Cervical Neuropathy in a Division I Football Player
Galeazzi, B. DiNapoli, D. Cordone, J. Straub, SJ. Quinnipiac University, Hamden CT, Yale University, New Haven CT

**Background:** 21 year old outside linebacker spear tackled an opposing athlete causing left lateral cervical flexion and depression of the shoulder. Athlete was face down on field and initially had a short loss of consciousness. The athlete stated numerous times he was unable to feel his right arm. Strength assessment indicated normal strength in the left arm but on the right side the athlete was limited to grip strength in right hand. The athlete had a previous medical history of a herniated lumbar disc at L4/L5 region and also had a history of left shoulder contusion and abnormally-formed glenoid fossa. The athlete was spine boarded and transported to the local Emergency Department. **Differential Diagnosis:** cervical spine fracture, cervical spine ligamentous sprain, spinal cord injury, concussion, shoulder dislocation or fracture. **Treatment:** A CT scan of brain and neck read unremarkable and thus ruling out cervical spinal injuries. The athlete had persistent deficits in his right arm (deltoids, biceps, infraspinatus) but recovered some sensation and function in fingers and was presumed to have suffered a brachial plexus injury. The athlete spent a week in the hospital for further examinations and additional neurology consultation. The final diagnosis was a right brachial plexus injury, specifically a C5 nerve root avulsion and a partial C6 nerve root avulsion. The initial treatment plan called for edema reduction and occupational/physical therapy. Medications were prescribed for pain and causalgia. Over the subsequent four month period, minimal recovery was noted. The patient was informed of surgical options and risks and ultimately consented to surgery. The pre-surgical plan was for a right supraclavicular exploration of C5-6 with inoperative testing. The plan included nerve grafting within the shoulder; axillary nerve, through posterior division upper trunk and suprascapular nerve with sural nerve grafts from either one or both legs as necessary. Surgery was performed at approximately 5 months status-post. The actual reconstruction consisted of a sural nerve graft that ran from the C5 nerve root to supraspinatus nerve and to posterior division of upper trunk of the right brachial plexus and a double Oberlin’s procedure. At follow-up appointment 5 months S/P reconstructive surgery, EMG indicated minor reinnervation to the supraspinatus and no reinnervation to deltoid or elbow flexors. He also demonstrated nearly full antigravity elbow flexion and mild gravity eliminated external rotation of shoulder. The patient did demonstrate anti-gravity elbow flexion with shoulder internally rotated. Gravity eliminated position was full with a smooth arc of motion. Numbness and pain were still present. The patient was referred to Hand Therapy to assist with re-education of shoulder and elbow flexion. The goal is to continue to re-educate and strengthen and be able to lift a 5 lb backpack with right hand by 1/1/12. Home Exercise Program was given. **Uniqueness:** While 65% of collegiate football athletes are reported to suffer brachial plexus injuries at some point in their careers the more common mechanism of avulsion of C5 and C6 Nerve Roots is motorcycle accidents. The reported incidences of brachial plexopathies with nerve root avulsions in football are limited. **Conclusions:** While brachial plexus injuries are common in football, the avulsion of a nerve root is rare. Conservative treatment options may be long due to the lengthy time period of nerve regeneration. When conservative measures fail, nerve grafting must be considered. Complete recovery may be difficult; clearly defined limited functional activities may be more appropriate long-term goals. WORD COUNT 563