

ASK THE EXPERT

Surgical Management of Spinal Instability in RA

Cervical spine disease is a frequent complication of rheumatoid arthritis. The most common cervical spine manifestation in this population is atlantoaxial subluxation (AAS), a condition in which the first and second vertebrae of the neck are unstable. The lack of stability can lead to spinal cord compression, resulting in pain, numbness, tingling, weakness, and, in some cases, death. While subluxation can occur in up to 70% of patients with rheumatoid arthritis, frank dislocation occurs in about 25% of patients and spinal cord compression occurs in approximately 11%. The only definitive treatment for this type of spinal instability is surgery to decompress neural structures and to stabilize the involved joints. Determining which patients should undergo the procedure and at what point in their disease progression, however, can be difficult because of the additional disease- and medication-related surgical risks associated with rheumatoid arthritis.

In this month's column, Dr. Noel I. Perin discusses the clinical and laboratory indications for spinal stabilization surgery in rheumatoid arthritis patients, as well as the optimal timing of such surgery and risk management considerations.

Rheumatology News: Which rheumatoid arthritis patients with AAS are the best can-

didates for spine stabilization surgery?

Dr. Perin: Older patients with more significant instability are probably at the most risk for serious problems if they don't have surgery. If they take a bad fall or get whiplash, they can easily injure their spinal cord and become paralyzed. In all patients, the condition is life threatening when it reaches a certain degree of instability, so unless there are other medical conditions that would significantly increase the surgical risks or the patient is terminal and bedridden, surgery should be considered.

RN: What are the signs and symptoms of functional deterioration?

Dr. Perin: Often these patients will present with moderate to severe pain in the neck and the back of the head, and sometimes there will be tingling in the arms

and legs. We also measure the degree of slippage [on x-ray or MRI] between C1 and C2. In nonrheumatoid patients, slippage greater than 3 millimeters is an indicator for surgery. In rheumatoid patients, we allow for more latitude. Many patients will have some degree of instability, but we often just watch them over time and don't intervene until the slippage reaches 7 millimeters. This is because the disease is chronic and the associated instability progresses slowly up until a certain point. However, the literature suggests that rheumatoid patients

who have 7-9 millimeters of slippage progress quickly to a worst-case scenario. The case reports of sudden death associated with atlantoaxial instability have occurred in this subgroup of patients.

RN: Are all patients symptomatic?

Dr. Perin: Most patients have some combination of symptoms, which is how they end up at a surgical consultation, often after referral to a neurologist. There are some patients who have significant instability but who do not experience pain or discomfort, and it is only when they are being imaged for other issues that the instability is identified. For this reason, prophylactic cervical spine x-rays in all rheumatoid arthritis patients should be routine. We can't stop the progression of the instability, but at least we can monitor the patient.

RN: What are some of the perioperative complications unique to rheumatoid arthritis patients undergoing cervical stabilization surgery, and how can these best be prevented or at least managed?

Dr. Perin: In addition to the standard complications of surgery, the main issue with rheumatoid arthritis patients is delayed wound healing and a higher incidence of wound infections associated with long-term use of high-dose steroids or the various antimetabolite medications. Additionally, high-dose steroids in particular affect bone healing potential, so the bone fusion may not work. For this reason, we use adjunctive measures, such as bone growth factors and stimulators to

advance healing potential. The various medications can also result in soft bones, so the screws can come out or the procedure can cause fractures. There are also all kinds of joint and skin issues. The skin can be tenuous and easily damaged, and some joints are stiff as a result of disease, so positioning of the patient has to be done carefully to avoid fracture. Finally, sometimes rheumatoid patients are not just candidates for C1 and C2 fusion. In some cases, there is associated cranial settling, so if we only fix the first two cervical vertebrae, the settling could progress further, leading to compression of the brain stem. In those patients, we may also have to do occipital cervical fusion.

RN: At what point should rheumatologists refer patients with AAS for surgical consultation?

Dr. Perin: All patients who have progressive functional deterioration, which suggests compression of the nerves or the spinal cord, should have a consultation. In addition, patients with radiographic evidence of instability should be referred for a baseline evaluation. Often we'll see that the slippage is not an indicator for immediate surgery, so we'll consult with the rheumatologist and monitor the patient over time for changes. ■

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BY NOEL I. PERIN, M.D.

Resistance/Motor Task IDs Carpal, Cubital Tunnel Syndromes

BY PATRICE WENDLING
Chicago Bureau

TUCSON, ARIZ. — A novel test for diagnosing carpal and cubital tunnel syndromes was at least as accurate as conventional tests, according to the findings of a prospective, case-control investigation.

During the so-called scratch-collapse test, patients perform a simple resistive motor task, such as pressing their extended arms against a clinician, who then lightly scratches the site of peripheral nerve compression. The patient then immediately attempts to repeat the motor task. If

the test is positive, there is a brief loss of proximal postural stability, or "collapse," in the arm, Dr. Christine Cheng explained at the annual meeting of the American Association for Hand Surgery.

"My first reaction was sort of like everyone else's—'This is crazy,'" she said in an interview. "But it does seem to bear out."

The test was developed by San Diego orthopedic surgeon Dr. John Beck, based on observations of postural stimulation and muscle control in patients with Parkinson's disease.

The exact mechanism is not fully understood. But it is hypothesized that the

test is detecting a short circuit or delay in the proximal muscles, said Dr. Cheng of Washington University, St. Louis.

She presented data from a prospective study in which 169 patients and 109 controls were evaluated for carpal and cubital tunnel syndromes using Tinel's sign, Phalen's test, elbow flexion, and the scratch-collapse test.

Electrodiagnostic studies were used to confirm the diagnosis of carpal tunnel in 119 patients and 175 hands, and cubital tunnel in 70 patients and 81 hands.

In the control group, testing was rarely positive, she said. In the 175 hands with carpal tunnel syndrome, 148 had a positive scratch-collapse test, 141 had a positive Tinel's sign, and 131 had a positive Phalen's test.

In the 81 hands with cubital tunnel syndrome, 64 had a positive scratch-collapse test, 64 had a positive Tinel's sign, and 56 had positive elbow flexion.

Sensitivity of the scratch-collapse test in subjects with carpal tunnel syndrome was 75%, compared with 37% for Tinel's sign

and 47% for Phalen's test. Specificity was 62%, 75%, and 66%, respectively. Accuracy was 72%, 47%, and 54%.

Sensitivity of the scratch-collapse test in subjects with cubital tunnel syndrome was 83%, compared with 65% for Tinel's sign and 54% for elbow flexion. Specificity was 82%, 86%, and 81%, respectively. Accuracy was 82%, 77%, and 69%.

Dr. Cheng and her colleagues have been using the test for about 2 years, in conjunction with other testing, to establish a diagnosis of carpal tunnel in patients. Part of the problem in establishing this diagnosis is that it remains primarily clinical, she explained.

The sensitivity and specificity of clinical tests vary widely, electrodiagnostic studies still have significant false-positive and false-negative values, and predictive values depend on the prevalence of disease.

"For something as common and presumably simple as carpal tunnel syndrome, it's not all that easy to diagnose because there really isn't a gold standard that you can use," she said. ■



Accuracy was 82% for the scratch-collapse test, compared with 77% for Tinel's sign and 69% for elbow flexion.

DR. CHENG

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