Localized shoulder girdle neuritis was a syndrome first described in 1943. Approximately 100 cases demonstrated the common symptoms of shoulder pain, weakness, asymmetric muscle wasting, and sensory symptoms. In 1948 Parsonage and Turner described a similar entity. The symptoms were generally sudden, severe and found between the neck and the hand. They termed this syndrome neuritic amyotrophy (NA).

The clinical presentation of NA is variable, and it shares symptoms similar to a cervical radiculopathy: pain, weakness, and sensory symptoms are often described. Typically, the symptoms for NA are sudden and unilateral, favoring the dominant hand, while radiculopathies are more insidious in nature without any predilection to a particular side. In NA the pain is usually the first symptom and is self-limiting, lasting approximately two months. Conversely, symptom relief tends to correlate with the alleviation of the initiating pathology in radiculopathies. Subjectively, NA patients describe the pain as throbbing and sharp with tenderness elicited by palpation of the affected muscles. The quality of the pain can then change to a longer duration ache or neuropathic-type pain, which correlates with the typical radiculopathy sensory description. The majority of patients may demonstrate loss of sensation, usually noted in the lateral arm and posterior forearm, while a minority will have associated paresthesias.

The objective findings in NA and cervical radiculopathies are also quite similar. Weakness generally follows days to weeks after the onset of pain. One distinguishing finding between the two entities is that weakness in a radiculopathy is seen in two different muscles innervated by two different peripheral nerves originating from the same root; in NA the affected muscles do not follow a myotomal pattern. In NA, typically the muscles of the shoulder girdle are affected, but other muscles supplied by the brachial plexus can also be affected. In addition, imaging studies in patients diagnosed with a cervical radiculopathy would likely reveal structural spinal abnormalities correlating with the presenting symptoms, in contrast to NA, which would likely demonstrate nonspecific degenerative change or a normal study.

**Case Report**

A 64-year-old male initially presented to an outside hospital with a fever of 103°F, headaches, chills, arthralgias, and photophobia, diagnosed and treated for prostatitis. Two months later he developed sudden non-traumatic left neck, shoulder and arm pain. The initial pain was followed by left upper limb weakness, in addition to numbness and tingling in the medial aspect of the forearm and forth and fifth digits. There was also some resolution of the initial pain.
A cervical MRI was performed and showed moderate foraminal narrowing at multiple cervical levels more severe on the left side. After two months, the pain and weakness continued and the patient was admitted by the neurosurgery team for possible cervical decompression. The manual muscle exam demonstrated intact right upper and bilateral lower limb strength, with weakness in the left upper limb: 4+/5 deltoids, 5/5 biceps, 5/5 wrist extensors, 4+/5 triceps, 4/5 finger flexors and 3/5 hand intrinsics on the classic 5 point scale for motor grading. Further workup included an EMG, which correlated with the physical findings. The pain management team identified an additional element of his pain was likely originating from cervical spinal stenosis and radiculopathy. Two cervical interlaminar epidural injections were subsequently performed which resulted in 90 percent pain relief within three weeks. The patient’s weakness and numbness gradually resolved within six months after physical therapy.

Discussion
We report a case of non-traumatic left upper limb pain and the complexities in eliciting the pain generators. Symptomatically, there is overlap between cervical radiculopathy and NA, which can be clinically difficult to distinguish. The diagnosis of NA frequently hinges on the history of an acute onset of pain followed by weakness of muscles in a peripheral nerve distribution. In this case, the patient’s history of patchy muscle weakness raised the suspicion that a cervical radiculopathy was not the sole reason for the patient’s pain symptoms; there may have been other neurologic pathologies such as NA occurring simultaneously. Additionally, imaging of the cervical spine did not clinically correlate with the severe left arm weakness but did demonstrate degenerative changes that were possibly potentiating the patient’s pain symptoms. Generally, the pain from NA is self-limiting, but in this case the patient had persistent left arm pain and paraesthesias that we felt was generated by cervical stenosis and radiculopathy. Therefore, we performed two cervical epidural steroid injections, which helped relieve the pain that the patient was experiencing.

Generally, treatment for NA is supportive and its prognosis is favorable, but variable. Treatment with physical therapy for strengthening and maintenance of range of motion is essential. Furthermore, analgesic medications are used to palliate the initial pain symptoms. Recovery is difficult to predict; some prognosticators assessed are the time-span of pain and the severity of the weakness and muscle atrophy. The persistence of pain is inversely correlated with motor recovery time. Motor improvement is difficult to predict, but earlier recovery generally yields quicker motor recovery. One paper indicated that almost 90 percent of patients should demonstrate recovery by three years. Lastly, as the clinical course progresses and if good recovery is not seen in two years, surgical nerve grafting or possible functional tendon transfers may be considered.

This case presentation demonstrates that proper physical examination, imaging and electrodiagnostic studies led to an accurate diagnosis in a complex setting. The correct diagnosis of pain generators in patients with complicated upper extremity pain is critical to avoid unnecessary surgery and provide proper care for the patient. In this case, the patient avoided surgery. His pain and weakness was appropriately managed with epidural steroid injections and physical therapy.

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