Bloom, et al described the “heel tap” test, which seemed to correlate with Waddell’s signs but was easier to perform.

In the heel tap test, the examiner tells the patient that this might cause low back pain, and then gently taps on

the patient’s heels while seated with the hips and knees flexed to 90°. A sudden onset of low back pain is a positive test.⁶

Conclusion

Our patient had no history of back pain and no clear mechanism of injury. His exam was not particularly convincing for a musculoskeletal etiology, as he did not have much pain with range of motion. A CT scan was done to exclude renal stone, and metastatic renal cancer was found.

In the urgent care setting, the first step in back pain evaluation is exclusion of life-threatening or reversible causes—specifically, abdominal aortic aneurysm, epidural compression syndromes, infection, and tumor.

Four screening (ROS) questions for all back pain patients should include:

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trials included in the prior analysis plus two additional randomized, controlled trials in which corticosteroids (alone or in combination with antibiotics) were compared with placebo or standard therapy in adults, children, or both.

The 10 studies involved 1,096 patients. Seven studies used dexamethasone (0.6 mg/kg to a maximum of 10 mg orally), and three used prednisone (60 mg orally), betamethasone (2 mL intramuscularly), or cortisone (500 or 600 mg intramuscularly). In pooled analyses, corticosteroids decreased the time to clinically significant pain relief by 4.5 hours. However, at 24 hours, the mean reduction in pain scores associated with corticosteroids (0.9 points on a 10-point visual analog scale) was not clinically significant. No serious adverse events were attributable to corticosteroids.

This study and the prior analysis show a modest improvement in time to pain relief when steroids are added to usual treatment for acute pharyngitis.

Although the data are not compelling, a single oral dose of corticosteroids (e.g., 60 mg of prednisone) is a reasonable option for adults with acute severe pharyngitis with bacterial etiology or exudate.

[Published in *J Watch Emerg Med*, June 4, 2010—Diane M. Birnbaumer, MD, FACEP.] ■

Symptoms Following Mild Brain Injury in Children

Key point: Most children will be symptom-free by 1 year.

Citation: Barlow KM, Crawford S, Stevenson A, et al. Epidemiology of post-concussion syndrome in pediatric mild traumatic brain injury. *Pediatrics*. 2010;126(2):e374-e381.

matic brain injury. *Pediatrics*. 2010;126(2):e374-e381.

Mild traumatic brain injury (mTBI) occurs in an estimated 692 per 100,000 children younger than 15 years in the U.S. To determine the incidence and natural history of post-concussion symptoms in children with mTBI, researchers at an emergency department in Canada prospectively compared physical, cognitive, emotional, and behavioral symptoms in 670 children with mTBI (age range, 0–18 years) and 197 children with extracranial injury (controls).

The definition of mTBI was admission Glasgow Coma Scale score of 13 to 15, loss of consciousness or altered mental status for <20 minutes, absence of focal neurological deficits, and post-traumatic amnesia for <24 hours.

Parents completed several questionnaires (including a concussion-specific symptom inventory) seven to 10 days after the injury (for pre-injury and current symptom assessment), two weeks later, and then monthly until symptoms resolved.

Pre-injury symptom scores were similar in the two groups. Three months after injury, significantly more children with mTBI than controls were symptomatic (11.0% vs. 0.5%); this significant difference persisted at one year (2.3% vs. 0.01%, respectively).

The most common symptoms at one month were fatigue, more emotional, irritability, and headache.

Age older than 6 years and more-severe mTBI were significantly related to persistence of symptoms.

Parents often ask if their children will have symptoms after mTBI. The vast majority of children will be symptom free by one year.

[Published in *J Watch Pediatr Adolesc Med*, August 25, 2010—Howard Bauchner, MD.] ■

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1. fever
2. abdominal pain
3. weight loss
4. urinary retention.

A reasonable initial approach to a patient with low back pain without acute surgical symptoms may be conservative therapy, such as NSAIDs, muscle relaxants, and pain medications. Educate the patient to pursue further evaluation if the pain does not improve within a defined period of time.

Finally, if the mechanism of injury and exam are inconsistent with the diagnosis, an alternate diagnosis should be considered and definite follow-up arranged. The etiology of the patient’s pain may not be found on the initial visit, but you can always make sure you follow these golden rules of high-risk patients:

- You first must recognize them.

- Review your documentation, thoughts, vitals, and any inconsistencies that may be in the history and/or exam.
- Consciously work on a positive relationship with your patients throughout the evaluation, which will not only facilitate communication and enhance the medicine you deliver, but help in risk management issues
- Make sure appropriate and timely follow-up is discussed, documented, and arranged if possible. ■

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