



Purpose:

To determine the inter- and intra-reader reliability for Type II odontoid fracture assessment using head CT scout views obtained as part of CT examinations for a sample of head trauma patients.

Background:

The scout image obtained prior to performing a head computed tomography (CT) can be a valuable resource for analyzing certain aspects of cervical spine pathology. Clinicians rarely use the scout image outside of referencing the level at which the axial image is taken.

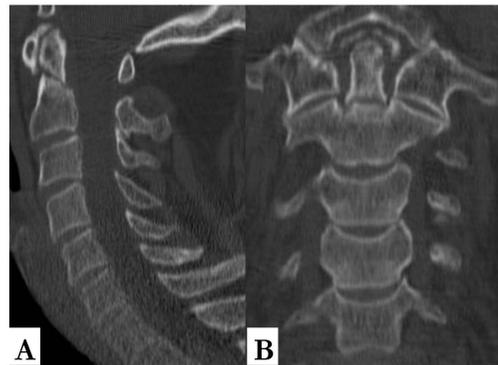
Methods:

We identified 80 consecutive patients admitted to our Level I trauma center from 2010-2011 who were diagnosed with a C2 fracture. Using picture archiving and communication software (PACS), we confirmed Type II odontoid fractures in 18 of these patients (18/80 = 23%).

Methods Cont.

We then queried 18 consecutive normal cervical CT scans, within the study period, to act as controls and randomized these 36 scout images for review. Three reviewers were blinded to the results and asked to determine which scout head CT images had a true Type II fracture without looking at the associated cervical CT.

Sagittal and Coronal CT Images of Cervical Spine



Both the sagittal and coronal images of the cervical CT scan were used to confirm Type II fractures.

Results:

Using the scout image of the head CT, the three reviewers correctly identified the Type II odontoid fractures $87.5\% \pm 6.7$ of the time. The average inter-reviewer agreement with actual status using the kappa statistic was 0.78 (range, 0.61 – 1.0) for the first session and 0.73 (range, 0.67 – 0.79) for the second session, corresponding to “substantial” agreement. The average intra-reviewer agreement was 0.63.

Conclusions/Significance:

The results of this study demonstrate that the scout view of the head CT is both reliable and reproducible in the diagnosis of Type II odontoid fractures and may add valuable information towards the treatment of a head trauma patient.

Learning Objectives

By the end of this session, participants will be able to: **1)** Recognize common skeletal anatomy of a head CT scout image, **2)** Understand the value of a lateral head CT scout image beyond serving as a scout line, **3)** Recognize findings that suggest a potential C2 fracture.

Scout Head CT Image



Scout Image of the Head CT with a Type II odontoid fracture.