A patient arrives in the emergency department with a possible spinal cord injury. The defense attorney contacts you to find out if his client, the hospital, has exposure for the ultimate outcome of this patient. This is Pat Iyer with Iyer’s Insights, one of the twice weekly podcasts of Legal Nurse Podcast. Filissa Caserta and I discussed some of the pointers about neurological care in her podcast, number 338.

One of the first things emergency department nurses do is to assess the patient and determine if there are any changes from the baseline assessment. Recognition of changes is integral in the timely diagnosis of a spine emergency.

Vital signs monitoring plays a key role. As you read the medical records, you look at the nursing notes to see if the nurses documented a pain assessment (location, severity, radiation, character of the pain and relieving factors). Most importantly, did they perform neurovascular assessments, which play an integral role in the assessment of a patient who has any type of spinal emergency.

**Cauda equina syndrome** is a dreaded complication of a spinal cord injury that causes devastating injuries to patients. This is an example of a huge damages case. Cauda equina syndrome is a rare disorder affecting the bundle of nerve roots (cauda equine) which is located at the lower end of the spinal cord. The syndrome is a surgical emergency. If these patients do not get emergent attention, then permanent paralysis, impaired bowel or bladder control, and loss of sexual sensation can result.

**These are the devastating cauda equina symptoms:**

- Bladder and/or bowel dysfunction (especially urinary retention) causing retained waste or incontinence
- Severe or progressive problems in the lower extremities, including loss or altered sensation between the legs, over the buttocks, the inner thighs and back of the legs (saddle area), area around the rectum and feet/heels.
- Pain, numbness or weakness spreading to one or both legs that may cause the person to stumble or have difficulty getting up from a chair.
- Suspected spinal cord compression, requiring emergent evaluation is needed. The surgeon determines the patient needs surgical decompression or radiation therapy.
- Progressive or severe neurologic deficit results.

The defense attorney contacted you because the plaintiff attorney alleged the emergency department nurses did not detect warning signs of spinal compression or report them to the appropriate physician.

**Spinal cord injury after a fall**

A spinal cord injury can result from falls; thus a full assessment is critical after a fall to determine if there are injuries to the spinal cord.

**Common types of spinal cord injury**

Let’s look at the mechanism of injury. The spine consists of 33 vertebrae: 7 cervical, 12 thoracic, 5 lumbar, 5 sacral and 4 coccygeal. The vertebral column provides the body’s basic structural support and protects the spinal cord. The **cervical spine** is the most commonly injured part of the spinal column due to its exposed location and its inherent flexibility. The thoracic spine is rigidly flexed. There must be a great amount of force to damage this area of a healthy adult. For older adults with osteoporosis or bone disease, minor trauma may be enough to cause a compression fracture.

The **thoracolumbar area** is the second most commonly injured region. The spine changes from a kyphotic to a lordotic curve. Of all the thoracolumbar spine injuries, 90 percent of fractures occurred between T11-L4. Since the spinal canal is relatively wide at this level, thoracolumbar injuries rarely result in complete cord lesions.

The thoracic and lumbar areas have a three-column scheme: anterior, middle, and posterior. The location and extent of the fracture can determine the stability and instability of the spine.
Before we continue with the show, I’ll share a resource you’ll find helpful in evaluating fall cases. I am referring to my course called “Falls Course: The Impact of Head Injury”.

I invited nursing experts to participate with me in this course so you would get the tools you needed to analyze a falls case, and with a focus on head trauma.

**What can this course do for you?**

1. **Gain insight and practical tools about how to analyze a head trauma case.** You will gain skill in reviewing facts of a fall case and learn from expert witnesses who have reviewed hundreds of cases.

2. **You’ll learn skills and techniques you can use immediately.** The course is not full of dry theory; it is a fast paced, comprehensive way to learn practical, useful information.

3. **And you’ll gain confidence in your ability to analyze a head trauma case.**

This course is available on our new mobile app, biz.edu. You’ll be able to access the videos, slides, transcripts and bonuses right from your smart phone. Our app is now available for iPhones and Android users. Download our app at legalnursebusiness.com/bizedu.

And you can also watch it on your desktop computer.

Purchase the course at the show notes on podcast.legalnursebusiness.com or if you are listening to this podcast on BizEdu on your phone, check out the show notes.
Mechanisms of spinal cord injury

As a legal nurse consultant, it is helpful to understand what causes spinal cord injury.

Spinal column injury may result in spinal cord trauma through several mechanisms:

- **Transection:** Penetrating or massive blunt trauma resulting in spinal column injury that may tear apart of the spinal cord; less severe trauma may have similar neurologic effects by displacing bony fragments into the spinal canal or through disk herniation. Think of bullets or severe trauma.

- **Compression:** Wedge, or anterior, compression fractures account for 50 to 70 percent of all thoracolumbar fractures. Often simple wedge fractures cause no neurologic impairment. Think of a fall.

- **Burst fractures:** The burst fractures account for approximately 14 percent of all thoracolumbar injuries. Compressive forces fracture the vertebral endplate then pressure the nucleus pulposa upon the vertebral body. The bony fragments can retropulse into the spinal canal. All burst fractures should be considered unstable because neurologic deficits are seen in 42 to 58 percent of patients. Think of car accidents.

- **Contusion:** Contusions of the spinal cord can occur from bony dislocation, subluxations, or fracture fragments. Again, car accidents can cause this.

- **Vascular injury:** Primary vascular damage to the spinal cord should be suspected when there is a discrepancy between a clinically apparent neurologic deficit and the known level of the spinal column injury. This can occur with improper chiropractic treatment.

If a patient is diagnosed with a spinal cord injury, then the treatment plan includes an immediate surgical consultation. When there are no physicians with an expertise in orthopedics of the spine for consult available onsite, the standard of care requires the facility staff to arrange an immediate transfer to a hospital that can render care for the injury.
The treatment plan may include any of the following: surgical intervention, steroid administration, or application of a halo device (this may be used for the cervical or upper thoracic fractures).

As you dig into the records, you find the emergency department nurses did detect neurovascular changes. They reported these to the ED physician, who contacted a neurosurgeon at 1 AM. The patient was moved to a medical surgical unit at 1:30 AM. The delay in care occurred when the neurosurgeon failed to come to the hospital until 9 AM. You can confidently tell the defense attorney that the emergency department nurses followed the standard of care.

Invest in our course, “Falls Course: The Impact of Head Injury”, to gain the confidence and skills you need to analyze and interpret medical details of falls cases with head injury. Get the details at our show notes for this podcast on our website, podcast.legalnursebusiness.com.

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