The patient's initial neurological evaluation showed dysphasia, generalized bradykinesia, and difficulty with voluntary eyelid movement. Psychometric assessment in July 1991 showed mild impairment of language expression, with abnormal performance on the Boston naming and controlled oral word association tests. Reading and writing to dictation were intact. On a test of executive function (Wisconsin card sorting), she failed to generate correct categories and committed excessive perseverative errors. Although verbal memory could not be assessed because of language disturbance, she retained most visual reproduction tasks (Wechsler memory scale) in the low normal range.

Neurological examination one year later disclosed a bradykinetic, essentially mute woman. Cranial nerve function was remarkable for bilateral ptosis, which she retained when asked. She had slight dysarthria, an apraxia of speech and orofacial dyspraxia associated with frontal lobe hypometabolism. 

Unilateral hypotonic seizures successfully diagnosed by ictal SPECT with technetium-99m-HMPAO in a patient with a brain tumour

Among the simple partial seizures, motor seizures manifested by motor inhibition are rare and often misdiagnosed as transient ischaemic attacks. These ictal events are different from the more common postictal Todd's hemiparesis. Single photon emission computed tomography (SPECT) is being widely used as an adjunctive technique in the localisation of epileptogenic foci. We report a case of hypotonia in a frontal brain tumour associated with recurrent transient left hemiparesis and stress the efficacy of utilising ictal SPECT for differentiating hypotonic seizure from transient ischaemic attacks.

A 52 year old man was admitted to our hospital after several episodes of acute transient left hemiparesis that each lasted for 20 to 30 minutes. There were no convulsive movements of the limbs, nor was there impairment of consciousness. Two years before this admission, a right frontal high grade astrocytoma had been totally removed (fig 1, A and B). The patient had been followed up as an outpatient on sodium valproate, which kept him free of seizures. On the current admission, he showed no static neurological deficits, but MRI showed recurrence of the right frontal lesion (fig C). As transient ischaemic attacks were suspected after his reported episodes of transient hemiparesis, right carotid angiography was performed. A faint tumour stain was found in the late venous phase and the right frontal area appeared hypovascular, but no stenosis or occlusion of arteries was noted.

Although a repeat right frontal craniotomy and gross total removal of the recurrent astrocytoma was performed (fig 1D), the same type of transient left hemiparesis continued. Interictal EEG showed slow waves in the right hemisphere but no episodic bursts of sharp or spike waves. To determine whether the transient hemiparesis was due to transient ischaemic attacks or epilepsy, interictal and ictal brain SPECT with technetium-99m-hexamethylpropylene amine oxime (99mTc-HMPAO) was performed.

Interictal SPECT showed hypoperfusion of the right frontal lobe where the recurrent astrocytoma had been removed (fig 2 left). Except for that area, there was no appreciable difference in signal between right and left hemisphere (fig 2 left). Ictal SPECT, however, showed an increased signal involving a wide area of the right hemisphere (fig 2 right), thus confirming the transient hemiparetic attacks as unilateral hypotonic seizures and not transient ischaemic attacks. The patient received carbamazepine as an additional anticonvulsant and no more seizures occurred.

In this patient, unilateral hypotonic seizures, which presented as transient ischaemic attacks, were clearly diagnosed by SPECT with 99mTc-HMPAO by documenting a change from interictal hypoxia to ictal hyperactivity in the involved brain area.

Although postictal paralysis, usually called Todd's paralysis, is well recognised, unilateral hypotonic seizure is less commonly diagnosed, as it does not follow convulsive movements, whereas Todd's paralysis usually does. This seizure has been described as the "paralytic equivalent of genuine epilepsy", "negative seizures", "focal inhibitory seizures", and "ictal hemiparesis". Unilateral hypotonic seizures often resemble the clinical picture of transient ischaemic attacks and are often misdiagnosed. For the diagnosis of unilateral hypotonic seizures, an ictal EEG has been used and showed either periodic bursts of sharp waves with focal activity or focal bursts of slow activity with high amplitude.

