4.3. Rheumatoid Spondylarthritis of the Cervical Spine
Prevalence and Surgical Treatment

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Radiological changes in the cervical spine frequently occur in rheumatoid arthritis patients. Among others it was the aim of our inquiry to assess a relation between the radiological changes in the cervical spine in rheumatoid arthritis patients and the necessity of surgical treatment.

At the Department of Orthopaedic Surgery of Innsbruck University, standardized X-ray films of the cervical spine were made in 80 rheumatoid arthritis patients who were under stationary treatment between 1978 and 1983. The average age of these patients was 50 years (with a variation between 17 and 76 years). 67 patients were women (83.75%), 13 were men (16.25%). All patients listed in this study met the criteria of ARA. The following radiological changes in the cervical spine could be found:

1. Atlanto-axial subluxation (40%), 2. basilar impression (36.25%), 3. erosion of the dentoid process (51.25%), 4. subaxial subluxation (30%), 5. Demineralization (22.5%), 6. upper plate erosion (33.75%), 7. apophyseal erosion (18.75%), 8. apophyseal fusion (3.75%).

In 40% of the patients an atlanto-axial subluxation could be found radiologically. The distance between the anterior surface of the odontoid process and the posterior surface of the anterior arch of the atlas was taken as its measure. The pathological distance between the odontoid process and the arch of the atlas amounted—on an average—6 mm (4–12 mm, Fig. 1).

In 36.25% of the patients a basilar impression could be found. If the pallato occipital line = McGregor line was exceeded for more than 4.5 mm it was considered to be pathological. On an average, a pathological value of 8 mm (5–14) could be found (Fig. 2).

It appears from our investigations that the dislocations do not only occur in segment C1/C2 but also subaxially, with a maximum in the motion segment C4/C5 (Fig. 3). The curve diagram approximately corresponds to the diagram of summation of the range of motion in the cervical spine. It may therefore be assumed that the frequent occurrence of dislocating arthritis in certain levels—mainly C1/C2 but also C4/C5—is caused by an
increased mechanical use of these segments. Altogether, surgical treatment was only required in 7.5% of the patients, but only with strict indication.

The patients involved were 4 women and 2 men, who were treated surgically. Postoperative follow-up comprised 3 to 8 years. Indication for surgical treatment was two-fold:

a) clinical:
- Incomplete transverse syndrome: 3
- Radicular lesion: 1
- Pain: 2

b) radiological:
- Atlantoaxial subluxation: average 8 mm 4
- Basilar impression: average 10 mm 4
- Sublux C 3/C 4: 4 mm 1
- Sublux C 7/Th 1: 5 mm 1

Operations:
- 4 Brattström C 1/C 2: 2 incomplete transverse syndrome
- 1 Dorsal decompression C 3/C 4: 1 incomplete transverse syndrome and anterior fusion
- 1 Anterior fusion C 7/Th 1: 1 radicular lesion