



Atypical cervical radiculopathy is often treated as a different disease in other departments

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This report (1) describes a case of cervical radiculopathy, that was treated with dermatological management, with no noted improvement. The patient was referred to an orthopedic surgeon, and she was diagnosed with cervical radiculopathy, which improved after the appropriate treatment. Similarly, several cases of cervical radiculopathy were treated as a different disease in other departments.

The lack of immediate intervention for cervical radiculopathy was possibly due to the absence of sensory disturbance along the typical upper extremity dermatome (2-4). The patient in this case report felt pain and numbness along the dermatome. However, other symptoms, such as pruritus, which are more prominent, are typically reported as the chief complaint and suggest diseases other than nerve root disorders. The typical cervical radiculopathy is differentiated from central nervous system disorders, such as brain and spinal cord disorders; peripheral neuropathies, such as alcoholic and diabetic neuropathies; drug-induced neuropathies; and neuropathies associated with collagen diseases, vasculitis, blood disorders, and tumors. However, atypical cervical radiculopathies are difficult to differentiate because they do not present with the classic symptoms.

The three common types of atypical cervical radiculopathy that are often treated as different diseases in other departments are the following:

- (I) C3–4 radiculopathy; cervicogenic headache causing orbital pain and headache;
- (II) C5–6 radiculopathy; brachioradial pruritus causing

chronic itch in the upper extremities;

- (III) C6–7 radiculopathy; cervical angina causing chest pain.

C3–4 radiculopathy

Among patients who underwent surgery for cervical spine disorders, including myelopathy, ossification of the posterior longitudinal ligament (OPLL), and radiculopathy, 21.4% reported cervical headaches (3). Based on the classical dermatome, C2 radiculopathy causes headaches in the auricular region. However, headaches caused by C3 and C4 radiculopathies have also been reported (4,5).

Patients with C3 radiculopathy typically present with suboccipital pain (6), whereas those with C4 radiculopathy present with pain involving the axial cervical region, paraspinal muscles, trapezius muscle, and interscapular region (7). However, headaches caused by C3 and C4 radiculopathies actually have been reported in the retro-orbital region, temporal auricular region, and base of the posterior skull (4). This differs from the classical dermatome, which requires careful interrogation of the painful site. The pain is recognizable, even in the absence of intracranial lesions. The diagnosis is established using a nerve root block (7) and excluding the presence of intracranial lesions. The initial management for cervical radiculopathy is conservative treatment, and surgery is considered in refractory cases.

C5–6 radiculopathy

Brachioradial pruritus is a chronic neuropathic itch. Other examples include notalgia paresthetica and postherpetic itch (8). When the area innervated by C5 and/or C6 is symptomatic and pruritus is the chief complaint, the patient may be treated even when cervical radiculopathy is not considered because it is not a typical symptom.

In addition to nerve compression, sun exposure is also a possible cause. Chronic exposure to ultraviolet radiation damages the nerve fibers in the skin. The symptoms occur bilaterally in areas (arms and forearms) exposed to sunlight. The season with the most reports is summer, and most reports are from sunny areas, which is consistent with the fact that ultraviolet radiation is involved. Treatment options include the application of capsaicin ointment and oral gabapentin in addition to surgical treatment, as in this case report (9).

C6–7 radiculopathy

There have been many reports on cervical angina. In the emergency department, 15–25% of patients with chest pain do not have acute coronary syndromes (10). Cervical angina may be present in cases where cardiac involvement has been excluded. Cervical angina is underrecognized and neglected in clinical practice (11). Cervical angina is considered as atypical radiculopathy because it is a cervical nerve root symptom. However, it crosses the border of the cervical line between the C4 and Th2 medullary segments of the dermatome and presents as chest pain. Although C4–C8 radiculopathy has been reported, the main nerve root involved was the C6 or 7 nerve root (12). Ozgur *et al.* reported that 16% of patients with C7 radiculopathy presented with atypical complaints. The symptomatology was limited to either subscapular or deep breast/chest pain (13).

Other causes of cervical angina and the sympathetic trunk were situated more proximal to the medial border of the longus colli muscle in the lower cervical spine region. This may irritate the cervical sympathetic afferent fibers to the heart and coronary arteries (14,15). Based on this hypothesis, a posterior foraminotomy will not improve the chest symptoms of patients with cervical radiculopathy if it is caused by the stimulation of osteophytes of the Luschka joint. Thus, further research on this disease is needed.

Referred pain associated with OPLL and intervertebral joint origin has also been reported (14).

The detailed pathophysiology is somewhat ambiguous in

these atypical radiculopathies, which may involve another intervertebral level of cervical radiculopathy or another etiology that is not associated with cervical radiculopathy. Further studies are warranted to clarify the nature of atypical radiculopathies such as the one noted in this case report.

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