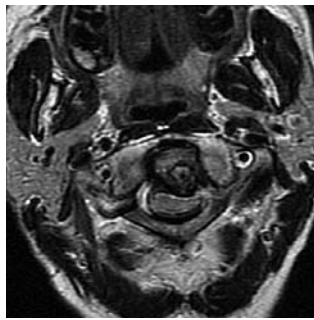


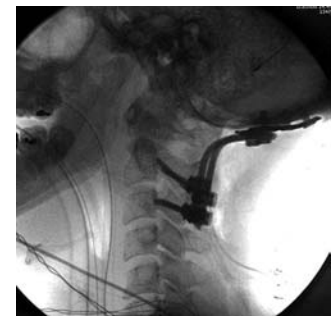
Rheumatoid Case Study



◀ PREOP SAG T2



▲ PREOP AXIAL T2



▲ POSTOP LATERAL CSPINE

PATIENT HISTORY

A 60-year-old female with a long history of rheumatoid arthritis presented with progressive gait instability, disco-ordination, bilateral hand weakness and hand numbness. On MRI scanning, she was found to have significant subluxation at the C1-C2 joint due to rheumatoid pannus formation. Her spinal canal at the level of the foramen magnum/C1 measured 4.8 millimeters, and her upper cervical spinal cord was noted to be flattened.

DISCUSSION

Rheumatoid arthritis (RA) affects 0.8% of the white population in the United States and Europe. Neck pain is reported in 40-88% of patients with RA. The prevalence of cervical spine involvement in RA ranges from 25-80%, depending on the diagnostic criteria applied. Only 7-34% of patients with RA have a neurologic deficit. A substantial number of patients with radiographic instability or neck pain do not develop neurologic deficits.

Involvement of the cervical spine typically begins early in the disease process and often parallels the extent of peripheral disease. Atlanto-axial instability is the most common type of cervical spine anomaly, occurring in up to 49% of patients. While most of these subluxations are anterior, approximately 20% are lateral and approximately 7% are posterior. Superior migration of the odontoid is seen in up to 38% of patients with RA. Subaxial subluxation is seen as a discrete pathologic entity in 10-20% of patients.

Recent theories on the pathogenesis of RA suggest that the synovial cells of these patients chronically express an antigen that triggers the production of rheumatoid factor, an immunoglobulin molecule directed against other autologous immunoglobulins. An inflammatory response is initiated, involving

immune complex formation, activation of the complement cascade, and infiltration of polymorphonuclear leukocytes. The proliferating fibroblasts and inflammatory cells produce granulation tissue, known as rheumatoid pannus, within the synovium. The pannus produces proteolytic enzymes capable of destroying adjacent cartilage, ligaments, tendons, and bone. The destructive synovitis results in ligamentous laxity and bony erosion with resultant cervical instability and subluxation.

TREATMENT

The patient underwent a surgical procedure to both decompress the upper cervical cord and stabilize the upper cervical segments. Resection of the posterior arch of C1 with enlargement of the foramen magnum provided a more anatomic environment for the upper cord. A plate was screwed into the skull base and was connected via contoured rods to screws placed in C2 and C3. Thus the instability portion of the patient's pathology was addressed.

OUTCOME AND FOLLOW UP

The patient experience immediate, near complete resolution of hand numbness, with significant improvement in hand strength and gait stability. Serial follow-up x-rays show a good bony union between the skull base and C-1-2-3.



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