THE SULLIVAN GROUP

TSG NEWSLETTER

SAVING LIVES - REDUCING RISK

From The Editor

In this issue of the TSG Newsletter, we present *Failure to Diagnose Cauda Equina Syndrome*. Emergency, urgent care and primary care physicians see so many patients with back pain complaints that they often overlook the small percentage of cases that merit careful evaluation and diagnostic imaging or consultation. The following case presents a wide range of issues and opportunities that are typical of the delay in diagnosis or the failure to diagnose cauda equina syndrome (CES). As usual, the several providers in this case were influenced by personal biases and various cognitive dispositions to respond. Watch for them as the case unfolds.

Cauda equina syndrome involves massive central disk herniation that can cause permanent neurologic defects if not recognized and corrected rapidly. Due to the central location of the herniation, symptoms may involve bilateral leg pain, saddle anesthesia, and impaired bowel and bladder control.

Healthcare providers should be able to recognize the

In This Issue...

Wishing you and your families a safe, peaceful and joyous holiday season

From
The TSG Family

signs and symptoms of CES in patients presenting with back pain, leg pain, urinary retention or incontinence. Rapid diagnosis will facilitate prompt surgical intervention and reduce potential litigation alleging either a delay or a misdiagnosis. Back pain patients frequently present for pain control; these patients should be evaluated objectively to identify the source of their pain and to rule out CES.

Your comments and thoughts are always welcome. If you have interesting cases that would be appropriate for the newsletter, please contact us at **866.633.7475** or e-mail us at info@thesullivangroup.com. Thank you ■

Case Review

ED Visit #1 - Day 1

Mrs. L was a 28-year-old female who slipped and fell while boarding a bus on August 31st. The following day, she presented to a local emergency department with a complaint of low back pain. The physician performed a history and physical exam, and concluded that the patient had low back strain with radicular pain. There was no motor or sensory deficit. Mrs. L was referred to her private physician for follow-up and was discharged home with a prescription for pain medications and detailed back pain instructions.

ED Visit #2 - Day 3

On September 2nd, Mrs. L presented to the emergency department at St. Elsewhere Hospital complaining of back pain. The emergency physician diagnosed low back strain. The physician documented a normal neurologic exam, including muscle strength, sensation and reflexes. Mrs. L was again referred to her primary care physician for follow-up, and was advised to return for worsening symptoms.

ED Visit #3 - Day 14

On September 13th, Mrs. L returned to the same emergency department.

Triage Note

"Patient complains of back pain since falling two weeks ago. She now complains of worsening back pain and numbness in both buttocks." Pain level 10 out of 10.

Vital Signs

Temp	Pulse	Resp	BP
99.9°F (37.7°C)	120	16	160 / 100

__Editor:__ There was no other nursing assessment documented during this visit. Neither the physician nor the nurse documented another set of vital signs. __Key Point:__ Create a system solution so an initial 'very abnormal' vital sign never leaves your ED without a repeat or re-evaluation. The nurses were included in the subsequent litigation, and this was one of the allegations of malpractice against the ED nurse.

Physician Evaluation

Dr. White was on duty. He dictated the history and physical examination.

Chief Complaint: Back Pain

History: The patient is a 28-year-old female who slipped and fell two weeks ago. She developed low back pain and was seen in another emergency department. She was then seen here approximately one week ago for a complaint of back pain. She was diagnosed with back strain and told to follow up with her family physician, although she has not followed up with her as of yet.

Today she complains of 10 out of 10 pain that is worse with movement. She continues to have pain in her back, but now complains of numbness to both buttocks. She also complains of pain in both legs. She says she is having difficulty with urination for one day and has had no bowel movement for four days.

Review of Systems: No fever, no burning with urination, no cough, chest pain, shortness of breath or headache.

Past Medical History:

Illnesses: Depression
Allergies: None
Medications: Prozac

Physical Examination

General: Patient is alert and oriented x3 and in mild to moderate distress secondary to pain. She became tearful during the examination.

HEENT: Within normal limits

CV: Regular rate and rhythm without murmur

Lungs: Clear to auscultation bilaterally

Abdomen: Bowel sounds present, soft, non-tender, no masses

Back: Diffuse low back tenderness

Neuro: Sensation to touch and pinprick were normal. Proprioception was normal. Reflexes were normal and symmetric.

