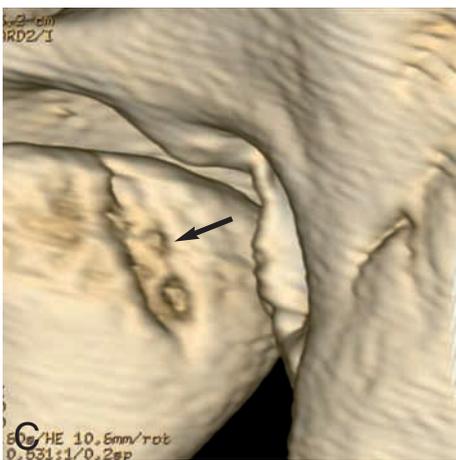
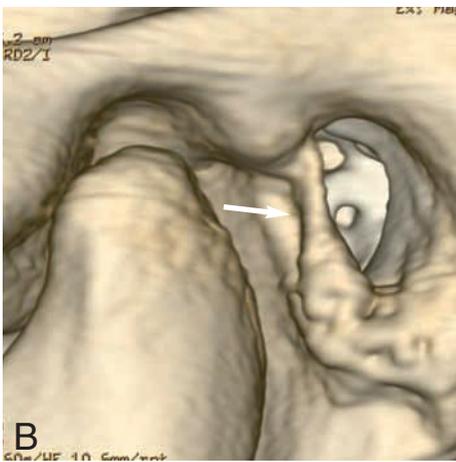
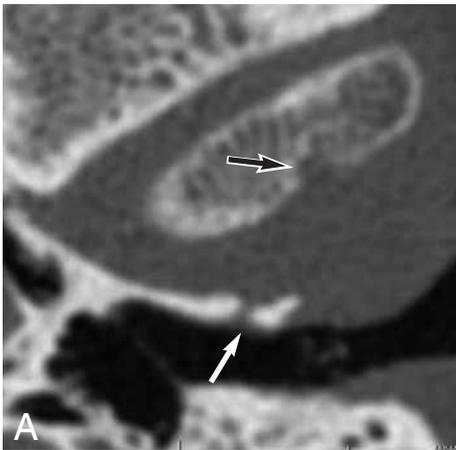


IMAGES IN CLINICAL RADIOLOGY



Tympanic plate fracture following mandibular trauma with emphasis on 3D imaging

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A 73-year-old patient was addressed to our department of medical imaging for combined CT imaging of the head and petrous bone. The patient had fallen from his height on his mandibula and reported pain in the area of the left temporo mandibular joint. The pain was associated by external otorrhagia. At physical otoscopic exam there was some narrowing of the external auditory canal in which blood was visible. Neuro-otologic symptoms were absent.

High definition MDCT of the left temporal bone first excluded fracture of the temporal bone. The pneumatization of the temporal bone remained normal but a small sagittal fracture of the margin of the tympanic plate bone (white arrow on fig. A, B, C) was clearly individualized. It was associated with sagittal vertical impaction of the articular surface of the condylar process (black arrow on fig. A, B, C). The anatomic landmarks of these relatively subtle bone lesions were particularly illustrated by volume rendering views (Fig. D, E).

In the absence of mandibular fractures and neuro-otologic complications, a conservative treatment was chosen and was effective improving the patient's condition.

Comment

Trauma to the symphysis region of the mandible may be directed posteriorly, with sufficient power to dislocate the condylar process toward the anatomic structures adjacent to the temporomandibular joint thus causing fracture of the middle cranial fossa, temporal fossa, tympanic plate and/or the mandibular condylar process itself.

The tympanic plate bone forms the anterior wall, roof and posterior wall of the external auditory canal and is connected to the rest of the temporal bone by the petrotympanic and tympanomastoid fissures. Fractures may be divided into longitudinal fractures limited to the tympanic plate or those in association with fractures of the petrous part of the temporal bone.

Traumatic fracture of the tympanic plate are rare and their clinical findings usually manifest immediately and include: hemorrhage of the external auditory canal (83% of cases), associated with neuro-otologic symptoms like hypoacusis, stenosis of the external auditory canal, limitation of mouth opening and an history of mandibular trauma.

Hemorrhage of the external auditory canal which represents the main symptom may be a clinical feature of basilar fracture and is associated with rupture the articular cavity roof, fracture of the tympanic plate, laceration of the auditory canal anterior wall and/or rupture of the tympanic membrane.

CT is the technique of choice to evaluate the fragment displacement, alterations in the shape or outline of anatomic components, widening of the petrotympanic fissure and fracture relationship with the tympanic membrane.

Reference

1. Psimopoulou N., Antoniadis K., Magouti D., Karakassis D.: Tympanic plate fracture following mandibular trauma. *Dentomaxillofac Radiol*, 1997, 26: 344-346.

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