Grand Rounds

The Ring of Danger

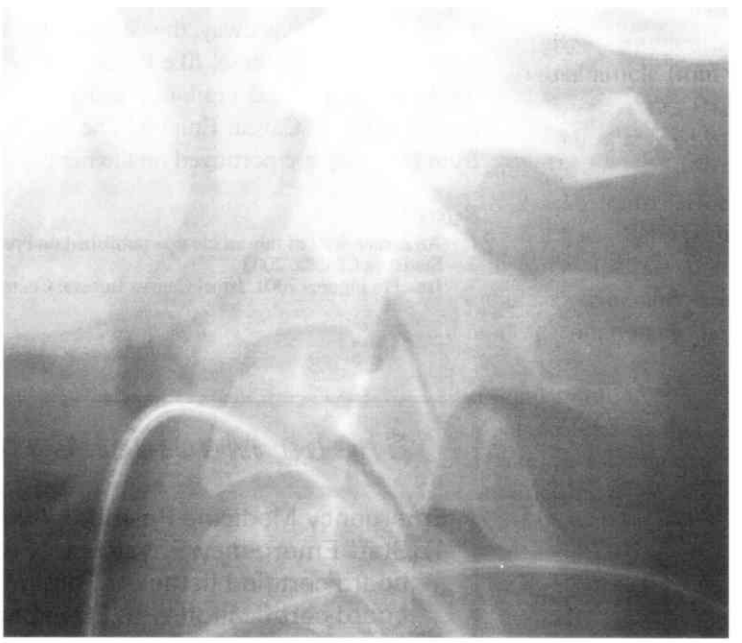
Gelareh Zargaraff, MD

Michael Zucker, MD

The David Geffen School of Medicine at UCLA

Case Presentation

The patient is a 25 year-old man brought in by ambulance to the Emergency Department following a motor vehicle accident. The patient was an unrestrained passenger who was ejected from the vehicle at unknown speed. There was transient loss of consciousness . On arrival, he presented with a blood pressure of 139/99, pulse of 112, respiration of 32, and pulse oximeter of 98% on room air. He was awake and alert in cervical spine collar with a GCS of 4-6-5. On exam, he had some tenderness of the upper cervical spine but was neurologically intact and was moving all extremities. He had normal rectal tone. Plain film cervical spine series consisting of lateral, anteroposterior and odontoid views was obtained. Below is his lateral cervical spine radiograph. What is your diagnosis?



Answer

This patient has a type III dens or odontoid fracture, also known as a "low dens fracture". Dens fractures are classified into three types: Type I fractures are oblique avulsion fractures of the tip and are rare. Type II fractures are of the major part of the dens from top to the base and are transverse. They account for two thirds of dens fractures. Type III fractures account for the remaining one third. Type III fractures occur through the superior portion of the body below the dens base. They have a curved or "U" shape on the AP view. On the lateral projection, a sign of a type III fracture is **axis ring** disruption. The axis or **Harris ring** is a composite structure in the upper body of C2. The superior facet, anterior and posterior body cortex and transverse process all contribute to the making of the ring. The ring frequently has an open inferior margin, although it may be circular. The case radiograph, which is marked