

Clinical Presentation and results of the surgical treatment of cervical spine fractures in ankylosing spondylitis. An analysis of 110 patients in 2 spine centers

Background

Cervical spine fracture in Ankylosing spondylitis (AS) can occur after mild trauma and even without a history of trauma. Neurological deficits are common especially in patients with delayed diagnosis.

Research question

This work aims to study the clinical presentation of cervical spine fractures in ankylosing spondylitis patients and to assess the surgical management of these fractures.

Material and Method

Retrospective analysis of the prospectively collected data in two level-1 spine surgery centers was performed. Inclusion criteria were; surgically treated AS with cervical spine fracture diagnosis (from C1 to Th3) with postoperative follow-up minimum of 12 months.

Results

There were 110 patients (105 males and 5 females) met the inclusion criteria. The mean age was 62.35 ± 10.55 years. The mean time between the beginning of the symptoms and surgical treatment was 49.22 ± 42.32 (range 0 to 320 days). In 72 patients, there was a history of mild trauma. The clinical presentation was a pain in all patients. In 27 cases (24.6%), a neurological deficit was diagnosed at the time of admission. The most common fracture level was C6/7 in 63 patients. The mean VAS was 7.3 ± 1.2 , and ODI was 34.2 ± 15.34

Radiologically, the mean preoperative kyphosis angle was 48.3 ± 26.2 degrees of kyphosis between C2 and C7. The surgical approach was dorsal in 59 (53.6%), a combined anterior and posterior approach was used in 45 (40.9%) patients, and ventral only in 6 patients. The mean number of the fixed levels was 6.3 levels (range between 2 and 12 levels).

Postoperative Cobb angle improved to a mean of 17.3 degrees. Postoperative neurological improvement occurred in 20 patients of the 27 patients. The mean postoperative follow-up time was 46.3 ± 16.34 months (range between 12 and 192 months). VAS improved to 3.2 ± 1.4 , and NDI improved to 14.7 ± 6.2 at the last postoperative visit. The improvement of both VAS and NDI was clinically significant ($p=0.01$ and 0.00 , respectively). Revision surgery was necessary in 14 (12%) patients due to implant failure in 9 patients and loss of correction on 5 patients.

Discussion

High suspicion of cervical spine fractures is necessary for patients with ankylosing spondylitis. Surgical treatment is safe, and the posterior approach with long-segment fusion is the approach of choice in cases of cervical spine fracture in ankylosing spondylitis patients