Editor: *This is the full extent of the neurologic exam. There was no documentation of muscle strength, nor was there a straight leg evaluation. In short, the physician failed to document a complete examination of the relevant organ system.* ***This is key.*** *Whatever system is involved, the chart should contain a complete examination of that relevant organ system.*

Rectal Exam: Perianal sensation decreased per patient. The patient was able to feel when I lightly scraped the buttock area. She clenches and says she feels the pressure, but it is extremely minimal. I feel the patient does actually have feeling in both buttock areas and do not feel that she has a focal neurologic deficit on exam. I felt that there was some sort of psychiatric abnormality happening along with her back pain.

Editor: *This was a critical moment for both Dr. White and the patient. He had been right on track, and went so far as to check the perineum and rectal tone. As you will see in a moment, he was about to order a Foley for urinary retention. However, he was derailed here by the powerful cognitive disposition to respond (CDR) called* ***ascertainment bias.*** *An ascertainment bias exists when the physician's thinking is preshaped by expectations. In this case, Dr. White allowed the patient's psychiatric history to play into his thought process.*

ED Course

I recommended insertion of a Foley catheter for urinary retention. Patient began to cry and indicated she wanted to leave the emergency department. I felt she had low back pain without neurologic deficit. Patient left the ED against medical advice.

Diagnosis

Low back pain

Plan

Patient left against medical advice

The "Plan" above is the full extent of the "against medical advice" process. There is no further documentation.

Editor: *At some point, this physician recognized that this was a potential CES case. Although persuaded otherwise, he clearly thought about it in his differential. That being the case, he should have engaged in a formal "against medical advice" process making it clear that, among other things, the patient had a normal mental status and she was aware of the possibility of spinal injury, including permanent disability.*

ED Visit #4 - Same Day

The patient returned to the same emergency department approximately two hours later; she again complained of severe low back pain. She was tearful, and said she was agreeable to any procedure the doctor thought was necessary. She was sent to the Fast Track or non-emergency side of the emergency department.

Triage Note

"Patient here earlier today for back pain, complaining of throbbing in right buttock and posterior upper right leg. Patient notes of pain in the left lower back also radiating to the left foot. The patient has not urinated today. Patient complains of sharp pain that travels to the lower legs with walking."

Physician Assistant Evaluation

The Physician Assistant (PA) was aware of the patient's previous visit earlier that day. She noted the following in her handwritten history, which is reproduced below in its entirety.

History: Back pain. Also, no bowel movement for four days and did not urinate all day today, denies pain with urination.

Physical Exam

Sensation is intact on both legs. The patient was able to lift herself with legs on table.

ED Course

Foley placed with 1,250 cc urine output. Urinalysis is completely normal. The PA ordered the Foley to be left in place.

Editor: *The PA testified that she discussed the urinary retention with Dr. White, the same emergency physician that had examined the patient on her ED visit 2 hours prior and who had discharged her against medical advice. Again, according to the PA's testimony, Dr. White told her to place Mrs. L on an antibiotic and have her follow up with her family doctor. The amount of urine in the bladder was another obvious clue that the patient was compromised; the PA testified that Dr. White was aware of the issue. The return visit is an incredible opportunity to provide high-quality, risk-managed care. Take advantage of that opportunity.*

The patient was discharged to home with the following diagnoses and discharge instructions:

Diagnosis

1) Back pain
2) Urinary retention

Discharge Instructions

"Your back pain is probably due to muscle or ligament strain and not felt to be a ruptured

disc or pressure on a nerve. Follow up with your family physician."

Editor: *Was this an appropriate Fast Track visit? Was this a punishment for signing out AMA? In her deposition, the patient testified that Dr. White had threatened her with the Foley catheter, stating that he would insert the tube to prove that she did not have a serious problem. With the patient's spinal cord or cauda equina at risk, the patient should have been re-evaluated by the emergency physician. The PA's documentation was completely inadequate, and it became clear from deposition testimony that she did not understand how to evaluate a patient for possible CES.*

Sept. 14th Primary Care Physician Office Visit - Day 15

The patient followed up with her primary care physician. It was noted by the nurse that she was unable to stand on the scale to obtain her weight. The following is the medical record from that visit.

Chief Complaint and Examination

Can't move bowels or urinate. Pain in left hip and left leg for two weeks. Not voiding for two days, no bowel movement for five days. She has had multiple trips to the emergency room. They treated her with Bactrim for a urinary tract infection. They placed an indwelling Foley catheter for urinary retention. The patient complained of numbness and tingling in the left thigh starting from left lumbar area. Straight leg raise positive on the left and patient does have diminished sensation in the left leg. Pain getting worse and increases with sitting up. Motor strength in the lower extremities is equal. Catheter in place.

Impression

Fall with injury to lumbar area, rule out herniated disc, muscle and skeletal strain. Urinary tract infection on Bactrim. Urinary retention with Foley.

