



C4 radiculopathy misdiagnosed as myofascial pain syndrome in the upper trapezius

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A 70-year-old-man visited the department of physical medicine and rehabilitation at a university hospital because of dull pain in his right upper trapezius muscle area (*Figure 1A*) for 1 month. Two weeks before, at a local pain clinic, the patient had been diagnosed with myofascial pain syndrome (MPS) in the right upper trapezius muscle and treated with a trigger-point injection (TPI) of lidocaine. However, there was no pain reduction after TPI. The numeric rating scale score was 6 out of 10. Physical examination revealed mild tenderness in the right upper trapezius muscle. Hyperalgesia was present at the right C4 dermatome without motor weakness in the right upper extremity. The Spurling test (right cervical lateral flexion with axial loading) increased the patient's pain in the right upper trapezius muscle area. Deep tendon reflexes were normal in all four limbs and plantar responses were down bilaterally. Hyperalgesia in the right C4 dermatome suggested that the patient's pain might have resulted from cervical radiculopathy. To evaluate cervical radiculopathy, we performed cervical magnetic resonance imaging (MRI), which revealed foraminal stenosis at the right C3–4 level (*Figure 1B*).

We conducted diagnostic fluoroscopy-guided right C4 selective nerve root block with 0.5 mL of 1% lidocaine, and the patient showed a positive response with complete transient pain resolution. Therefore, it was confirmed that the patient's pain was the result of right C4 radiculopathy due to right C3–4 foraminal stenosis. To treat C4 radicular

pain, we performed selective nerve root injection (SNRI) with 4 mg of dexamethasone mixed with 0.25 mL of 0.125% bupivacaine and 1.25 mL of normal saline at the right C4 nerve root (*Figure 1C*). Thirty minutes after SNRI, the patient's pain in the right upper trapezius muscle area had completely resolved. At the 1- and 3-month follow-ups, the patient reported no pain.

The C4 dermatome involves the lateral cervical paraspinal region and the upper trapezius muscle area (1,2). Furthermore, it may involve the posterior deltoid muscle (1,2). Therefore, pain due to C4 radiculopathy can be present in the area from the lateral neck to the shoulder. Thus, C4 radicular pain can be confused with MPS in the cervical paraspinal or upper trapezius muscles or cervical facet-origin pain. Because MPS in the upper trapezius muscle and cervical facet-origin pain are common disorders, and C4 radicular pain has a low incidence, clinicians can misdiagnose C4 radicular pain as muscle- or facet-origin pain without considering the possibility of cervical radicular pain in patients who have pain in the upper trapezius muscle area (neck to shoulder pain) (2,3).

This report shows that pain in the upper trapezius muscle area can occur because of C4 radicular pain, and it can be successfully managed with SNRI. Clinicians should consider the possibility of C4 radicular pain in patients who complain of pain in the upper trapezius muscle area, especially when TPI in the muscles or steroid injection into the cervical facet joints are ineffective.

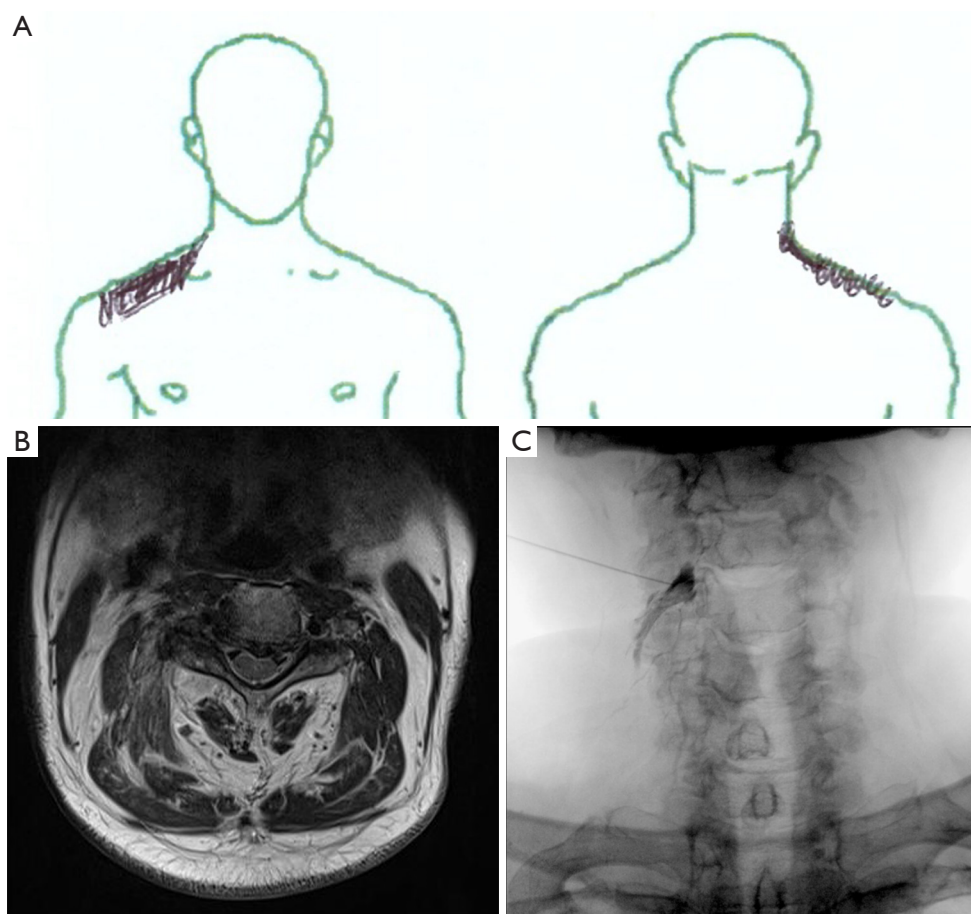


Figure 1 Pain distribution and imaging findings. (A) The area of pain was drawn by the patient before the treatment. (B) Axial T2-weighted cervical magnetic resonance imaging revealed foraminal stenosis at the right C3–4 level. (C) Fluoroscopy-guided selective right C4 nerve root injection was performed.

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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