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Brief Reports

Epilepsy and Violence

C. G. HINDLER

Epileptic automatism and violence are seldom found among temporal lobe epileptics. The case of a 19-year-old girl who killed a 20-month-old child during an epileptic attack is described, and the literature and medico-legal issues are briefly reviewed.

Automatism can occur either as a direct result of a seizure discharge (i.e. an ictal event), or post-ictally. The amygdaloid–hippocampal structures are involved bilaterally, and therefore memory will be affected (Fenton, 1972). The resultant behaviour varies greatly from patient to patient, and in the same individual on different occasions (Knox, 1968). The motor actions have a well co-ordinated quasi-purposeful quality, but are often inappropriate, judgement is impaired, and sometimes the patient has a fixed, staring gaze (Fenton, 1972).

The following is a report of an unusual case of medico-legal interest, where violence occurred during an epileptic seizure.

Case report

Miss A, a nanny aged 19, was seen at the request of her solicitors. She was accused of murdering a 20-month-old baby who had been in her care.

Miss A described episodes of strange sensations resulting in her head feeling muzzy, a feeling of emptiness, and then a sensation as if her mind were separate from her body. She would then experience intense feelings of hate and aggression, which were always directed at the child. These episodes began a few weeks before the offence. She said that it was impossible to control her feelings or actions during these periods, although on occasion she was able to walk out of the room until the feeling subsided. She stated that they lasted perhaps five to ten minutes, but was unsure, as she felt a loss of sense of time.

It appears that the 'trigger' for each of these events involved the baby laughing, when she would feel irritable, develop a pain in the left temple, experience an odd smell, and then feel a difficulty in breathing, an intense excitement and hate, blurring of her peripheral vision, and a sense of acting like a puppet. The episodes were terminated by the baby's crying. Afterwards, she would at times have a headache, and often felt extremely upset and guilty.

There did not appear to be any loss of consciousness, but her description suggested an altered state of consciousness. The patient denied ever blacking out, any incontinence, or having a 'shaking fit'. She experienced these attacks only while alone with the baby. She remembered swinging the baby violently, and on one occasion she bit the child's leg. On the day of the offence, she had been swinging the child by the legs. The baby's head hit a cabinet and perhaps the floor. She called an ambulance, but the baby died eight days later. Post-mortem findings were of cerebral oedema consistent with child battering.

Miss A had a normal birth and normal milestones, with no neurotic symptoms in childhood. She did, however, suffer from febrile convulsions up to the age of seven. She attended a mixed comprehensive school and was successful academically. She gained a City and Guilds Examination in home economics and family care, and her ambition was a career in child care. This was her first job as a nanny.

She described herself as a loner when a child, but during her adolescence mixed well with her peers. She denied having boyfriends or sexual experience. Her menarche began at the age of 13, and there were no significant pre-menstrual symptoms. There was no history of illicit drug abuse or excessive alcohol intake, and no history of lying, stealing, fighting, truancy, or involvement with the police. She had never experienced any serious illness or head injury.

There was no family psychiatric history. She had a good relationship with her parents, and there was no suggestion of an abnormal family environment. Her younger sister, aged 17, suffers from focal epilepsy.

On mental state examination, Miss A presented as pleasant, co-operative, and passive. She was reported as being a conscientious, compliant person. Questioning revealed that she had experienced *déjà vu* and *jamais vu*, as well as abnormal olfactory odours and feelings of derealisation. There was no persistent disorder of thinking, perception, or affect. Cognitive testing revealed no abnormality.

While on remand in prison, she described three episodes of the abnormal experiences described above, and was witnessed hitting a cupboard and thumping her bedside cabinet, but had amnesia for her actions. On one of these occasions she was seen by her doctor to have a generalised epileptiform convulsion.

An EEG read by a consultant who had no knowledge of the case was recorded as follows: "the record contains numerous bursts of epileptogenic activity. The basic background activity consists of 10 Hz 20–50 μV symmetrical alpha rhythm which blocks on eye opening. This is often interrupted by generalised bursts of fairly symmetrical spike and wave activity although at times appearing with greater voltages in the frontal regions or with a left posterior prominence. Phase reversing posterior sharp–slow waves occur irregularly throughout the recording with a slight right-sided prominence. Hyperventilation enhances the right-sided posterior sharp–slow waves. Binocular photic

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stimulation elicits generalised paroxysmal responses at flash rates of approximately 12 flashes/second. Monocular stimulation blocks this paroxysmal activity." A full neurological investigation and computerised tomography revealed no abnormality.

Miss A pleaded guilty to manslaughter with diminished responsibility on the grounds of an abnormality of mind induced by disease within the terms of section 2 of the Homicide Act 1957. This plea was accepted by the court. After psychiatric evidence on behalf of the defence, she was put on probation with a condition of psychiatric in-patient treatment.