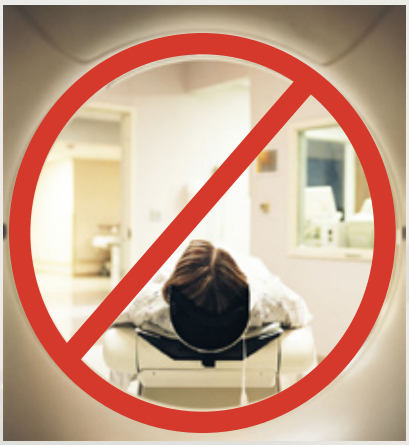
Plan

Will refer to neurologist, Dr. A, to evaluate. MRI and L-spine x-ray series have been ordered. Foley removed.

Editor: *The primary care physician missed a critical opportunity. At this point, the patient's presentation clearly indicates involvement of the cauda equina. Emergency, urgent care and primary care physicians must be prepared to recognize CES and respond appropriately.*

Sept. 15th MRI Not Performed - Day 16

The patient returned to St. Elsewhere for the MRI of her lumbosacral spine. Unfortunately, she forgot to bring the physician order for the MRI, and the radiology department refused to do the test. She was told to go to the emergency department.



ED Visit Sept. 15th

ED Nursing Evaluation

Patient sent from radiology department. The patient complains of low back pain, pain in the buttocks and the legs, and decreased sensation to the buttocks. She notes 'dribbled some last night.'

Vital Signs

Temp	Pulse	Resp	BP
98.9°F (37.1°C)	123	20	138 / 82

ED Physician Evaluation

History: Patient is a 28-year-old with multiple visits for low back pain. She was to have an MRI this morning, although she forgot her paperwork. Her family physician did not respond to pages and was not in the office, so the patient was directed to come to the emergency department. She notes back pain with bilateral radiculopathy. She denies incontinence.

Physical Examination

Neurologic Examination: Left perilumbar tenderness, negative straight leg raise, motor strength intact, deep tendon reflexes 2+ and symmetric with downgoing Babinski.

Impression

Urinary retention with history of back pain. Foley catheter placed with 650 cc of urine noted. Recommend MRI.

Editor: *This visit is a little confusing. The patient complained of symptoms but denied incontinence. The neurologic exam was normal but there was significant urinary retention. Given the history of recent events and knowing an MRI was missed, this physician should have pushed for an immediate MRI or called a neurosurgeon for a recommendation.*

Sept. 17th MRI - Day 18

Two days later, the patient finally underwent an MRI of her lumbar spine at St. Elsewhere Hospital. It showed "massive inferior extrusion of the disc at L4, L5 that completely effaces the spinal canal." Also, there was a "small L3-L4 central herniation with superimposed developmentally small canal causing moderate spinal stenosis."

Transfer to the Neurosurgeon

The patient was transferred to a regional referral center. She was admitted by Dr. Brown, the treating neurosurgeon.

Dr. Brown noted in his history that the patient was having numbness around the vaginal and perianal areas, and had no sensation when the catheter was placed or when she wiped herself. On physical exam, he found the following: straight leg raises positive on the left at 20° and on the right at 45°.

The patient underwent surgery; she had an L4-L5 decompressive laminectomy and bilateral discectomy for a large L4-L5 herniated disc with severe compression of the thecal sac and cauda equina syndrome.

Case Outcome

The patient's pain improved significantly postoperatively; however, she still complained of vaginal and perianal numbness. She required intermittent catheterization. She had persistent left leg dorsiflexion weakness and numbness and tingling of the buttocks, as well as numbness of the bilateral posterior thighs, knees, and left foot.

One year later, Mrs. L filed suit for medical malpractice and negligence against St. Elsewhere Hospital, the physician assistant, and two emergency physicians. Objective neurologic evaluation demonstrated that the patient suffered with continued difficulty with urination, the need for digital stimulation to induce bowel movements, a permanent loss of perianal and vaginal sensation, and persistent numbness in the buttocks and legs.

Litigation

Mrs. L's plaintiff's experts argued that had her cauda equina syndrome been diagnosed sooner by either Dr. White, the PA, or Dr. Green, she would have been transferred to the treating neurosurgeon sooner, thereby preventing her permanent neurologic deficits. They also argued that the nurses failed to recognize Mrs. L's back pain with incontinence and urinary retention as a sign of cauda equina syndrome.

The defendants never considered taking this case to court. The case was settled with all parties, including the two emergency physicians, the PA, the primary care physician, and St. Elsewhere for a significant seven-figure amount.

