Spurling's sign

The Spurling's sign or test is a medical maneuver used to assess cervical radiculopathy.

The provider turns the patient's head to the affected side while applying downward pressure to the top of the patient's head. A positive Spurling's sign (i.e. the Spurling's test is positive) is when the pain arising in the neck radiates in the direction of the corresponding dermatome ipsilaterally. It is a variant of the foraminal compression test(cervical compression test).

There is limited evidence for accuracy of physical examination tests for the diagnosis of cervical radiculopathy. When consistent with patient history, clinicians may use a combination of Spurling's, axial manual traction, and an Arm Squeeze test to increase the likelihood of a cervical radiculopathy

The Spurling test is one of the best-known and most widely used provocative tests for the assessment of the cervical spine. The Spurling test was originally named as Spurling's neck compression test by the neurosurgeons Roy Glenwood Spurling and William Beecher Scoville.

It was proposed in 1944 for use in the evaluation of "radiculitis."²⁾.

The test has also been referred to as the Foraminal Compression Test, Neck Compression Test, or Quadrant Test.

In several previous trials (mostly conducted in the late 1900's), the test had proven to have high specificity, but low sensitivity. A more recent study showed more promising accuracy with a sensitivity of 95% with a specificity of 94%. This trial, however, only included patients who were presenting with symptoms of unilateral cervical radiculopathy lasting for at least four weeks. This resulted in the indirect exclusion of many of the alternative diagnoses that the Spurling test is used to help differentiate, and eliminated many other confounding variables. In short, while studies show conflicting data, the current consensus remains that the Spurling test is highly specific with only mild-to-moderate overall sensitivity. Because of its relatively low sensitivity, the Spurling test should not be used as the only screening tool. It is best used combined with other specialized examination tests to increase overall screening sensitivity³.

see axial manual traction and the shoulder abduction test.



Whenever cervical radiculopathy is suspected, observations suggest the staged provocative maneuvers that should be included in the physical evaluation are extension and lateral bending first, followed by the addition of axial compression in cases with an inconclusive effect ⁴⁾.

In 2011, one study evaluated 257 patients with clinical cervical radiculopathy and correlated CT scan findings with clinical exam findings using the Spurling's test. The Spurling's test was 95% sensitive and 94% specific for diagnosing nerve root pathology. ⁵⁾.

The Spurling's test, the axial manual traction and the shoulder abduction test has great specificity but not sensitivity.

A literature search up to March 2016 was performed in CENTRAL, PubMed (MEDLINE), Embase, CINAHL, Web of Science, and Google Scholar. The methodological quality of studies was assessed using the QUADAS-2.

Five diagnostic accuracy studies were identified. Only Spurling's test was evaluated in more than one study, showing high specificity ranging from 0.89 to 1.00 (95% confidence interval [CI]: 0.59-1.00); sensitivity varied from 0.38 to 0.97 (95% CI: 0.21-0.99). No studies were found that assessed the diagnostic accuracy of widely used neurological tests such as key muscle strength, tendon reflexes, and sensory impairments.

There is limited evidence for accuracy of physical examination tests for the diagnosis of cervical radiculopathy. When consistent with patient history, clinicians may use a combination of Spurling's, axial traction, and an Arm Squeeze test to increase the likelihood of a cervical radiculopathy, whereas a combined results of four negative neurodynamics tests and an Arm Squeeze test could be used to rule out the disorder ⁶⁾.

In 2007, a comprehensive search was conducted in order to identify all possible studies fulfilling the inclusion criteria. A study was included if: (1) any provocative test of the neck for diagnosing cervical radiculopathy was identified; (2) any reference standard was used; (3) sensitivity and specificity were reported or could be (re-)calculated; and, (4) the publication was a full report. Two reviewers independently selected studies, and assessed methodological quality. Only six studies met the inclusion criteria, which evaluated five provocative tests. In general, Spurling's test demonstrated low to moderate sensitivity and high specificity, as did traction/neck distraction, and Valsalva's maneuver. The upper limb tension test (ULTT) demonstrated high sensitivity and low specificity, while the shoulder abduction test demonstrated low to moderate sensitivity and moderate to high specificity. Common methodological flaws included lack of an optimal reference standard, disease progression bias, spectrum bias, and review bias. Limitations include few primary studies, substantial heterogeneity, and numerous methodological flaws among the studies; therefore, a meta-analysis was not conducted. This review suggests that, when consistent with the history and other physical findings, a positive Spurling's, traction/neck distraction, and Valsalva's might be indicative of a cervical radiculopathy, while a negative ULTT might be used to rule it out. However, the lack of evidence precludes any firm conclusions regarding their diagnostic value, especially when used in primary care. More high quality studies are necessary in order to resolve this issue 7 .

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