Letter to The Editor: 3D CT Reconstruction of Mandibular Fractures

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To the Editor

Computed tomography (CT) has become a routine diagnostic tool in the management of maxillofacial trauma [1]. Advances in technology allow multiplanar 2-dimensional (2D) and 3-dimensional (3D) reconstructions [2]. 3D reconstruction imaging has found varied applications [3]. But can we take this to mean that imaging modalities like dental panoramic radiographs have no role in the diagnosis of maxillofacial trauma? We found the answer is not clear-cut.

A maxillofacial trauma patient was examined and found to have soft tissue wounds over the midface and swelling over the right angle of mandible with sublingual ecchymosis. Palpation also revealed an acute tenderness of left body of mandible. CT scan was performed and 3D reconstruction generated. The images depicted horizontally unfavourable fracture of right mandibular angle with clarity (Fig. 1). This image was superior to traditional 2D CT

or panoramic radiograph. However, no mandibular body fracture was evident in the 3D CT reconstruction (Fig. 2). Due to continuing clinical suspicion of mandibular body fracture, a panoramic radiograph was made. It revealed undisplaced left mandibular body fracture (Fig. 3).

Accurate and detailed images of the facial skeleton in polytrauma patients can be obtained speedily with spiral CT scans. However, in 3D CT reconstruction, volume averaging and threshold errors may lead to misrepresentation. Regardless of the investigated structure, careful analysis of 2D axial and secondarily reconstructed coronal images is mandatory [2].

Fig. 1 3D CT reconstruction depicting mandibular angle fracture

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Fig. 2 No evident fractures of mandibular body on 3D CT reconstruction

Fig. 3 Panoramic radiograph depicts undisplaced left mandibular body fracture

In addition to thorough clinical examination, the dental panoramic radiograph remains a most important imaging tool for fractures of the mandible. In conclusion, though 3D CT reconstructed images can be impressive, they cannot be the sole basis for surgical decisions.

Conflict of interest None.

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