UNDERGRADUATE POSTER FINALIST

SPINAL CORD CONTUSION AT THE THORACOLUMBAR REGION IN A 20 YR OLD MALE COLLEGIATE SWIMMER
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Background: The Athletic Trainer (AT) was called to the pool where a 20 yr old male swimming athlete complained of low back pain. After an inability to exit the pool the patient states that he hyper extended and felt a “crack sensation” when he dove into the pool. As he finished the race using only his arms he began feeling numbness and tingling from his low back to his toes. When assessed the patient reported lower extremity weakness. At that time the patient was spine boarded and removed from the pool to prevent any further spinal cord injury. Visual inspection showed no obvious deformity. Palpations revealed extreme point tenderness to the spinous process, lumbar paraspinal musculature, and vertebrae from T6-L5. Paraspinal muscle spasm was noted, but was not significant. During the neurological examination the dermatomes and myotomes of all cervical nerve roots were within normal limits. The lower extremity dermatomes of L1-L3 had abnormal sensations. L4 was difficult for the patient to identify, but could feel the pressure. L5-S2 dermatomes were extremely diminished. L1 myotome was not applicable due to spine board. L2-L3 were visible contractions in hip flexion and knee extension. Myotomes L4, L5, S1, & S2 were absent without any visible contraction. Patient could flex knee, but was very weak and toe flexion and extension, the motions were incorrect.

Differential diagnosis: Vertebral fracture, herniated disc, spinal cord injury, cervical nerve root damage

Treatment: The patient was spine boarded and referred to emergency room via ambulance. At hospital the patient received multiple radiographs to diagnose the injury, and then spent 9 days in progressive care unit (PCU). Treatment involved reducing swelling around spinal cord. This involved blood proliferation by increasing mean arterial pressure to 85 mmhg. In order to reach the desired mean arterial pressure the patient’s systolic pressure was raised to 180. This resulted in a 24 hour monitoring. After 7 days post injury mean arterial pressure was decreased and swelling around spinal cord was shown to have decreased, but patient’s blood pressure remained elevated and resulted in hospital stay for 2 more days. Following 9 days post injury the patient was able to walk 10 steps with a walker and was referred to an inpatient rehabilitation facility. Patient returned to school the next semester with no signs or symptoms of the spinal cord contusion or the transient neuropraxia.

Uniqueness: Spinal injuries are an uncommon injury. In the athletic setting this injury makes up 15% of injuries1. High-risk sports such as football, rugby, ice hockey, skiing, and equestrian are the most common sports that cause spinal injuries1. In this case the athlete was participating in swimming, which is a non-contact sport. Also, most thoracolumbar injuries are in the younger population which makes this case abnormal due to the athlete’s age.

Conclusion: Spinal cord contusions are not common when there is a non-contact mechanism. The mechanism for a spinal injury is often a compressive force along with axial loading and a repeated flexion-extension mechanism1. However this mechanism was a hyperextension while diving into a pool. ATs should be prepared and quickly refer a patient even without a standard MOI for a spinal cord injury since pressure build-up can lead to a decreased outcome.

Relevant Evidence: Spinal cord injuries can cause vascular damage at the contusion site and can cause neurological symptoms2. Having a spinal contusion can be severe injury that can become life threatening if the pressure stays around the spinal cord. In this injury an immediate spine boarding and referral allowed for accurate diagnosis to an uncommon mechanism of injury for a spinal cord contusion. Word Count: 595