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The Magnitude of Angular and Translational Displacement of Dens Fractures is Dependent on the Sagittal Alignment of the Cervical Spine rather than the Force of Injury

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Abstract

Background Context: Although it is generally believed that the magnitude of dens fracture displacement is proportional to the amount of force applied to the cervical spine during injury, the factors responsible for displacement have not been studied.

Purpose: Our aim was to determine factors which contribute to horizontal and angular displacement of dens fractures.

Study Design/Setting: We conducted a retrospective review of adult patients who were admitted to our level one trauma center between 1/1/2008 and 12/31/2013.

Patient Sample: Angular and horizontal displacements of the fractured dens in 57 patients were measured. Subjects were grouped based on mechanism of fracture: motor vehicle accident, ground level fall, and higher falls.