LETTERS TO THE EDITOR

Cerebral venous sinus thrombosis induced by 'ecstasy'

Abuse of the synthetic amphetamine derivative, 'ecstasy' (3,4-methylenedioxymethamphetamine, MDMA) causes convulsions and sudden cardiac death,¹ hyperpyrexia,² acute renal failure,³ psychosis,⁴ and cerebral haemorrhage.⁵ We report a previously unrecognised, serious neurological complication.

After ingestion of a single tablet of MDMA at a dance party, a 22 year old woman spent eight hours dancing without drinking any fluids. Twelve hours after taking the MDMA she developed throbbing headache, nausea and photophobia, followed by visual fortification spectra, expressive dysphasia and right hemisensory loss. After 2 hours the sensory loss and dysphasia resolved, but the headache, photophobia, and nausea remained. There was no past history or family history of migraine. She smoked 10 cigarettes per day, was on no regular medication, and had never previously taken illegal substances. She was seen by a neurologist because of persistent headache, and a transient recurrence of right hemisensory loss. Examination was normal and a diagnosis of probable migraine was made. She was treated with aspirin and metoclopramide. Twelve days after ingesting 'ecstasy' she was reviewed because of persistent headache, and was found to have bilateral papilloedema.

Brain CT with and without contrast enhancement was normal. Lumbar puncture revealed clear CSF with an opening pressure of 32 cm (normal under 16 cm). The CSF contained 5.2×10^8 red blood cells per litre and 2.21×10^6 white blood cells per litre (90% lymphocytes). No organisms were seen, no viral or bacterial antigens were detected, and the culture was negative. CSF protein was elevated [1.2 g/l], and CSF glucose was normal. Four vessel cerebral angiography demonstrated a delayed venous phase with absence of filling of both transverse sinuses. Coagulation studies, including lupus anticoagulant, anticardiolipin antibodies, proteins S and C, and antithrombin III, were normal. A diagnosis of cerebral venous sinus thrombosis was made. She was treated with intravenous heparin and repeated lumbar puncture for four weeks until her symptoms resolved. On review three months later she was asymptomatic with no papilloedema.

Cerebral venous sinus thrombosis has not previously been reported as a complication of MDMA abuse, although disseminated intravascular coagulation is recognised in amphetamine toxicity.⁶ MDMA causes increased heat production and sweating,⁷ and can lead to dehydration,² a recognised cause of cerebral venous sinus thrombosis.⁸ It is customary to drink large volumes of liquid after taking MDMA, but in this case no fluids were taken. The combination of volume depletion and the thrombogenic effect of an amphetamine might explain the development of the condition.

Cerebral venous sinus thrombosis has a mortality of approximately 10%, and a considerable risk of neurological disability in

survivors.⁸ Although abuse of MDMA should be discouraged, the importance of maintaining adequate hydration following ingestion of the drug, should be emphasised.

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Some observations on the aetiology of progressive hemifacial atrophy ('Parry-Romberg syndrome')

Although clinical reports of progressive hemifacial atrophy (HFA) have appeared for over 150 years,^{1,2} the causes of the condition remain unknown. Various theories, some underpinned with experimental evidence, have been advanced, including a genetically determined disturbance of facial development, possibly inherited as an autosomal dominant condition with incomplete penetrance; a localised manifestation of scleroderma; and a disturbance of facial autonomic innervation, either central or peripheral. The discovery of a further patient with HFA allowed us to address some of these aetiological questions.

A 23 year old left handed white male complained of progressive wasting of the right side of his face. He was the second born of identical twins, delivered per vaginam without instrumentation or complication. His developmental milestones occurred at appropriate times. He first noticed thinning of the face at age 17, particularly around the chin and later around the cheek. These impressions were confirmed by contemporaneous photographs. In retrospect, he could recall being bitten on the chin during a fight at age 14 but this did not result in bleeding or scarring. There was no history of facial numbness, migraine, seizures, or symptoms of bulbar palsy, and family history was negative for similar conditions.

Clinical examination revealed wasting of subcutaneous tissues on the right side of the face, including platysma. There was no neurological deficit in the cranial nerves, in particular trigeminal nerve function was normal; the limbs were symmetrical and neurologically intact. Thorough inspection of the skin showed no stigmata of sclero-

derma. Eyebrows and moustache were symmetrical with no achromia or hyperchromia, and no appreciable difference in facial surface temperature or abnormal skin pallor were detected. The patient's right handed brother, the first born twin, was also examined and had neither facial nor limb hemiatrophy; neurological and dermatological examination was also normal.

Investigations of the proband showed no bony asymmetry in skull and facial radiographs, and no cerebral asymmetry on a CT brain scan. An electroencephalogram was normal, as were brainstem auditory and somatosensory evoked potential studies. Electromyographic studies of the right orbicularis oculi and orbicularis oris, right facial nerve and blink reflexes, were within normal limits.

DNA fingerprints were prepared from the blood of the proband and his twin (Cellmark Diagnostics, Abingdon, UK) and contained identical bands, thus confirming monozygosity.³

Serology proved negative for antinuclear antibodies, anti double-stranded DNA antibodies, anti-centromere antibodies, anti-SCL 70, anti-Ro, anti-La, antibodies to extractable nuclear antigens, and anti-neutrophil cytoplasmic antibodies.

To investigate the possibility that facial hemiatrophy results from localised autonomic dysfunction, simple tests of autonomic function were performed on the proband. Both sides of the face were tested, the clinically normal side acting as an internal control. The autonomic control of pupillary reactions was investigated using the following eye drops: 2.5% methacholine, 4% cocaine, and 1 in 1000 adrenaline. All reactions were as expected for the normally innervated pupil⁴ with no evidence of parasympathetic or sympathetic denervation (central or peripheral). Lacrimation was investigated by the Schirmer tear test; this was found to be symmetrical and within normal limits. Sudomotor function was investigated by a standard sweat test with quinzarin staining: no asymmetry in response was detected. No evidence of postural hypotension was found and there was no alteration in heart rate following carotid sinus massage or ocular pressure.

Hemifacial atrophy is a disorder of uncertain aetiology. Because of the diversity of clinical features seen in various cases, the uniformity of the syndrome has been questioned, prompting the suggestion of possible aetiological heterogeneity.

The occasional familial occurrence of HFA suggests the operation of a genetic factor in the causation of some cases. Reviewing such reports, McKusick⁵ came to the conclusion that HFA was inherited as an autosomal dominant condition with incomplete penetrance, but Lewkonja and Lowry⁶ later cast doubt on the appropriateness of considering HFA as an autosomal dominant condition. Having been unable to locate any previous reports, we believe this to be the first documentation of discordance for HFA in a proven monozygotic twin pair, an observation which argues strongly against an autosomal pattern of inheritance.

A number of reports of the concurrence of HFA with scleroderma⁶⁻⁹ and limb atrophy^{6,8} have appeared, leading to speculation that the conditions may be related with a shared pathogenesis, and that HFA in fact represents a form of localised scleroderma.⁶ The recent description of a patient with scleroderma, facial hemiatrophy and anti