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As seizures are usually associated with pronounced increases in cerebral blood flow, ictal SPECT has been effectively used for the diagnosis of seizures in general. Although it may be argued that ictal EEG recording should differentiate hypotonic seizures from transient ischaemic attacks in the present patient, it is not certain that the localising value of ictal EEG would have the same precision as the \[^{99}
\text{mTc-HMPAO}\] SPECT method.

\[^{99}
\text{mTc-HMPAO}\] is rapidly absorbed after intravenous injection and reaches a maximum concentration within two minutes of injection. Once it has crossed the blood-brain barrier it forms a hydrophilic compound and 86% of activity is still present at 24 hours after administration. With these features, ictal SPECT with \[^{99}
\text{mTc-HMPAO}\] has been reported to provide unique information for the treatment of patients with refractory epilepsy and to give insights into the pathophysiology of seizures. In the present study, we applied ictal SPECT with \[^{99}
\text{mTc-HMPAO}\] to a patient with a brain tumour with repeated hemiparetic attacks and confirmed the diagnosis of unilateral hypotonic seizure. To our knowledge, the present case is the first example showing that unilateral hypotonic seizure could be differentiated from transient ischaemic attacks by ictal SPECT with \[^{99}
\text{mTc-HMPAO}\]. We stress the efficacy of ictal SPECT in making this differentiation since treatment options for seizure and transient ischaemic attacks are very different.

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Cervical extradural abscess complicating discitis and associated disc prolapse, secondary to a long line infection

Spinal epidural abscess is rare, accounting for only one or two cases per 10 000 hospital admissions. Trauma and surgery (20% each) are the two commonest causes. Dental, skin and soft tissue infections, and endocarditis account for a further 20%. In most of the remaining cases no source is found. \textit{Staphylococcus aureus} is the commonest organism isolated (60%).

Although discitis or osteomyelitis are reported in 16-80% of cases,\(^1\) disc prolapse has not been mentioned as a comorbid condition.

We report a patient (a 53 year old woman) who underwent total thyroidectomy for carcinoma on 20 October 1993. A right antecubital long line was inserted in theatre. Postoperatively she became hypocalcaemic and calcium was given via the long line. Ten days later she developed a clinical thrombophlebitis affecting the right arm although ultrasound showed no axillary vein thrombosis. The long line was removed and venous blood cultures were made on 1 and 2 November 1993. Cultures and the long line tip grew \textit{Staphylococcus aureus} that was resistant to penicillin but sensitive to gentamicin, erythromycin, and fluclaxacinil. After a single dose of erythromycin she was changed to regular intravenous fluclaxacinil on the advice of the microbiologists.

On 4 November 1993 she complained of “electric shocks” in the shoulders followed by weakness of the right arm, which progressed over the next five days to involve the left arm and both legs. There were no other sensory symptoms, no sphincter disturbance, and no respiratory difficulties. She was apyreal, with no meningism, cranial nerve, or fundal abnormality. The neck wound was well healed, and neither it nor the long line site was clinically infected. There was flaccid weakness of her right arm, grade 3/5 proximally and 4/5 distally, and a mild degree of weakness of her left arm. Both legs showed very mild spastic weakness. There were no sensory abnormalities. Biceps and triceps jerks were absent, knee and ankle jerks brisk, and plantars equivocal.

Contrast enhanced cervical MRI showed high signal in the C4–5 disc and in both the anterior and posterior longitudinal ligaments. There was thickening and elevation of the posterior ligament over in both the adjacent two vertebral levels, and a low intensity mass at the level of the disc space compressing the theca of the cord and C5 nerve root. This was thought to be either pus or a sequestered disc prolapse (figs 1 and 2).

She was started on intravenous cefuroxime and metronidazole and operated on immediately for anterior cervical decompression and fusion.

At operation through the right half of the thyroidectomy scar the tissues were found to be extremely stuck down. No overt
Unilateral hypotonic seizures successfully diagnosed by ictal SPECT with technetium-99m-HMPAO in a patient with a brain tumour.

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