



**Clinical Narrative
Denise Montalto, PT
Advanced Clinician
Physical Therapy**

Another tragic story of a teenager's life altered forever. It happens all too often. I entered the PICU to consult on a young man who was in a car accident. Most likely his mother told him to wear his seatbelt, but he wasn't wearing it and the law says, "don't speed", but he did...and there was a question of substance abuse. Now he was here with a spinal cord injury (SCI) and his friend had died in the accident.

Each year there are approximately 11,000 new cases of spinal cord injury in the United States, 80% of them sustained by males and 50% due to motor vehicle accidents. At seventeen, Joe is younger than the average of 38 years. There are stories of recovery after spinal cord injury; recovery can depend on the amount of damage to the spinal cord itself, the fracture or amount of dislocation of the vertebrae, how quickly medical care was initiated, even the size and shape of the spinal canal.

After reviewing his chart and looking at all CT, MRI and operative reports, it is clear that Joe's spinal cord is severely injured. He has sustained an unstable fracture at the 8th, 9th, and 10th thoracic vertebrae with a burst at T9 causing severe narrowing of the spinal canal. He has had his spine surgically stabilized with rods and screws from T6 to T12 and been given solumedrol to reduce the swelling in his spinal cord. He has other associated trauma; rib fractures from 2 to 9 and pulmonary contusions.

I have seen many patients with spinal cord injury and have an examination framework that organizes the test and measures that I will administer. The results of his exam on motor performance and sensation will help me to prognosticate about his recovery and his eventual level of functional mobility. At the 9th thoracic level, I would expect he would be independent with all of his bed mobility, transfers and activities of daily living. He will be able to propel a manual wheelchair, drive an adapted car, and play sports if he desires. He may be able to stand with bracing but his primary mode of transportation will be in a wheelchair.

I have taken care in developing my approach to patients with trauma and their families because I know the initial encounter can be difficult with the uncertainty of recovery and the possibility of permanent disability. It has taken practice and reflection to learn how best to answer questions about their predicted physical functional outcomes and to recognize both what to say and when to say it.

Joe is alone, resting. He is using a PCA for pain control and is a bit drowsy but is able to respond to my questions. I introduce myself and explain my role in his care. He tells me that he has had Physical Therapy before; he hurt his rotator cuff a while ago. I ask him about himself, his family, his activities and his school. I know that I will need to readdress this when he is more alert but it is important to establish some rapport and relationship before I begin to examine him. I am hoping to put him at ease and have him view me as an ally. As we are talking and beginning to evaluate his movement and sensation, it is apparent that he is having more difficulty breathing and his cough is congested and ineffective. I decided it is more important to address his pulmonary

system and begin to assess his ventilation. His spinal cord injury is at the level of the 9th thoracic vertebra, which causes him to have weakness of his lower intercostal muscles and abdominal muscles due to the lack of innervation. Although he is only 17 years old, Joe smokes cigarettes. This can cause an increase in pulmonary secretions and poor mobilization due to damage to the mucociliary tree. Also he has multiple rib fractures causing pain with coughing. These are 3 factors that may contribute to his problems with secretion clearance. His oxygen saturation is adequate at 98% but he is requiring 10 liters of supplemental O₂ by facemask and with retained secretions, he is at risk for deterioration of his ventilation. He complains of pain as I roll him onto his side, likely due to multiple rib fractures and his spine surgery. I encourage him to use his PCA and he reports some pain relief but he becomes drowsier and he participates less with deep breathing as I am coordinating manual airway clearance techniques with his respirations. We try an assisted cough; support at Joe's upper abdomen while he coughs, to try to clear the secretions but it isn't effective enough and I expect he will tire quickly. Speaking with Joe's nurse and the medical fellow in the ICU, we discuss his tenuous respiratory status and the need clear his secretions with blind endotracheal suction. I anticipate that this may be required for a few days until his cough improves, his secretions decrease, his pain improves allowing him to breathe deeper, and he is able to mobilize. We all agree. I explain the procedure to Joe and he consents. We complete manual airway clearance techniques on each side to mobilize the secretions so that suctioning will be maximally effective and worthwhile. As I gather the equipment needed, I review the steps of the procedure in my head. Even though I have done this many times successfully, I know it is an uncomfortable treatment and I want it to go smoothly. Afterward, he feels better but smiles and says he "can't believe we do that to people". I see that he uses humor to get through things that are difficult. He is tired so we agree to continue his examination the next day. The nurse and I get him positioned comfortably on his side and discuss a plan for the next few days. Knowing that Joe will likely need external support for his spine, I consult with the orthopedic doctor to see if a thoracolumbosacral orthosis (TLSO) would be needed. It usually takes a few days, as it requires measurement by the orthotist, delivery from an outside vendor and being fitted to the patient; so early planning can expedite a patient's mobility.