Cauda Equina Discussion

Back pain is an extremely common presentation, and cauda equina syndrome is rela-

tively rare. It is all too easy to prematurely reach the conclusion that the patient has musculoskeletal pain; it is all too easy to move quickly through the history and physical exam and fail to address those critical elements that would suggest cauda equina compromise. In these cases, the practitioner prematurely closes the diagnostic process by anchoring on "musculoskeletal pain" or "low back syndrome."

In CES, the most common sensory deficit occurs over the buttocks, the posterosuperior thighs, and the perineal regions; this is commonly called "saddle anesthesia." Furthermore, with CES, anal sphincter tone is decreased in 60% to 80% of cases.

A rectal examination should be performed in patients with back pain and neurologic symptoms such as radiculopathy or urinary incontinence. The finding of absent or decreased rectal tone in the presence of saddle anesthesia would have indicated an epidural compressive syndrome, most commonly, a cauda equina syndrome.

Bowel or bladder incontinence is a symptom that suggests an epidural compression syndrome such as spinal cord compression or CES. If a patient presents with back pain and a history of urinary incontinence (acute or chronic) but an otherwise completely normal history and evaluation, measure the postvoid residual volume. A large postvoid residual volume (e.g., >100 mL) indicates overflow incontinence, which in the setting of low back pain, suggests neurologic compromise and an epidural compression syndrome.

The most common finding in CES is urinary retention with overflow incontinence with a sensitivity of 90% and a specificity of approximately 95%.

The patient's psychiatric overlay clearly played a role in this case. In the face of signs and symptoms strongly suggesting

CES, the physician determined that the patient's psychiatric condition was the cause of her complaints. In spite of objective data such as urinary retention, and even though his documentation certainly seemed to indicate that he was on the right track, he let ascertainment bias guide his thought process. Consider the power of this cognitive disposition to respond.

The PA was clearly out of her league in this case. Back pain plus any neurologic symptoms or signs should cause an allied health practitioner to demand assistance from the physician on duty.

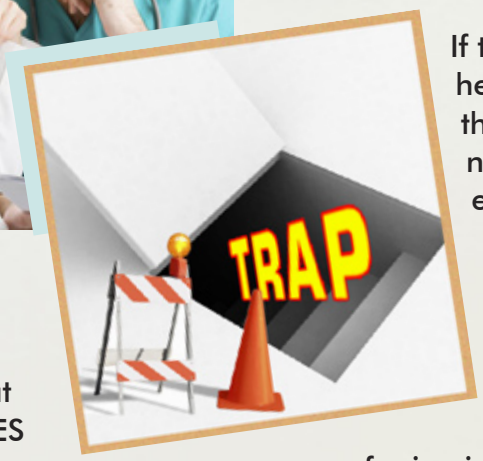
The combination of back pain, perianal numbness, radiculopathy, urinary retention and later urinary incontinence should have been perceived as ominous. Mrs. L had two Foley catheters placed that demonstrated urinary retention. CES should have been high in the differential diagnosis for the emergency physicians, the PA, and her family physician.

Pearls & Pitfalls

Perform and document a complete examination of the relevant organ system. TSG research clearly indicates that practitioners fail to document the neurologic examination more than any other organ system.

In each and every back pain presentation, consider the possibility of spinal cord pathology. A few questions in the HPI and a few elements of the physical exam will provide clear evidence of the presence or absence of pathology.

Back pain is so common that it can become similar to a white noise. Don't fall into that trap.



If the patient can't walk, he or she can't leave. Note that the ability to walk is not documented in a single examination in this case.

If there is a question of incontinence or urinary retention, do a postvoid catheterization. Retention of greater than 100 cc of urine is suggestive of a neurologic abnormality.

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Be on guard for bias or a cognitive disposition to respond. The use of the differential diagnosis is a great debiasing technique. Remember the CDRs of anchoring, premature closure, and ascertainment bias that were discussed in this case presentation.

The best risk management is keeping our patients safe

Conclusion

Although tragic, this case serves as an excellent reminder that one of your typical garden-variety back pain patients could actually have spinal cord compromise or cauda equina syndrome. Keep the diagnostic antenna up and fully functional. If not impaired by the white noise or bias, the diagnosis is apparent in most cases. In retrospect, the findings are not subtle in failure to diagnose CES cases; the patient could not walk, had not urinated in several days, or was incontinent.

The best risk management is keeping our patients safe, and it happens at the bedside, not in courtrooms or in peer review.

Once again, if you have had interesting cases, near misses, or crashes with an interesting fact pattern that would benefit our readers, give us a call at the contact numbers below.

Thank you ■

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