After hospital admission she had one further strange experience but without the aggressive feelings, during the early stages of treatment with carbamazepine. An EEG performed at this time showed only traces of paroxysmal abnormalities seen on the initial EEG. The generalised discharges had decreased but more discrete bitemporal/right temporal features persisted to a lesser extent.

Since then she has had no further abnormal experiences.

Discussion

The dilemma in this case was whether the symptoms suggesting temporal lobe epilepsy had been deliberately produced. The patient's sister suffers from epilepsy, and it would not be inconceivable for the patient to adopt the symptoms and rehearse the act of fitting. This would, however, suggest a certain amount of premeditation on her part, yet there appeared to be no motive for her to kill the child, and the act was completely out of character. Furthermore, the offence will obviously prevent her from working with children, which had been her ambition.

The occurrence of these episodes only in the presence of the baby is difficult to understand, but may be explained by a relatively rare phenomenon of 'reflex epilepsy'. This term is used for attacks which occur in response to some specific stimulus, for example 'musicogenic epilepsy' or 'television epilepsy' (Lishman, 1987). In her case, the precipitant was the baby's laughter.

Miss A would appear to have a genetic predisposition to epilepsy (her sister has epilepsy), and she had had febrile convulsions at an early age, which have been linked to mesial temporal lobe sclerosis on the basis of anoxia to this area of the brain. Mesial temporal lobe sclerosis is the commonest lesion found at temporal lobectomy, and occurs in some 50% of cases as the commonest single finding in epileptic patients who die a natural death (Lishman, 1987). Apart from childhood convulsions, there is, however, no history of proven epilepsy at a time independent of the criminal act, a criterion considered essential by Treiman (1986) when epilepsy is used as a defence.

Miss A described symptoms commonly occurring during an aura preceding a temporal lobe seizure. Auras lasting five to ten minutes are uncommonly long for complex partial seizures, but their content seems to have been similar for each episode, which is in keeping with such seizures. It is unusual for the content of the aura to be related to the act of automatism; in Miss A's case, the common theme centres on the child. It is, however, well known that behaviour during a complex partial seizure is to some extent determined by the circumstances in which the fit occurs (Fenton, 1972; Lishman, 1987). Distortion of sense of time is often an integral part of the experience of the aura, and hallucinations of smell derive from the medial temporal lobe structures, and are of great significance for the diagnosis of temporal lobe epilepsy. Strong affective experiences frequently appear, with fear and anxiety most common, but also anger, sometimes to an extreme degree. These affective disturbances are mainly associated with posterior temporal lesions, and the aroused affect is usually crude and stereotyped (Lishman, 1987).

The observation of Miss A experiencing seizures on three occasions, once by a doctor and twice by other prisoners, cannot be ignored. It is of interest, in terms of 'reflex seizures', that she was listening to music through headphones before and during one fit. She was also observed to engage in aggressive, semipurposeful disturbed motor behaviour, suggesting a psychomotor seizure. The act of swinging the child by the legs may be seen as a form of stereotyped motor behaviour or as organised directed aggression.

Psychomotor seizures are frequently preceded by aural manifestations. They may entirely displace the convulsion, and constitute the sole manifestation of the seizure. These forms of seizure have a special association with epilepsy originating in the medial temporal lobe structures. Epileptic automatisms are regarded as a subgroup of complex partial seizures. They are often preceded by aural manifestations, usually typical of temporal lobe epilepsy. The majority of patients with automatisms also suffer from other forms of seizures, especially grand mal attacks. Environmental cues may to some extent determine the detailed patterns of automatic behaviour. Lishman (1987) states that the essential and constant feature is amnesia for the period of automatism, which is usually total, although a vague and muddled awareness may be retained. Miss A did not have a dense amnesia for the events surrounding the offence, but certainly seemed to have had an altered level of consciousness, with some recall. The absence of amnesia is an important feature against the diagnosis of automatism. Considering the overall

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picture, however, it was felt that Miss A was suffering from temporal lobe epilepsy, and that the offence occurred during a state of automatism.

This case is noteworthy because of the rarity of violence in the course of ictal automatism (Gunn & Fenton, 1971; Gunn, 1978; Treiman, 1986; Lishman 1987). Secondly, the case is of interest because her defence was one of diminished responsibility under section 2 of the Homicide Act 1957, rather than a plea based on epileptic automatism.