In the afternoon, I return to check on his respiratory status. His breath sounds are better, for now, and he is sleeping. I also anticipate that I may have the opportunity to speak with his parents. I introduce myself and explain my role in their son's care and ask them to tell me about Joe; who he is, what he likes...trying to understand his daily life and connection to his family and friends. They tell me he has been very athletic, wrestling and weight lifting and, more recently, he has been interested in web page design. This is good. He has the physicality and motivation to build his upper body and also an interest that can be done sitting. Now, an unpredictable moment, I ask about their home and they immediately begin to tell me about changing a 3 step entrance into a ramp and that they have a room downstairs to create an accessible space for Joe. He is fortunate to have a supportive, creative family. His mother speaks with tears in her eyes and his father stands by with his hand on Joe's arm but they are looking forward. We discuss Joe's rehabilitation needs and goals and briefly touch on his eventual level of function. I try to keep the conversation and information somewhat in the moment so that it is not too overwhelming.

Over the next few days Joe's ventilatory function takes priority and we focus treatment on secretion clearance and bed mobility. I complete his motor and sensory exam. He has no movement or sensation below the level of his injury. In the chart, it is

noted by the neurologist that he has no anal tone. It is still a bit too early to be certain about his prognosis for recovery but these are not good signs. When he begins to look more alert, his personality starts to emerge. He is motivated to participate and asks appropriate questions about PT intervention. It seems likely that he will adapt to this alteration in his lifestyle. Not necessarily without difficulty and sadness, but he will get there.

His TLSO arrives three days after our initial contact and we can begin to mobilize. Joe is nervous about the pain but still has the PCA so I assure him that I will wait until he is comfortable enough to move and his nurse is prepared to give him some extra pain medication if needed. The nurse assists me with applying the TLSO, rolling side to side, explaining each step, each precaution as we go. We move Joe onto his side and up to sitting for the first time in about a week. He reports feeling dizzy but I monitor his vital signs; he shows an appropriate homodynamic response with slightly increased heart and respiratory rates and a slight drop in blood pressure. He sits for 10 minutes and is pleased, tired and tells me he is looking forward to tomorrow.

Five days after our first encounter, Joe asks me a question that I have been anticipating: "Will I be able to walk?" The medical staff has discussed his injury with him already and I know he is aware of the severity. I tell him his spinal cord is severely damaged and it is unlikely but that he was given the best treatment and we cannot say never; there is ongoing research and advances are being made. I tell him we need to start from where we are right now, and that is without movement or sensation in his legs. We discuss what that means in terms of his mobility and independence. He will need to use a wheelchair but may be able to stand with bracing for exercise and weight bearing. We discuss the connection between his Physical Therapy and Occupational Therapy programs; how his upper body strength, sitting balance and lower body flexibility will help him with bathing, dressing and transfers. He asks me if I know any people with spinal cord injuries like his. I tell him about my friend from the gym who is paraplegic who works out and is married and has a child. He looks more hopeful. I want him to have hope about his future.

It was just a short few days before Joe was transferred to an excellent rehabilitation facility that specializes in patients with SCI. He emailed me some pictures of himself wearing his Boston Red Sox t-shirt; he was up in his wheelchair enjoying the outdoors. I later received an email from his Physical Therapist saying that Joe was always the one to greet new patients and show them around, offering support and encouragement.

I have treated many patients with spinal cord injuries over my years as a Physical Therapist. Earlier in my career, I could perform the skills necessary to gather information, construct a plan for treatment, provide good care and assess discharge needs but I am sure that I did not consider so carefully the psychosocial impact of such a life-altering injury. As a therapist, my role was to help people learn to compensate for their disability and I was ardently going to "do my job". About 15 years ago, a gentleman that I was treating refused to ever let me treat him again after I brought a wheelchair for him to use. This was a turning point for me- learning to appreciate what a patient is ready to hear. But probably the most important point was about 5 years ago when I received a consult for a 13-year-old boy with a cervical spinal cord injury. I expected that his parents would want information about their beloved son's future. That was the day I began to prepare words that would be realistic about the chances for recovery.

Words that provided enough information that allowed the treatment to stay in the moment so that the magnitude of their grief could lessen but did not provide false hope. The greater skill learned though, was listening because without listening, I would not know what patient's and their families were ready to hear. It won't always go so smoothly as it did with Joe. There will be patients and families who are just too overwhelmed by the injury and cling to the hope of a miracle; those who take just that much longer to grieve for the loss of one future before they can embrace a new future. I am trying to be more prepared each time and I know I will always need to be flexible and adjust my approach to meet patient's and family's needs.