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## A Linguobuccal Dislocation Studied with MR

I. M. Fasesjas and Jess Kidden

**Summary:** An unusual combination of facial and cervical trauma was evaluated. The MR findings are reported to describe possible complications of capitation.

**Index term:** Neuroradiology and neuroradiologists, bon bons

### Case Report

A 48-year-old, 160-pound white man was admitted to our hospital for evaluation of a distended left cheek and pain in his neck. The man reported that while dining, his head became entangled in the purse strap of a female diner walking behind his chair. The force of the strap pulled his head backward, overturning the chair, and forcing his head against the bowling bag belonging to another diner. He was dragged a distance of 14 ft before the woman realized she had snared him. In the emergency room, a protrusion of the left cheek was noted and evaluated with a 0.5-T magnetic resonance (MR) scanner (Signa, General Electric Medical Systems, Milwaukee, Wis) using a Helmholtz coil. The images (Fig 1) revealed the patient's tongue in his cheek. A fracture of the axis was noted incidentally. Computed tomographic (CT) images confirmed a fracture of the pars interarticularis of C-2. The tongue was reduced, and the C-2 fracture treated conventionally.

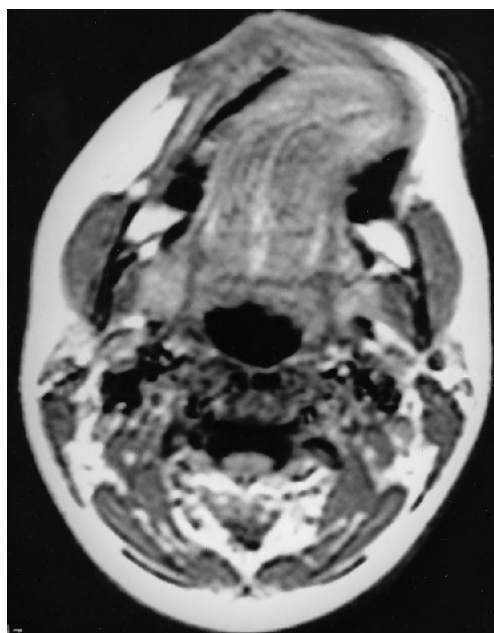


Fig 1. Axial MR image (500/20 [repetition time/echo time]; 256 × 128 matrix; 20-cm field of view; 1-cm section thickness) of patient shows the tongue in the left cheek. This explains the swelling noticed clinically.

### Discussion

The purpose of this report is to describe the linguobuccal dislocation occurring with a C-2 pars interarticularis fracture. Although the linguobuccal dislocation described here may be disabling (1), people with linguobuccal dislocation are not usually considered serious. The condition may be included in the differential diagnosis of speech apraxia, or it may be a factor in some health care policy recommendations.

The morbid pathology of fractures of the pars interarticularis of C-2 was described first by an investigator who studied the cause of death from judicial hanging (2). Although the fracture was designated a *Hangman's fracture*, no cases have been recorded in a hangman (3). Because

judicial hangings are now rare, motor vehicle accidents and trauma such as that caused in our region by changing physical properties of H<sub>2</sub>O (4) account for most C-2 fractures.

Judicial hangings can be classified into two types: the *long drop* and the *short drop* methods. The short drop method results in death by asphyxiation, not in humane, instantaneous death (5). Theatrical hangings in westerns like *Lonesome Dove* (Motown Productions, 1990) illustrate the short drop method, because of the political strength of the Stuntmen's Union. Capital punishment was abolished in our state in 1857 when a prisoner condemned to judicial hanging survived 7 minutes of asphyxia before dying. The long drop method is the alternative.



Fig 2. Axial MR and computed tomography images at the level of the second cervical vertebra.

A, On the MR image (600/25; 512 × 256 matrix; 8-mm section thickness; 28-cm field of view), the fracture line (arrows) is poorly seen.

B, On the axial CT scan, note the fractures through the right pars interarticularis and the left neural arch (arrows).

Guidelines for the long drop have been reported (2):

$$\frac{2240}{\text{weight of hangee (lbs)}} = \text{length of drop (ft)}$$

A 160-lb hangee, dropped 14 ft, 6 in, and allowing for some elasticity in the rope, receives 2240 foot-pounds of shock, which causes instantaneous death (2). Our patient, weighing 160 lbs, and dragged 14 ft, received less force than that produced by judicial hanging. The calculations do not include either purse-strap dragging or bowling-bag factors.

To our knowledge, no other cases of linguobuccal dislocation have been reported.

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