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Cervico-thoracic Junction Fractures: A Retrospective Study of Treatment and Complications

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Fractures of the cervico-thoracic junction are rare injuries, yet they pose a high morbimortality rate due to the severe consequences of spinal cord and nerve root injuries. Surgical treatment is controversial and complex, with no consensus on the optimal type of fracture fixation.

A retrospective analysis was conducted on all patients operated on for cervico-thoracic fractures over a 14-year period (2008-2022) at an institution.

The analysis included 20 patients (16 males, 4 females) with a mean age of 63.3 years.

The most prevalent fractures were types C and B1, with 7 cases each. Upon admission, 50% of patients had no neurological deficit.

The most commonly used approach was the anterior approach (n=15), with only one case treated by a dual approach.

Concerning failure of fixation, one case was initially treated with posterior fixation only, 2 cases with anterior fixation of 1 level and other 2 with 2 level fixation. Revision of posterior fixation failure involved an anterior approach with ACDF of 2 upper levels and 1 lower level; revisions of anterior failure underwent posterior instrumentation (2 upper and lower levels) in 3 cases, and in 1 case, the fixation was extended to the proximal level (2 upper levels, 1 lower level). Only one patient with fixation failure had a bamboo spine. The in-hospital mortality rate was 10%.

The low incidence of these injuries makes their correct analysis challenging, hindering the development of treatment guidelines. The high risk of neurological injuries with initial trauma or fixation failure underscores the need for appropriate fixation in the initial approach. The presented results show varying approaches to instability and surgical practices among surgeons, but a more rigid fixation is evident in cases of greater instability. The anterior approach is the most chosen, and in the presence of instability signs, posterior fixation may be added simultaneously or deferred, depending on the patient's clinical condition.