

Professor JD Parkes for allowing us to study their patients.

KHALIDA ISMAIL
ROBERT HOWARD
SIMON LOVESTONE
Department of Old Age Psychiatry,
The Maudsley Hospital,
London, UK

Correspondence to: Dr Ismail, Department of Old Age Psychiatry, The Maudsley Hospital, Denmark Hill, London SE5 8AZ, UK.

- 1 Balldin J, Granerus AK, Lindstedt G, Modigh K, Wallinder J. Predictors for improvement after electro-convulsive therapy in a Parkinsonian patient with "on-off" symptoms. *J Neural Transm* 1980;49:133-5.
- 2 Anderson K, Balldin J, Gottfried CG, et al. A double-blind evaluation of electro-convulsive therapy in Parkinson's Disease with the "on-off" phenomena. *Acta Neurol Scand* 1987;76:191-9.
- 3 Douyon R, Serby M, Klutchko B, Rotrosen J. ECT and Parkinson's Disease revisited: a "naturalistic" study. *Am J Psychiatry* 1989; 146:1451-5.

Case report: dysphagia and sleep apnoea associated with cervical osteophytes due to diffuse idiopathic skeletal hyperostosis (DISH)

Diffuse idiopathic skeletal hyperostosis (DISH) may be an under recognised contributory factor to both dysphagia and obstructive sleep apnoea.

A seventy-two year old man presented with a 12 month history of intermittent painless dysphagia. He had been aware of the need to be careful when eating and coughing after swallowing was a daily occurrence. Liquids were more troublesome than solids. He had not lost any weight.

In 1989 he had been diagnosed as having obstructive sleep apnoea syndrome. Overnight impedance pneumography revealed more than 40 episodes of apnoea per hour and simultaneous oximetry showed a corresponding fall in oxygen saturation to 80%. Treatment with nocturnal continuous positive airway pressure (CPAP) resulted in improved sleep quality and daytime wakefulness. There was a history of ischaemic heart disease and atrial fibrillation.

On examination he was 170 cm tall, weighed 87 kg, and his neck circumference was 46 cm. He was in controlled atrial fibrillation. There were no neurological signs but the tongue was large and the oropharynx appeared small. Cervical spine movements were limited in all directions.

In a timed test of swallowing¹ he coughed violently after swallowing the first bolus. After a pause he was able to drink 120 ml in 50 seconds (2.4 ml.s⁻¹; normal >10 ml.s⁻¹). Over a two week period his swallowing speed fluctuated between 6 ml.s⁻¹ and 20 ml.s⁻¹; a double blind edrophonium test had no effect on swallowing speed.

Videofluoroscopy examination showed partial hold up of the bolus of contrast in the mid-cervical region. Lateral cervical spine radiographs showed a bridging mass of exuberant new bone formation anteriorly extending from C2 to C7, with a dividing pseudofracture at the C3/C4 level (figure). A bony canal stenosis was also present from the C2 level downwards. Radiographs of the thoracolumbar spine showed areas of new bone formation bridging the vertebral bodies anteriorly. Despite the extent of the new bone formation the intervertebral disc spaces were relatively



Lateral cervical spine radiograph showing bridging mass of exuberant new bone formation impinging on the posterior pharyngeal wall.

well preserved. Radiographs of the pelvis showed irregular projections of bone from the iliac crests and the lateral margins of the ileum. The radiographic features were typical of DISH. An MRI scan of the brain stem and a CT scan of the brain were both normal. A 75 g glucose tolerance test with capillary blood suggested diabetes mellitus with a fasting value of 7.1 mmol/l and a 120 minute value of 11.2 mmol/l.

The patient received advice from the speech therapist and was able to reduce the frequency of coughing by taking double swallows for each bolus and slowing down his eating. He did not wish to be considered for any type of surgical intervention and continues on CPAP at home. Follow up for three years has revealed no other disorder.

