Status epilepticus and near hanging

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Summary: We report a case of status epilepticus lasting 5 h provoked by attempted self-hanging in a patient with no previous history of epilepsy. We are unable to find any published reports of status epilepticus being provoked in this manner.

Introduction

Survival after attempted self-hanging is very rare, death usually occurring within minutes or over the first 24 h. We report a case in which status epilepticus was provoked within 1 h of attempted self-hanging in a patient with no previous history of epilepsy.

Case history

In November 1982 a 21 year old male was found in his room hanging unconscious from a sheet. Artificial respiration and cardiac massage were carried out by first aid volunteers and when the general practitioner arrived he noted the patient to be in sinus rhythm and breathing spontaneously but still unconscious and responding only to painful stimuli. On admission to this hospital, approximately 45 min after the incident, he was having repeated generalized seizures. He had abrasions to the left side of the neck and multiple petechial haemorrhages on the conjunctivae, ear lobes and peri-auricular tissue. The fits continued for 5 h despite treatment with 5 injections of 10 mg diazepam intravenously, two injections of 10 ml paraldehyde intramuscularly and continuous intravenous infusion of diazepam, up to a rate of 3 mg/min. Eventually, although there was no anoxia ($PO_2 = 84$ mmHg), he required intubation and artificial ventilation to enable the doses of anticonvulsant drugs to be increased. When the fits had stopped for 10 h, he was extubated and the anti-convulsant drugs were withdrawn. He was still unconscious but responding purposefully to painful stimuli. At this stage he was noticed to be producing large amounts of bronchial secretions. The following day he responded to verbal commands but was disorientated in space and time and by the third

day after the incident, his mental state was normal although he had amnesia for the 12 h prior to the incident.

The plasma muscle enzymes were elevated on the day after admission. His electrocardiograph showed T wave inversion on standard lead III and aVF but no evidence of myocardial infarction. Chest X-ray was normal.

After 1 y there have been no further fits and he is on no treatment. It has not proved possible to obtain an electroencephalogram.

Discussion

Cerebral vascular disease producing impaired cerebral circulation is a well recognized precursor of status epilepticus (Oxbury & Whitty, 1971; Janz, 1961; Meldrum, 1976). It is suggested that moderate cerebral hypoxia may occasionally precipitate epileptic activity in patients with epilepsy, as during sudden atmospheric decompression (Meldrum, 1976). Oxbury & Whitty (1971) report a patient who developed status epilepticus in association with severe anoxia following a barbiturate self-poisoning. After severe cerebral anoxia, such as cardiac arrest, asphyxia or head injury, the restoration of cerebral blood flow and the return of oxygenation is often associated with epileptic attacks. These tend to appear 1 to 4 h after the episode of anoxia when cerebral oedema becomes apparent both clinically and histologically (Meldrum, 1976). In this patient the multiple petechial haemorrhages indicate a significant degree of asphyxiation and therefore a significant degree of hypoxia. It seems likely that hypoxia provoked cerebral oedema in this patient resulting in the episode of status epilepticus.

Reports suggest that asphyxia may develop several hours after attempted self-hanging due to progressive oedema and haemorrhage in the region of the larynx

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causing obstruction to the main bronchus (El-Guindy & Abdul-Haleem, 1971). While our patient had X-ray evidence of soft tissue swelling in the laryngeal area, he did not develop stridor or any sign of acute respiratory embarrassment. However, he was unable to speak with a normal voice for 4 d, providing clinical evidence of laryngeal damage. Patients who survive near fatal hanging may later die of pulmonary oedema or bronchopneumonia; they may develop progressive respiratory failure and at post-mortem show marked pulmonary haemorrhage and congestion (El-Guindy & Abdul-Haleem, 1971; Sen Gupta, 1965). There are also reports of adult respiratory distress syndrome developing both in patients with and without pulmon-

ary aspiration (Fischman *et al.*, 1977). In contrast, the present case, while producing copious bronchial secretions, did not develop any respiratory symptoms or signs of aspiration, infection or respiratory distress.

Hyperthermia following cerebral anoxia is a further complication of near hanging, but this patient had a normal temperature throughout the episode (Calvanese & Spohr, 1982).

Status epilepticus is a bad prognostic sign in cerebral anoxia, being commonly associated with brain damage and focal seizures later in life (Meldrum, 1976). This patient made an uneventful recovery and has no evidence of permanent brain damage.

References

- CALVANESE, J.C. & SPOHR, M.H. (1982). Hyperthermia from a near hanging. *Annals of Emergency Medicine*, **113**, 152.
- EL-GUINDY, M.K. & ABDUL-HALEEM. (1971). Delayed asphyxia: a cause of death in interrupted hanging and throttling. *Journal of the Egyptian Medical Association*, **54**, 410.
- FISCHMAN, C.M., GOLDSTEIN, M.S. & GARDNER, L.B. (1977). Suicidal hanging. An association with the adult respiratory distress syndrome. *Chest*, **71**, 225.
- JANZ, D. (1961). Conditions and causes of status epilepticus. *Epilepsia*, **2**, 170.
- MELDRUM, B.S. (1976). Neuropathology and neurophysiology. In *A Text Book of Epilepsy*, Laidlaw, J. & Richens, A. (eds), p. 318, Churchill Livingstone: Edinburgh.
- OXBURY, J.M. & WHITTY, C.W.M. (1971). Causes and consequences of status epilepticus in adults. *Brain*, **94**, 733.
- SENGUPTA, B.K. (1965). Studies on 101 cases of death due to hanging. *Journal of the Indian Medical Association*, **45**, 135.