Cervical Roots as Origin of Pain in the Neck or Scapular Regions

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Tanaka, Yasuhisa MD; Kokubun, Shoichi MD; Sato, Tetsuro MD; Ozawa, Hiroshi MD

FROM ABSTRACT:

Study Design.
A prospective observational study.

Objectives.
To determine whether the pain in the neck or scapular regions in patients with cervical radiculopathy originates from the compressed root and whether the site of pain is useful for diagnosing the level.

Summary of Background Data.
The [neck or scapular] pain has been thought to be caused not by root compression but by instability caused by disc degeneration or zygapophysial joint osteoarthritis because it usually precedes radicular symptoms in the arm/fingers.

Methods.
The subjects were 50 consecutive patients with pain as well as arm/finger symptoms, who underwent single-root decompression alone.

The involved roots were C5 in 9 patients, C6 in 14, C7 in 14, and C8 in 13.

Results.
The [neck or scapular] pain preceded the arm/fingers symptoms in 35 patients (70%).

Although the [neck or scapular] pain had lasted for more than 7 months on average before surgery, it was relieved early after surgery in 46 patients (92%).

When the painful site was suprascapular, C5 or C6 radiculopathy was frequent.

When it was interscapular, C7 or C8 radiculopathy was frequent.

When it was scapular, C8 radiculopathy was frequent.

Conclusions.
Pain in the suprascapular, interscapular, or scapular regions can originate directly in the compressed root.

The site of the pain is valuable for determining localization of the involved root.
THESE AUTHORS ALSO NOTE:

“Pain in the neck or scapular region is one of the most frequent symptoms in cervical radiculopathy, which is commonly caused by a degenerative process in the spine.”

Neck or scapular pain usually precedes the radicular symptoms of arm-finger pain, numbness, and motor weakness.

“When the pain originates from an intervertebral disc or joint, it will not be relieved with surgery that simply decompresses the root without fusion.”

When pain originates from a compressed nerve root, it may be perceived at a site referable to the root.

The subjects of this study were 50 consecutive patients (42 males and 8 females) with radiculopathy who complained of neck or scapular pain as well as symptoms in an arm or fingers.

Surgeries were indicated after ineffective conservative treatment for at least 4 months. [Important: this indicates that it is acceptable for patients with radiculopathy to undergo 4 months of conservative management prior to surgical referral.]

The inability to elevate the shoulder or extend the fingers indicated the need for an earlier surgery. [Important]

“The duration of symptoms in the arm or fingers before surgery ranged from 2 months to 3 years (average 7 months).”

In C5 radiculopathy, suprascapular pain was significantly frequent.

In C6 radiculopathy, the suprascapular pain was also significantly frequent.

In C7 radiculopathy, the interscapular pain was significantly frequent.

In C8 radiculopathy, the interscapular or scapular pain was significantly frequent.

DISCUSSION

“In the 50 patients in the present study, although the preoperative [neck or scapular] pain had persisted for more than 7 months on average, the pain was eliminated or diminished within 1 month after surgery in 92%. We conclude that the improvement in the pain was certainly brought about by surgery and the pain originated directly from the root compression.”
"Neck or scapular pain is probably the initial symptom of cervical radiculopathy when the compression is confined to the dural sheath,” which is innervated by free nerve endings [pain afferents].

**Very Important**

"In clinical practice, it is common to see patients who have neck or scapular pain unaccompanied by radicular symptoms in the arm or fingers. Most physicians doubt that the pain originates from a nerve root. However, as we confirmed in this study, the pain is usually the initial symptom in radiculopathy and can last alone as long as a few weeks or more before the arm or finger symptoms develop.”

**Very Important**

"In short, neck and scapular pain without symptoms in the arm or finger can originate in the root.”

This study showed that cervical root pain almost never gives pain to the nuchal region; nuchal region pain usually arises from the zygapophysial joints.

"It is well known that the Spurling neck compression test usually reproduces neck and scapular pain in patients with cervical radiculopathy.”

"We conclude from the present study that the site of the scapular pain is significantly reliable for localization of the involved nerve root in patients with cervical radiculopathy.”

1) “Pain in the suprascapular region indicates C5 or C6 radiculopathy.”

2) Pain in the interscapular region indicates C7 or C8 radiculopathy.

3) Pain in the scapular region indicates C8 radiculopathy.

**KEY POINTS FROM AUTHORS:**

1) “It was confirmed through this study that scapular region pain is generally the initial symptom in radiculopathy and can persist alone before the arm or finger symptoms develop.”

2) “Pain in the scapular region can originate directly in the compressed root, and the site of the pain is valuable for determining the localization of the involved root.”
KEY POINTS FROM DAN MURPHY

1) Shoulder pain is a frequent first symptom of a cervical nerve root compression radiculopathy, specifically:

A)) Suprascapular pain indicates C5 or C6 radiculopathy.

B)) Interscapular pain indicates C7 or C8 radiculopathy.

C)) Scapular pain indicates C8 radiculopathy.

2) Neck or scapular pain usually precedes the radicular symptoms of arm-finger pain, numbness, and motor weakness.

3) It is acceptable for patients with radiculopathy to undergo 4 months of conservative management prior to surgical referral.

4) The inability to elevate the shoulder or extend the fingers indicates the need for an earlier surgical referral. [Important]

5) The dural sheath is innervated by pain afferents. Compression of the nerve root dural sheath causes the neck or scapular pain noted in this study.

6) “In clinical practice, it is common to see patients who have neck or scapular pain unaccompanied by radicular symptoms in the arm or fingers. Most physicians doubt that the pain originates from a nerve root. However, as we confirmed in this study, the pain is usually the initial symptom in radiculopathy and can last alone as long as a few weeks or more before the arm or finger symptoms develop.” [Very Important]

7) “Neck and scapular pain without symptoms in the arm or finger can originate in the root.”

8) Cervical nerve root pain almost never gives pain to the neck nuchal region; neck nuchal region pain usually arises from the zygapophysial joints.


10) “The site of the scapular pain is significantly reliable for localization of the involved nerve root in patients with cervical radiculopathy.”

11) “Scapular region pain is generally the initial symptom in radiculopathy [70% of the time] and can persist alone before the arm or finger symptoms develop.”

12) “Pain in the scapular region can originate directly in the compressed root, and the site of the pain is valuable for determining the localization of the involved root.”
Figure 1. The nape (NA), superior angle of scapula (SA), suprascapular (SS), interscapular (IS), and scapular (SC) regions.

Figure 5. Site of the neck or scapular pain and the indicated level of the involved nerve root.