In this case there is good radiographic evidence to suggest that the limitation of neck movement and the large anterior cervical osteophytosis were due to diffuse idiopathic skeletal hyperostosis (DISH). Forestier's original description of the condition was confined to the spine but many extraspinal manifestations have now been described. The condition is common, occurring in 6%–12% of a necropsy population, and impaired glucose tolerance is often a feature.²

Although the patient had other features that predisposed him to develop the sleep apnoea syndrome including a large tongue and neck circumference, the C2/C3 level is a common site of obstruction in this condition.³ It seems highly likely that the bony mass contributed to occlusion of the oropharynx during sleep and videofluoroscopy suggests that it contributed significantly to the dysphagia; barium swallow examination, indirect laryngoscopy, and neurological investigation revealed no other cause for the dysphagia.

Dysphagia is a recognised symptom of cervical spine involvement in patients with DISH. Obstructive sleep apnoea is an association not described before although cases of stridor due to impingement of the osteophyte on the laryngeal vestibule have been reported.⁴

The case shows how a lateral cervical spine radiograph may be helpful in the diagnosis of patients with dysphagia and/or sleep apnoea without neurological signs. In view of the frequency of anterior cervical osteophytes in the older population it is imperative that other causes of dysphagia be excluded; oesophageal perforation after endoscopy in patients with large cervical osteophytes has been reported⁵ and barium examination of the oesophagus may be preferable.

We are grateful to Mr Michael Saunders, Chief Medical Technical Officer, Lung Function Laboratory, Llandough Hospital, for his assistance.

TAT HUGHES
CM WILES
Department of Medicine (Neurology),
University of Wales College of Medicine,
Cardiff, UK
BW LAWRIE
Department of Radiology,
University Hospital of Wales,
Cardiff, UK
AP SMITH
Department of Chest Diseases,
Llandough Hospital,
Penarth, UK

Correspondence to: Dr Taty Hughes, Department of Neurology, University Hospital of Wales, Heath Park, Cardiff CF4 4XN, UK.

- 1 Nathadwarawala KM, Nicklin J, Wiles CM. A timed test of swallowing capacity for neurological patients. *J Neurol Neurosurg Psychiatry* 1992;55:822-5.
- 2 Resnick D, Shapiro RF, Wiesner KB, Niwayama G, Utsinger PD, Shaul SR. Diffuse idiopathic skeletal hyperostosis (DISH) [ankylosing hyperostosis of Forestier and Rotes-Querol]. *Semin Arthritis Rheum* 1978;7:153-87.
- 3 Chaban R, Cole P, Hoffstein V. Site of upper airway obstruction in patients with idiopathic obstructive sleep apnea. *Laryngoscope* 1988;98:641-7.
- 4 Girgis IH, Guirguis NN, Mourice M. Laryngeal and pharyngeal disorders in vertebral ankylosing hyperostosis. *J Laryngol Otol* 1982;96:659-64.
- 5 Wright RA. Upper oesophageal perforation with a flexible endoscope secondary to cervical osteophytes. *Dig Dis Sci* 1980;25: 66-8.

Horologagnosia: an impairment of the ability to tell the time

We report a 57-year-old male patient who had a right posterior stroke. A CT scan indicated extensive hypodensity within the territory of the right posterior cerebral artery. There were also lacunes in the right thalamus and corpus striatum bilaterally, as well as small scattered lesions, predominantly within the peripheral areas of white matter of the posterior frontal and parietal lobes, consistent with ischaemic changes due to small vessel disease. On admission to hospital he presented with decreased sensation and muscle weakness on the left side of his body, left homonymous hemianopia and left-sided visuospatial neglect. Neuropsychological assessments during the first three weeks after his admission to the hospital showed well preserved language, verbal reasoning, and verbal memory skills (average range or above). On a relatively easy picture recognition memory test he also performed satisfactorily. Left-sided visuospatial neglect was evident in his performance on line bisection, cancellation, and search tasks. He easily identified real objects and line drawings of objects or