Lesson of the Week

Aneurysm of anterior communicating artery masquerading as Adams-Stokes disease

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Attacks of syncope are common and often precipitate emergency admissions to hospital. Disorders of cardiac rhythm seen in the initial electrocardiogram or subsequent abnormal 24 hour electrocardiographic recordings are often taken as evidence for a cardiac cause. We describe a patient presenting seemingly with an Adams-Stokes attack who turned out to have a non-cardiac cause for his loss of consciousness.

Case history

A 63 year old man with no medical history of note was admitted to the accident and emergency department after collapsing at home. He was unable to give a history, and this was provided by his wife. Twenty four hours before admission he had suddenly lost consciousness while eating. He was thought to be pale during the syncope but did not convulse and was not incontinent. The episode lasted five minutes, leaving him slightly confused but otherwise reasonably well. Eight hours later a similar episode lasting a few minutes occurred, and again he was noted to be very pale. Shortly before admission he had lost consciousness for a third time but recovery was slower, and after 20 minutes he was urgently transferred to hospital.

On examination he appeared quite well but could recall nothing about the attacks. He denied chest pain at any time. A sinus bradycardia of 40 beats/min was noted. Blood pressure was 150/80 mm Hg supine and 150/90 mm Hg standing. Heart sounds were normal and no carotid bruit was heard. The respiratory system was normal and neurological examination elicited no focal signs, though he appeared slightly drowsy and disorientated. Appearances on funduscopy were normal. The electrocardiogram showed sinus bradycardia without evidence of acute myocardial infarction, and subsequently serial cardiac enzyme activities were normal.

Initially the patient was thought to be suffering Adams-Stokes attacks secondary to a cardiac arrhythmia, and his slight confusion was attributed to cerebral ischaemia. He was admitted to the coronary care unit for observation. Over the next 18 hours periods of sinus bradycardia, sometimes as low as 20/min, lasting for three to five minutes were observed. Blood pressure did not alter appreciably but he undoubtedly became more confused during these episodes. At no time did his heart rate rise above 50/min, but throughout the rhythm was sinus and blood pressure remained normal. In view of the persisting confusion we decided to perform computed tomography of the brain. This showed evidence of subarachnoid haemorrhage and a

Cardiac arrhythmias are sometimes secondary to lesions of the central nervous system

right anterior communicating artery aneurysm, subsequently confirmed by carotid angiography. There was no evidence of hydrocephalus. Dexamethasone 4 mg intravenously four times daily was started and within six hours his pulse rate was above 60/min and in 12 hours his confusion had improved dramatically. He was subsequently transferred to the regional neurosurgical unit to have his aneurysm clipped.

Comment

At presentation the syncopal attacks in this patient were considered to be cardiac in aetiology. Observation and investigation, however, showed only sinus bradycardia. This would necessitate the exclusion of hypothyroidism, liver disease, and drug ingestion. After these, sick sinus syndrome would be the most likely cause. Although raised intracranial pressure is also a recognised cause of sinus bradycardia, it was initially overlooked in our patient. Indeed, at one time we thought that he might require a permanent cardiac pacemaker, a fate that did befall a patient cited by de Bono.¹

The persistent confusion, however, aroused sufficient suspicion in one of us that despite the patient's denial of headache and the absence of neck stiffness and subhyaloid haemorrhages on funduscopy a CT scan of the brain was requested. An aneurysm of the right anterior communicating artery with free blood in the subarachnoid space was found.

Should the true condition in our patient have been suspected earlier? There were two clinical features that distinguished this case from the more usual patient with cardiac arrhythmias causing cerebral problems. Firstly, confusion, although common in complete heart block complicating ischaemic heart disease, is rare in patients with sick sinus syndrome and otherwise normal hearts, even with heart rates below 40 beats/min. This is because an increase in stroke volume maintains cardiac output at rest. Thus persisting confusion when resting blood pressure is normal is evidence that a blackout is not simply a consequence of a cardiac arrhythmia. Our initial feelings about this patient were that his confusion was due to cerebral ischaemia consequent on his periods of unconsciousness at home and that it would improve. Clearly, therefore, having established that a patient is in sinus rhythm by electrocardiographic monitoring or 24 hour electrocardiographic tape recording, persisting confusion or focal neurological signs after a collapse are a strong indication for neurological investigation. Secondly, the sudden onset of a series of episodes of neurological impairment over a short time

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in a previously fit patient would be an unusual presentation of the sick sinus syndrome, especially when the electrocardiogram fails to detect conduction abnormalities, as in our patient.

Several changes in the electrocardiogram have been described with subarachnoid haemorrhage, although conduction disturbances are rare.²⁻³ Other abnormalities include tachycardia, ST segment depression, and changes mimicking acute myocardial infarction.⁴ Our patient failed to show any changes in his electrocardiogram except a sinus bradycardia compatible with a rise in intracranial pressure, and so again in this respect his signs were unhelpful.

This case serves to illustrate the vigilance required in determining whether abnormalities of cardiac rhythm are

instrumental in causing neurological symptoms and signs or are secondary to a disorder of cerebral function. The management of the two entities may have to be radically different.

References

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MATERIA NON MEDICA

Almost a good idea

Some time before the battle of El Alamein a German reconnaissance plane came over our position. The regiment, for security, was dispersed, with each tank a hundred yards or so from the next. That night their occupants lay nearby on the sand under the stars in their bedding rolls.

