

Severe vertical atlanto-axial subluxation in rheumatoid arthritis

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The classic cervical spine involvement in rheumatoid arthritis (RA), which was described by Archibald Edward Garrod shortly after this disease had been defined as a clinical entity in 1860, has been systematically studied since the middle of the last century^{1,2}. Its paradigmatic characteristic is an atlanto-axial subluxation, either in the form of anterior subluxation, or vertical subluxation^{3,4}.

In the last years, the earlier diagnosis and efficacious therapies for RA, have decreased, in number and severity, these vertebral manifestations⁵.

The authors present an imaging study of a case of severe vertical atlanto-axial subluxation in a 60-year-old male with long-term RA and severe polyarticular involvement (Class IV of Steinbrocker functional classification). He was admitted because of a community-acquired pneumonia. He also had pulmonary fibrosis, hepatitis B, cirrhosis and diabetes, combined to therapeutic non-compliance. His cervical spine movements were severely impaired but no relevant abnormalities in the neurological examination were found.

The imaging study, including computed tomography (CT) (Figures 1 and 2) and magnetic resonance imaging (MRI) (Figure 3), showed severe vertical subluxation and superior protrusion of the odontoid process at the posterior fossa, determining marked reduc-

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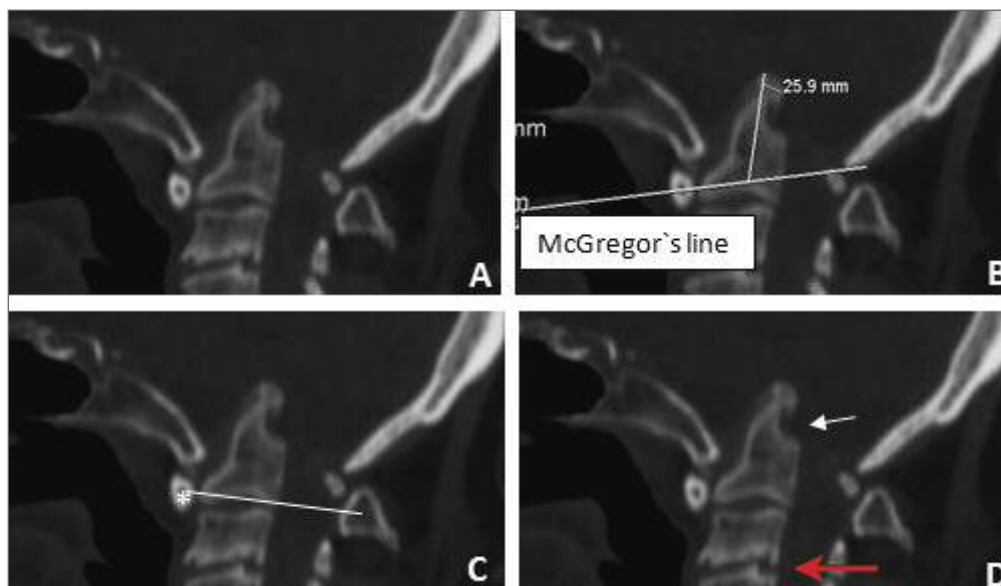


FIGURE 1. Sagittal CT reconstruction showing vertical atlanto-axial subluxation (Panel A) with migration of the tip of the dens 25.9 mm (> 4.5 mm indicates vertical subluxation) above McGregor's baseline (line between the postero-superior aspect of the hard palate and the most caudal point of the occipital curve (Panel B)); the anterior arc of the atlas (*) and the transverse axis of the atlas (white line) are at the level of C2-C3 disc, indicating severe vertical subluxation (Panel C)[†]. Note the erosion of the posterior face of the dens (white arrow) and the concomitant erosive disc changes at the C3-C4 level (red arrow) (Panel D).

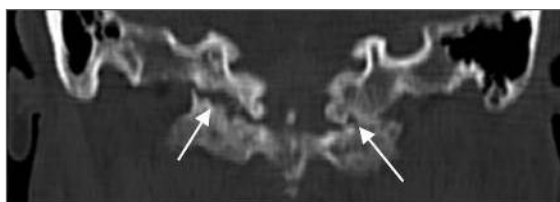


FIGURE 2. Coronal CT reconstruction showing erosive destruction of atlanto-occipital joints (white arrows)

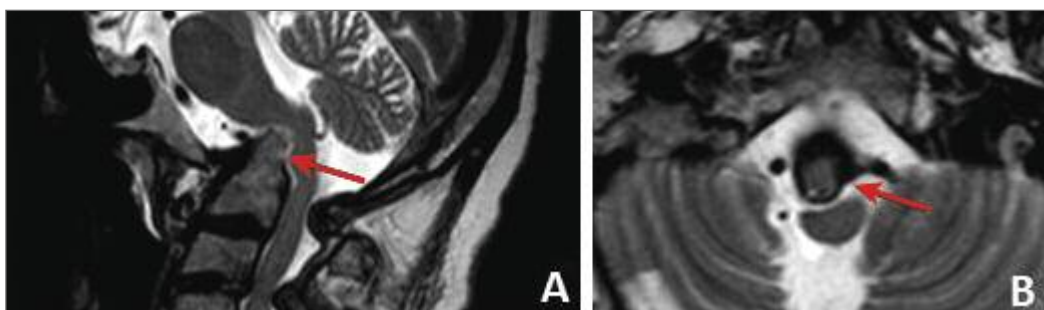


FIGURE 3. MRI: Sagittal T1 (Panel A) and axial T2 (Panel B) showing protrusion of the odontoid process at the posterior fossa with stenosis of the foramen magnum and significant medullary compression (red arrows)

tion of the *foramen magnum* and medullary compression. We observed migration of the tip of the dens 25.9 mm above McGregor's baseline with the anterior arc of the atlas and the transverse axis of the atlas at the level of C2-C3 disc. He also had an erosive destruction of atlanto-occipital joints and of lateral atlanto-axial joints.

Given the comorbidities and the absence of neurological compromise, surgery was not preformed.

Despite rare, atlanto-axial subluxation in RA is a serious complication, which can result in severe neurological consequences, thus its prompt identification may allow surgical correction or prevent further development of the subluxation.

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