

Images

Jefferson Fracture (a burst fracture of the atlas)

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A male patient aged 76 was brought to the emergency department after having a frontal collision on his motorbike with a car. At the site of the accident his helmet was intact and he was found 6 metres from the motorbike. During the physical examination the following we of note: GCS 14 and intense pain in the cervical spine (CS) with no neurological deficits. The x-rays in lateral and transoral view (open mouth for odontoid view) of the CS did not show any clear injuries. The CT scan showed a bilateral anterior arch fracture and a fracture of the left lamina of the atlas (Fig 1). External orthopaedic immobilisation was carried out using a head brace.

Atlas fractures make up 5% of CS fractures and 1-2% of vertebral fractures. The atlas is a thin ring of bone made up of broad articulating surfaces. Its anterior arch is linked to the pedicles and the posterior arch to the vertebral laminae.

The Jefferson fracture is the most common fracture and the mechanism of injury is overloading of the axial skeleton which affects both arches and produces a burst fracture of the ring. This fracture is not usually accompanied by medullar injuries however, it is very unstable given the high chance of displacement. The mechanism of injury and x-ray studies are crucial for diagnosis. All patients with multiple trauma and CS pain, neurological deficits or altered levels of consciousness should undergo an x-ray in lateral and transoral view of the CS and a CT scan of the suspected affected areas. At C1 and C2 level a CT scan is more sensitive than an x-ray for detecting fractures. Orthopaedic treatment should be carried out using a head brace and surgery should only take place in cases of serious related chest injuries, persistent instability after orthopaedic treatment or if the patient rejects the brace.

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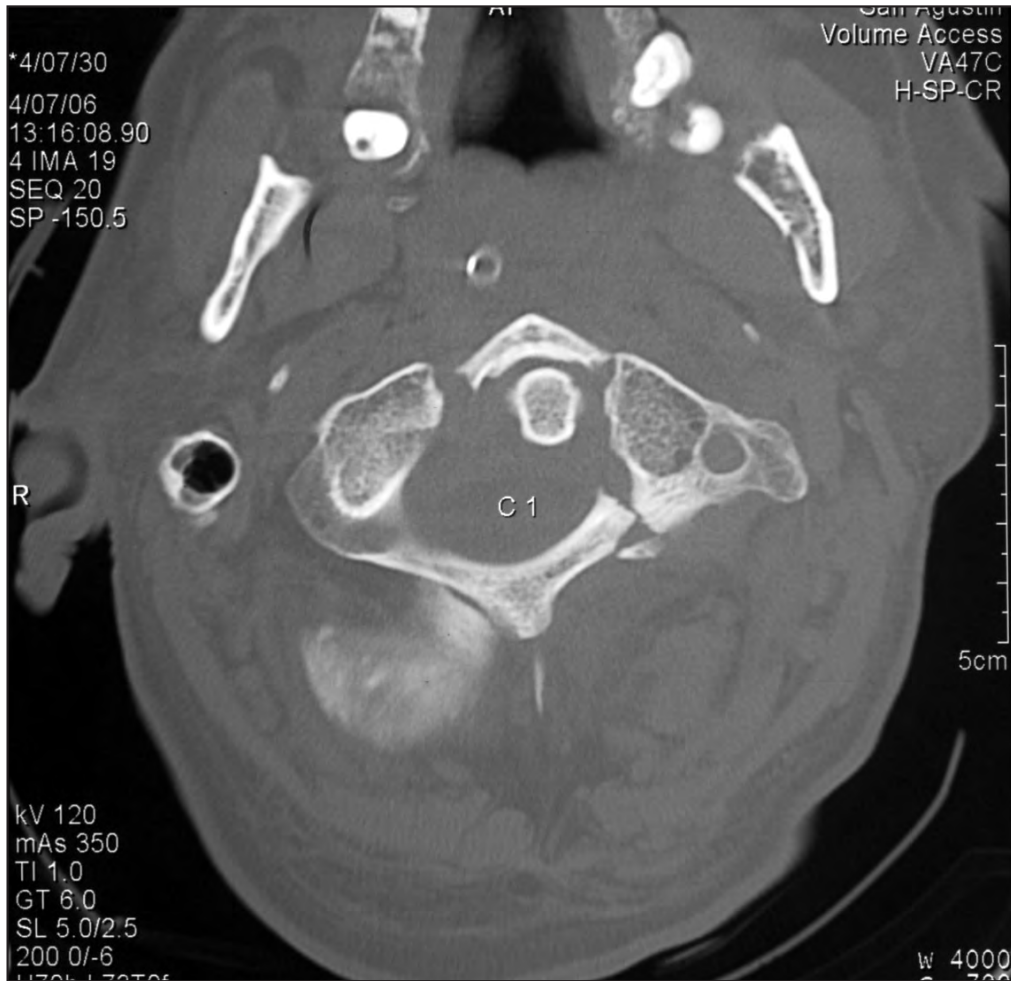


Figure 1.