During the night about half the tank crews were bitten by mosquitoes and next morning I was brought three or four specimens—typical female *Anopheles pharoensis*—a well known malarial vector. We were at least 50 miles from fresh water beyond the active range of any *Anopheles*; even *superpictus* in Palestine had a reputed range of only 12 miles.

Supposing, I thought, the Germans had somehow infected large numbers of mosquitoes with malarial parasites and released them a fortnight before an attack? The mosquitoes would seek out their victims with unerring precision, and after the rather vague incubation period our regiment, and perhaps others, would be in chaos since we were assumed to be in a non-malarial zone and took no precautions. It might have been an inspired and humane form of biological warfare.

My adjutant was persuaded and the specimens sent by dispatch rider to corps HQ, where I expected that dissection of stomach and salivary glands would show whether the mosquitoes carried malarial parasites. I heard no more. Later I learned that it was well known that wind borne mosquitoes are sometimes encountered far out to sea.

1983 was a great year for the attractive yellow Vestal moth with an oblique wing stripe. In appropriate anticyclonic conditions it is carried aloft from southern Europe and north Africa and deposited here. I was reminded of my former innocence.—B E MILES, retired physician, Hereford.

Land, lots of land

The Kimberley region of North Western Australia, which is as large as England, consists of places of remarkable beauty separated by long stretches of flat and boring scrub, except where former ocean reefs have been forced up to make ranges of hills.

We left Broome at the end of the annual Pearl Festival, and drove east through Fitzroy Crossing, where aborigines staggered and fought amid a carpet of beer cans outside the pub. At Hall's Creek, the scene of the first West Australian gold rush, the locals spoke respectfully not of gold but of diamond finds. We inspected the Ord River irrigation scheme at Kununurra, and turned west again by the Gibb River road, camping at a succession of waterholes, where we came under observation by flying foxes, dingoes, giant centipedes, and snakes. Crocodiles were much in evidence, and at Wyndham they had just eaten a cyclist unfortunate enough to skid into the harbour by the meatworks. Crimson finches and tiny red backed fairy wrens hopped about in the bushes within reach of our hands, and the bustards, brolgas, and great red-tailed black cockatoos also seemed to ignore our presence.

From our camp by the King Edward river we drove over the Mitchell Plateau to the grandiosely named Port Warrender, on Admiralty Gulf. Here, on the deserted shingle beach, a tank landing craft might at a pinch be able to discharge its contents, shovelling aside the lethal creatures which abounded in the water. But it was difficult to imagine

that any vehicle could transport cargo up the "road" unscathed, and indeed one of our wheels came off and a bearing in our trailer was damaged. Traffic on the largely unexplored plateau is negligible, but fortunately much of the region is made of bauxite, and the mining company holding the lease had established an airstrip and an advance transport workshop at Camp Creek. The three people there were the entire human population of the plateau, for religious prohibitions make it forbidden to the aborigines.

While an expert was examining our broken bearing we wandered round behind the house and there, in a small paddock, we met Sir Percival Pandanus Warrender, the only emu to be entered as a subscriber to *Time* magazine; he graciously consented to have his photograph taken.

We made it back to Broome through Derby, where the Saturday morning shopping in the supermarket looked like an alien rite from another planet.—DAVID SINCLAIR, retired professor, Aberdeenshire.

The Andean games

For two weeks we had trekked through the Cordilleras Huayhuash and Raura of northern Peru, enjoying the spectacular ice peaks of the Huayhuash, turquoise lakes of the Raura, and a comprehensive display of Andean wildlife. Throughout the trek our companions had been our guides and aides; a tough and very pleasant group of "ayuderos." They had cooked for us, caught our food, and generally provided us with as many comforts as a frequently harsh environment will allow. On a few occasions we had been able partly to return their help and also provide a little entertainment in which they were always keen to participate.

We had purchased a football on trek and challenged them to a game whenever sufficient space could be found from which a pitch could be cleared. A challenge was readily accepted and a competitive spirit soon developed. The final match, therefore, at the suggestion of the "Peruvian team" had a small wager of 20 000 soles (£5) on the result.

Although acclimatisation had improved our performance over the high passes and steep paths, we were still breathless within seconds of trying to give chase to a football. At 4600 metres (15 100 ft) even the normal verbal support afforded an English soccer game can be a breathtaking exercise. Pitch size and match duration were, therefore, carefully planned. The pitch had to be prepared before any play could take place; our accompanying donkeys had obviously had a meal to remember the day before and had roamed over the only potential playing surface in the vicinity.

The referee, timekeeper, and photographer—an unbiased consultant surgeon from the north of England, with a financial interest in the game—found sufficient breath to blow the whistle and start the final match in the Andean football tournament. Trailing 4-1 at half time, we realised that perhaps our plans were not foolproof and, although a fight back recovered some of the lost pride, diplomacy and exhaustion dictated the final outcome; defeat and a scoreline of 5-4.

The victors were presented with the match ball, 20 000 soles, and a few bottles of beer. The beer, presumably bottled at sea level, provided much of the hot air that was expressed during the course of the evening in the theoretical pursuit of soccer perfection. The Andean football tournament had been a success and enjoyed by all; even the condor circling overhead may have appreciated it.—P R EDWARDS, research registrar, Liverpool.