

Neurologic Manifestations of Rheumatoid Arthritis



Kimberly DeQuattro, MD, John B. Imboden, MD*

KEYWORDS

- Rheumatoid arthritis • Atlantoaxial subluxation • Cervical spine subluxation
- Rheumatoid meningitis • Rheumatoid vasculitis • Compression neuropathy

KEY POINTS

- Aggressive medical management of rheumatoid arthritis can prevent the development cervical spine disease but does not halt progression of preexisting cervical lesions.
- MRI is the imaging modality of choice for the assessment of the rheumatoid patient with neurologic symptoms or signs attributable to cervical spine disease.
- Myelopathy due to rheumatoid cervical spine disease is progressive and requires surgical intervention.
- Rheumatoid meningitis is rare but should be considered when a patient with long-standing rheumatoid arthritis develops new neurologic findings that point to an intracranial process.
- Compressive neuropathy, particularly carpal tunnel syndrome, is the most common abnormality of the peripheral nervous system in rheumatoid arthritis.

INVOLVEMENT OF THE CERVICAL SPINE

Overview

Involvement of the cervical spine is common in rheumatoid arthritis (RA) (approaching 80% in some studies) and ranges in severity from an asymptomatic radiographic abnormality to a life-threatening condition.^{1,2} RA can affect the atlantooccipital joint (C1-occiput), the atlantoaxial joint (C1-C2), and the subaxial joints (C3-C7). As is the case with peripheral joint disease in RA, inflammation of the synovial-lined joints of the cervical spine leads to pannus formation and erosion of juxta-articular bone, thereby damaging articular structures and weakening adjacent ligaments.³ Although inflammatory lesions can directly compress the spinal cord and nerve roots, most

Supported by the Arthritis Foundation and by the Russell Engleman Rheumatology Research Center.

Drs K. DeQuattro and J.B. Imboden have no financial disclosures and no conflicts of interest. Division of Rheumatology, Department of Medicine, University of California, San Francisco, San Francisco, CA, USA

* Corresponding author. University of California, San Francisco, Box 0868, San Francisco, CA 94143.

E-mail address: john.imboden@ucsf.edu

Rheum Dis Clin N Am 43 (2017) 561–571
<http://dx.doi.org/10.1016/j.rdc.2017.06.005>

rheumatic.theclinics.com

0889-857X/17/© 2017 Elsevier Inc. All rights reserved.

serious complications stem from structural alterations of the cervical spine, particularly subluxations of the atlantoaxial and atlantooccipital joints, which can lead to compression of the spinal cord, impingement of the brainstem, compromise of the vertebral arteries, and impingement of spinal nerve roots or cranial nerves. Destabilization of the lower cervical spine due to extension of inflammation into the discovertebral areas most often produces nerve root impingement but also can cause compression of the spinal cord. Involvement of the cervical spine can develop within 2 years of the onset of RA. Severe, clinically significant spinal disease, however, tends to occur in long-standing active disease and usually is associated with extensive erosive disease of peripheral joints.⁴⁻⁶ Treatment with disease-modifying antirheumatic drugs (DMARDs) and biological agents can prevent cervical spine disease but does not impact the progression of preexisting spinal instabilities.

Atlantoaxial Subluxation

The atlantoaxial (C1-C2) joint, which is the cervical spinal segment most commonly affected by RA, permits the widest range of motion of any spinal segment. As a consequence, the damaged atlantoaxial joints are exposed to stresses and strains that can predispose to anterior, posterior, lateral, rotational, or vertical subluxation.⁷

By far the most common abnormality is anterior subluxation of C1 on C2, which occurs when pannus develops in the synovial spaces surrounding the odontoid and weakens the transverse and alar ligaments. As a result, the anterior arch of C1, which normally is held tightly against the odontoid process of C2, migrates anteriorly, and the anterior atlantodental interval (the distance between the anterior arch of C1 and the odontoid) increases. Measurement of the anterior atlantodental interval is commonly used to detect atlantoaxial subluxation on plain radiographs with values greater than 3.0 mm and 4.5 mm, indicative of subluxation in adults and children, respectively. Impingement of the spinal cord, however, results from compromise of the spinal canal, which lies between the *posterior* arch of C1 and the odontoid. The spinal canal must accommodate the spinal cord (approximately 10 mm in diameter) as well as the dura mater and cerebrospinal fluid. The posterior atlantodental interval (the distance between the anterior aspect of the posterior arch of C1 and the posterior aspect of the odontoid) provides a measure of the diameter of spinal canal; the risk for cord compression increases when this interval is reduced to less than 14 mm.⁸

Other forms of atlantoaxial subluxation are less common. Lateral subluxation is due to asymmetric cartilage erosion; rotational subluxation occurs with transverse ligament damage. Posterior atlantoaxial subluxation develops when the dens, weakened by erosions and adjacent pannus, fractures, thereby allowing the anterior arch of C1 to migrate posteriorly. Posterior subluxation is uncommon but carries the greatest risk of severe neurologic compromise.⁷ Vertical subluxation, which results from destruction of the lateral aspects of the atlantoaxial joint or the clivus (the basilar part of the occipital bone) or both, usually occurs in the context of atlantooccipital arthritis and is discussed as follows.

Symptoms and Signs of Atlantoaxial Subluxation

Atlantoaxial subluxation can be asymptomatic. Neck pain is a common but nonspecific symptom. A more specific symptom of atlantoaxial subluxation is severe, referred occipital pain due to compression of the exiting C2 nerve roots. There may be loss of cervical lordosis and resistance to passive motion of the spine. Lateral and rotational subluxation can result in head tilt. Most serious are symptoms pointing to impingement of the cervical spinal cord: weakness and sensory symptoms in the upper and lower extremities and sphincter dysfunction with retention and incontinence. In such

Download English Version:

<https://daneshyari.com/en/article/5670281>

Download Persian Version:

<https://daneshyari.com/article/5670281>

[Daneshyari.com](https://daneshyari.com)