

## Facial diplegia and deafness following a fall

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Received: 2 November 2009 / Accepted: 18 January 2010 / Published online: 23 April 2010  
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A 45-year-old man presented to the emergency department (ED) after falling down two flights of stairs. He had bilateral raccoon eyes, subconjunctival haemorrhages and CSF otorrhoea suggestive of skull base fracture (SBF). Although he had difficulty speaking and responded inappropriately, giving the impression of mixed dysphasia, written communication was normal, and he complained of deafness and dizziness.

Facial motion was barely perceptible and complete eye closure was not possible, consistent with grade 5 facial

palsies on the House-Brackmann facial nerve grading system. Bell's phenomena (Fig. 1) and dysarthrophonia secondary to facial weakness were marked. He was also mildly ataxic. Computed tomography (CT) imaging confirmed extensive SBF and audiometric testing confirmed bilateral deafness. High-resolution axial petrous temporal bone CT (Fig. 2) demonstrated fractures involving the facial canals. The right-sided fracture traversed the fundus of the internal auditory canal, likely transecting the cochlear nerve, and the left-sided fracture involved the otic capsule, likely disrupting auditory and vestibular function.

Post-traumatic facial nerve palsy complicates 1.5% of SBFs involving the temporal bones [1]. Petrous temporal bone fractures may disrupt the facial nerve, membranous labyrinth and inner ear. While cranial nerves seven and eight may be injured by petrous temporal bone fractures, concomitant bilateral facial weakness and deafness in this setting is extremely rare [2]. Most post-traumatic facial nerve injuries recover with conservative management and time [3, 4].

This case illustrates how bilateral facial weakness and deafness may be mistaken for mixed dysphasia and highlights the need to consider it in patients with apparent speech disturbances in the ED.

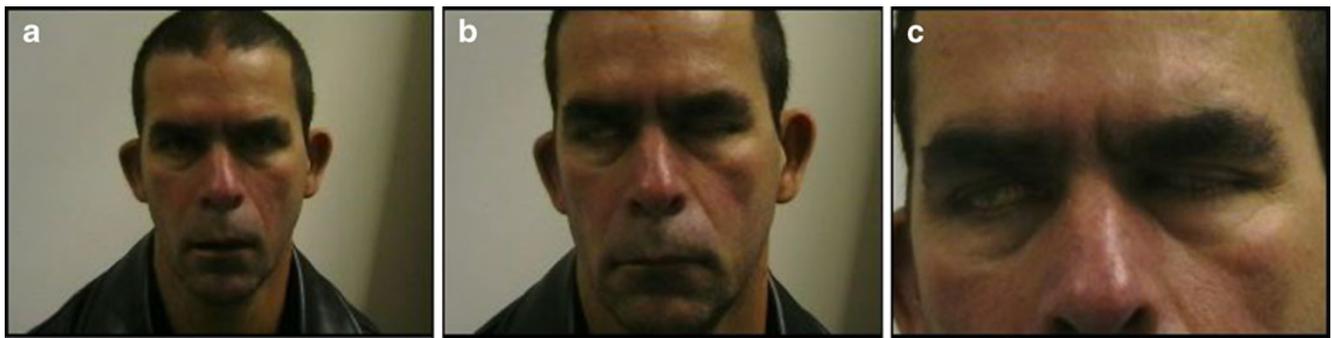
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The patient has given written consent for publication of the photos.

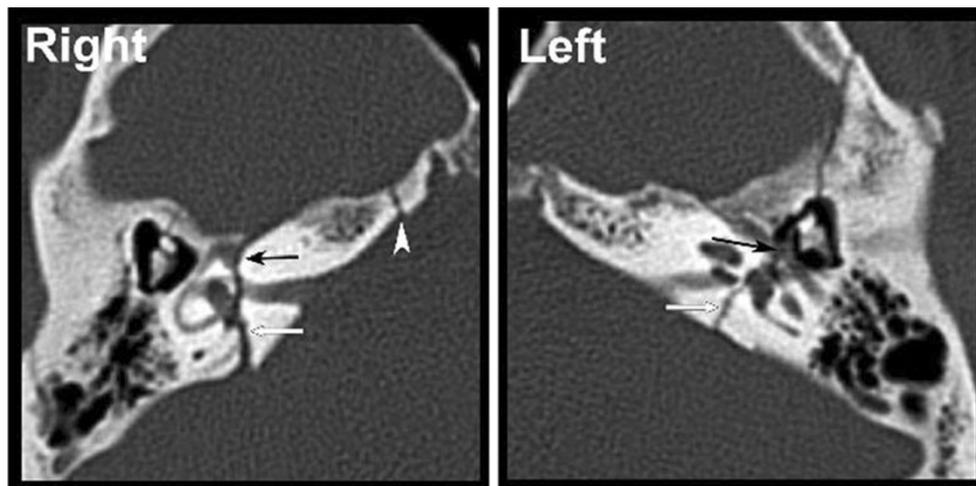
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**Fig. 1** **a** A 45-year-old man with facial diplegia. **b** Patient attempting to close both eyes producing bilateral Bell's phenomenon. **c** Magnification of **b** demonstrating marked bilateral Bell's phenomenon (more pronounced on the right side)



**Fig. 2** Right and left axial petrous temporal bone CT. Right axial CT shows a medial subtype of horizontal temporal bone fracture. There is a fracture of the posterior petrous surface (*white arrow*) extending anteriorly through the fundus of the internal auditory canal to the geniculate fossa of the facial nerve (*black arrow*). Separate fracture through the petrous apex indicated by *arrowhead*. Left axial CT shows

a lateral subtype of horizontal temporal bone fracture. There is a fracture of the posterior petrous surface (*white arrow*) lateral to the internal auditory canal. It involves the vestibule and extends through the tympanic segment of the facial nerve canal (*black arrow*). The fracture exits through the anterior wall of the middle ear cavity into the squamous temporal bone

**Conflicts of interest** None.

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