freely moveable in AOD, causing the artery to be injured at the C1 level as the vertebral artery then becomes anchored to the spine within the transverse foramen. At autopsy, none of these patients had evidence for mechanical injury or transection of the cord [4].

**Image of choice for diagnosis**

Radiographic diagnosis is difficult, which frequently delays diagnosis. Plain lateral radiographs are typically the first test ordered. Plain radiographic techniques for diagnosing this entity include the Power’s ratio, and the X-line method [5]. The opisthion and basion are often difficult to identify on plain films, making thin-slice CT (3-mm cuts) with sagittal reconstruction a more accurate way of identifying AOD (see Power’s ratio in the Image hallmarks section). If suspicion is high, reformatted CT is the test of choice.

**Image hallmarks**

There is typically massive retropharyngeal soft tissue swelling (Fig. 1). On plain lateral radiographs, the Power’s ratio is frequently employed. The distance from the basion to the posterior arch of the atlas divided by the distance from the opisthion to anterior arch of atlas is greater than 1.0 in all cases of AOD. A Power’s ratio of less than 0.9 is normal, whereas ratios of 0.9 to 1.0 are borderline, representing 7% of the normal population and no cases of AOD [2].

**Management**

Initial treatment involves strict immobilization of the cervical spine. Patients are typically reduced and placed in a halo vest. It is typically recommended that the patient subsequently undergo posterior occipital to cervical fusion [1,3].

Fig. 1. Lateral radiograph with massive soft tissue swelling.
Fig. 6. (A) Lateral radiograph of C6 burst fracture. (B) Comminuted burst fracture including bilateral laminar fractures.
**Image of choice for diagnosis**

Plain lateral radiographs are adequate in the diagnosis of unilateral and bilateral facet fracture-dislocations. A CT scan through the area will be helpful in determining the degree of disruption of the superior and inferior articular processes of the facet.

**Image hallmarks**

With unilateral facet fracture-dislocation, there is subluxation of approximately 25% of the superior vertebral body relative to the inferior vertebral body (Fig. 8). Typically there is also evidence of rotation. With bilateral facet fracture-dislocation, there is approximately 50% or greater subluxation without evidence of rotation. On CT, the affected facet joint appears to be two semicircles with the curved surfaces abutting each other, thus uncovering the facet joint itself. Normally, the flat surfaces abut each other such that the facet joint is not seen, and the two facets have an ovoid shape.

**Management**

For unilateral facet fractures, closed reduction using cervical traction is attempted. If closed reduction is successful (18 of 29 of acute fractures in the Sonntag and Hadley study), the patient is typically immobilized in a halo. If unable to achieve closed reduction, open reduction and