

EEG change after fitting a posture modifying appliance

To the Editor: We report a case in which an abnormal electro-encephalogram returned to normal after a subpalatal posture-modifying appliance (PMA) designed to relieve headache symptoms was fitted.

A 49-year-old man presented to the Headache Clinic in Johannesburg with a history of cluster headaches. He had been free of headaches for 2 years until 3 weeks before this presentation, when he started to experience daily headaches. These were localised to the right side of the face, concentrated around the right eye and temple, with pain and stiffness extending into the upper back. The headaches occurred daily, lasting from 1 to 1½ hours. They were accompanied by conjunctival injection, rhinorrhoea, photo- and phonophobia, dizziness and tinnitus in the right ear. They were not relieved by medication.

Electromyography showed muscle spasm at rest in the left and right temporalis muscles and in the left and right masseters, with inversion of the temporalis and masseter

readings, indicating higher levels of tension in the temporalis than in the masseters.

An electro-encephalogram (EEG) on 18 September 1997 showed a dysrhythmic record with an excess of widespread low to medium voltage, and sharp dip theta activity occasionally occurring in sustained bursts through all leads, especially during hyperventilation. There were no focal or episodic readings. It was considered that this record might be compatible with migraine but that an intracranial lesion should be excluded, and a brain scan was advised.

Before the brain scan was carried out, however, a PMA was fitted in an attempt to alleviate the patient's headache symptoms. This appliance is manufactured from self-cure acrylic resin (methyl methacrylate), manufactured on a super-hard plaster model of the palate. It extends from the medial aspect of the first premolar to the distal aspect of the first molar, ending at the gingival margin on both sides. The material is cured in a curing pot in warm water, then trimmed anteriorly and posteriorly to produce continuity with the adjacent gingiva. It is finally pumice-polished and buffed to produce a high shine.

A week after adjustment of the appliance the patient reported considerable improvement in his headaches, and it was decided to repeat the EEG. The second EEG tracing on 7 October 1997 showed a normal record, marred by muscle movement artifact. No brain scan was performed.

In summary, it appears that with relief of the patient's headaches, the EEG returned to normal. Unfortunately, no further readings of muscle tension using the electromyograph were reported.

Our report does not exclude the possibility of an association between fitting the PMA and improvement in headache symptoms. In view of the fact that in our clinic headache symptoms have been alleviated in a large number of patients fitted with a PMA, we thought that this case, illustrating a change in EEG findings after fitting such an appliance, was worthy of attention. We are in the process of preparing two controlled trials looking at the association between the PMA and the relief of headache symptoms. These are being carried out in collaboration with the Department of Statistics and Actuarial Science at the University of the Witwatersrand.

E Shevel

M S Orelowitz

The Headache Clinic
179A Jan Smuts Avenue
Rosebank
Johannesburg

B L Farham

The Headache Clinic
10 Park Road
Rondebosch
Cape Town