Automatism and aggression

Automatisms are usually brief. Among Knox's (1968) 43 cases, 81% continued for five minutes or less, 12% between 5 and 15 minutes, and in no case did the automatism exceed one hour. Forty had experienced complete amnesia for the period of automatic behaviour, the remaining three having partial recall. No aggressive conduct was observed in 36 cases (84%). The remaining seven tended to resist any attempt to interfere with or restrict their activities, and only one of these patients was considered dangerous. Rodin (1973) found only one out of 150 patients to be aggressive. He also found that if a patient was restrained during the confusional state, he might react in a defensive manner that could be misinterpreted as a goal-directed assault. In the study by Delgado-Escueta *et al* (1981) 19 patients who were believed to be aggressive during seizures were selected from a group of approximately 5400 patients with epilepsy. Of these 19, only one committed aggressive acts that could have resulted in serious harm to another person. King & Ajmone Marsan (1977) studied 199 patients with various types of seizures, and reported nine instances that they could define as peri-ictal violence. Gunn & Bonn (1971) investigated criminality and violence among epileptic prisoners. Using a census of prison and borstal receptions performed in 1966, they found a prevalence of epilepsy in prisons of 7.1 per thousand men (normal population 4.2 per thousand), although a representative sample of epileptic prisoners was no more criminally violent than a matched control group of prisoners. In fact, like other prisoners, the vast majority were not violent. They found that temporal lobe epileptics had a higher previous conviction rate, but that they were not prone to be convicted of offences of violence. Treiman (1986) concludes that prison prevalence rates for epilepsy are similar to those found in a number of underprivileged, lower socio-economic communities, such as those from which most British and American prisoners originate.

Fenwick (1986) found that the high prevalence of epilepsy among adult prisoners cannot be explained by any relationship between the biological aspects of epilepsy and proclivity towards violent actions. He states that factors found in excess among epileptics are low socio-economic status, increased perinatal morbidity, brain damage, and infections. It is thus possible that it is brain damage which is the important factor producing aggressive behaviour among epileptics rather than epilepsy *per se*. Prins (1986) elaborates further and states that a factor assuming greater prominence is an association between poor impulse control and brain damage. He also remarks that epilepsy itself produces its own social and psychological problems, which may result in antisocial behaviour. Delgado-Escueta *et al* (1981) suggest that if the content of epileptic automatisms has a psychodynamic meaning, a violent social background can conceivably result in more violent automatisms.

Medico-legal aspects

Two sorts of automatism, insane and non-insane, are recognised by English courts as a consequence of the case of *R* v. *Kemp* in 1957 (see Walker, 1968). A verdict of non-insane automatism is based on a state which is not regarded as a disease of the mind (such as sleep walking or concussion) and results in an acquittal. By contrast the outcome of a verdict of insane automatism is admission to a hospital specified by the Secretary of State without limit of time (*British Medical Journal*, 1973, 1983). The case of *R* v. *Sullivan* in 1983 confirmed that in law, an act committed in a state of epileptic automatism is regarded as an insane automatism (see *British Medical Journal*, 1983). According to the judgement made in the case of *R* v. *Kemp*, the law makes no distinction between a disease of the mind that is derived from a functional illness and that derived from degeneration of the brain. It is also legally determined that the permanent or temporary nature of the disorder is unimportant, as is the potential for treatment. Hence the law appears more concerned with the state of mind of the defendant at the time of the alleged offence than with the notion of disease (Eastman, 1986).

In the case of Miss A, it appears that there was a possibility that she committed the act during the aura, rather than during the ictal or post-ictal period. She was not unconscious at the time of the act, and as she was suffering from a treatable condition it was desirable to plead diminished responsibility rather than automatism. In the light of the *Sullivan* verdict a plea based on epileptic automatism would have resulted in a verdict of not guilty by reason of insanity and compulsory hospital admission.

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Conclusion

It is important to have some criteria in order to assess the probability of a crime having been committed during an episode of epileptic automatism. The following is an amalgamation from various authors (Fenton, 1972; Gunn, 1978; Lishman, 1987):

(a) a past history of unequivocal epileptic attacks
(b) the crime is out of character with the accused's previous personality
(c) the crime is motiveless and unpremeditated
(d) EEG studies are compatible
(e) an altered state of consciousness during the event
(f) total or partial amnesia for the crime.

The case of Miss A is in keeping with these criteria. From the medical point of view, informal admission as a condition of a probation order appeared to be a satisfactory outcome, as Miss A was fully co-operative and anxious to have treatment.

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Pimozide in Pathological Jealousy

ALAN BYRNE and LAKSHMI N. YATHAM

A 39-year-old man had his pathological jealousy successfully treated with pimozide. It is suggested that pimozide might be considered the drug of choice in all the monodelusional disorders.

Pathological jealousy can occur in relation to a number of conditions – chronic alcoholism, organic brain disorder, schizophrenia or affective disorder (Seaman, 1979) – or it may present as the only delusion in delusional disorder (DSM-III-R, American Psychiatric Association, 1987). The essential feature is a delusional belief that the marital partner is being unfaithful. Various forms of treatment have been

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