Quadriparesis in a Young Female Suffering from Rheumatoid Arthritis
AK Gupta*, N Agarwal**, RK Yadava*, SK Jain***

Abstract
Cervical spine is involved in a significant proportion of patients suffering from rheumatoid arthritis. Although cervical spine disease may often be 'benign', neurological complications are not uncommon. Patients of rheumatoid arthritis should be screened for cervical spine involvement and appropriately treated with combination of anti-rheumatic drugs. We report a case of quadriparesis secondary to subluxation and disc herniation at C4-C5 level in a young woman with rheumatoid arthritis of short duration.

INTRODUCTION
Rheumatoid arthritis (RA) is an inflammatory disease of unknown aetiology. Its characteristic feature is persistent inflammatory synovitis, usually involving peripheral joints in a symmetric distribution. Synovitis leads to cartilage destruction and bony erosions, and subsequent changes in joint integrity. RA affects cervical part of the spine. The cervical spine involvement may cause compression of neurological structures.1

CASE REPORT
A 21 years female presented to us with a h/o with gradually progressive pain and swelling of small joints of both hands, elbows, toes and ankles of three years duration with an early morning stiffness of more than one hour duration. She also c/o low grade fever, malaise, and lethargy. Since one month she had developed radicular pains in both arms with gradually progressive symmetric weakness of both the lower limbs followed by upper limb weakness. On examination, patient had synovitis of small joints of hands, elbows, toes and ankles. Neurological examination revealed increased tone in all four limbs, grade 2-3/5 power in all muscle groups, exaggerated deep tendon reflexes with bilateral extensor plantar response. There was no sensory loss. Bladder and bowel were not affected. Investigations revealed ESR 60 mm first hour, rheumatoid factor 35.0 IU/ml (normal < 14.0, C-reactive protein (CRP) 4.5 mg/dl (normal < 1.0) and negative antinuclear factor. X-ray of hands showed generalised osteopenia with osteolytic changes in carpal bones with reduced joint spaces and periarticular rarefaction. Cervical spine radiograph (Fig. 1) revealed anterior subluxation of C4/5 vertebra with osteolytic changes in all vertebrae. MRI revealed transligamentous herniation of C4/C5 intervertebral disc with extrusion of disc material compressing thecal sac and cord with focal oedema (Fig. 2). Patient was put on celecoxib 200 mg BD, daily chloroquine (2 OD) and weekly methotrexate (7.5 mg). Patient refused neurosurgical intervention. She was managed with traction and cervical collar. However, her condition failed to improve. At six months of follow up, she had fixed neurological deficit and was bedridden.
DISCUSSION

Rheumatoid arthritis (RA) affects cervical spine in 17-86% of patients of Western population1,2 and 65-70% in India.3,4 Rheumatoid synovitis can result in ligamentous distention and rupture, loss of articular cartilage, and bony erosions. These lesions lead to ligamentous laxity and subsequent joint instability. The most common cervical spine involvements are atlantoaxial subluxation, followed by basilar invagination, and subaxial subluxation, or a combination of these three conditions.1,2,5 Atlantoaxial subluxation is the result of destruction and laxity of transverse, alar and apical segments. Bone and cartilage loss from the occipitoatlantal and atlantoaxial joints leads to basilar invagination. Subaxial subluxation occurs at a late stage in the disease and tends to involve multiple levels. It is the result of destruction of the facet joints, interspinous ligament, and the discovertebral junction.1 progressive instability of cervical spine may compromise neural or vascular structures. The clinical manifestations are radiculopathy, myelopathy, quadriplegia and in extreme cases, sudden death.1 Severity of cervical spine involvement in RA is related to duration of the disease (> 5 years).2,3 seropositivity,1 elevated CRP,2 an increase in the number of joint erosions2 and a decrease in carpal height ratio.3 Subaxial subluxation is often at multiple levels and neural compression is usually caused by bony structures and rarely by herniated disc material.3 Cervical spine radiographs should be included in the clinical evaluation particularly in cases of erosive hand joint disease, seropositivity, and disease duration of greater than five years.3 The bony and soft tissue changes in the cervical spine are well shown by MRI, which excellently reveals effect of inflammatory process on the neural tissue, ligaments, bursae and fat pads. Thus MRI should be used as the first investigation to follow plain films if neural compression is suspected.3 This particular patient presented with cervical cord compression with very short duration of rheumatoid arthritis i.e., about three years. Fujiwara K et al2 reported average duration of RA at the onset of neurological deficit to be 17.7 years. Also presentation was unusual in the sense that the subluxation was at the level of C4/C5 vertebra with normal atlantoaxial joint and it was the herniated disc which caused neural compression rather than the bony structures. Early, aggressive combination - DMARD (disease modifying antirheumatic drugs) therapy with sulfasalazine, methotrexate, hydroxychloroquine, and prednisolone can prevent or retard the development of rheumatoid atlantoaxial disorders.6 Patients with neurological involvement should be referred for neurosurgery, which should focus on decompressing neural elements, and stabilizing the spine, by spinal fusion.1

REFERENCES