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Emotionalism following brain damage: a complex phenomenon

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Summary: Emotionalism is a common and distressing consequence of many forms of brain damage. There is uncertainty about its classification, aetiology and treatment. A commonly used typology is difficult to apply in practice as illustrated by three clinical examples. We describe the various components of emotionalism and highlight their range and variability. In future research each component should be examined in detail using a standardized form of assessment.

Introduction

It has long been known that emotional changes can follow brain damage. For example in 1872 Darwin[1] wrote '... certain brain diseases, such as hemiplegia, brain wasting, and senile decay, have a special tendency to induce weeping.' This phenomenon has subsequently attracted a variety of labels including 'pathological crying', 'emotional lability', 'pseudobulbar affect', 'emotional incontinence' and 'emotionalism'. We shall use the term 'emotionalism' to refer to the heightened tendency to cry, or less commonly laugh, following brain damage.[2]

Emotionalism is more common than has been previously recognized.[3] For patients and carers it is a potent source of distress.[4] It can also make a major contribution to handicap, especially when the episodes interfere with communication or rehabilitation.[5] For clinicians, the main difficulties lie in its classification, assessment and management.

The aetiology remains uncertain. Emotionalism has been described in association with stroke,[3] multiple sclerosis,[6] cerebral tumours,[7] motor neurone disease[8] and dementia.[9] In most cases the cerebral pathology is widespread, bilateral and involves the cortico-bulbar tracts,[10,11] but it may follow isolated unilateral lesions.[10,12] Following stroke there is a statistical association with left frontal and large lesions.[3] However, given that it is also associated with intellectual impairment, the severity of brain damage may be more important than its location.[3] The relation between emotionalism and major depression is unclear. Following stroke, those with emotionalism do have an increased prevalence of symptoms of mood disorder,[3] and case reports suggest that when they coexist, emotionalism resolves with treatment of depression.[13] However, no direct association has been established.

There is no consensus on the treatment of emotionalism. On the basis of several case reports,[14,15] two uncontrolled trials,[16,17] and a double blind placebo crossover trial,[18] there is evidence that both tricyclic antidepressants and levodopa are effective in some patients. Both may have dramatic beneficial effects, even when small doses are used,[18] and severe cases may respond best.[18] Curiously, when successful drug treatment is discontinued, some patients show a lasting improvement, while others relapse, often within the first week.[16] There has been one report on the use of a psychological treatment for emotionalism in which behaviour therapy was successful in a patient with multiple sclerosis.[5]

Poeck[11] has classified emotionalism into two types: 'pathological crying or laughing' and 'emotional lability'. However, we believe that, in practice it is often difficult to fit the range of clinical features in individual patients into Poeck's categories. We illustrate this difficulty with the following three case reports.

Case reports

Case 1

A 78 year old man developed sudden and uncontrollable crying 2-3 times per day, each episode lasting 1-2 minutes, 2 weeks after a second stroke. The first stroke led to a mild left hemiparesis from which he made a full recovery but he was left with a dense left hemiparesis after a second stroke. His

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visual fields were intact and there were no signs of higher cerebral dysfunction, confusion or dementia. His general physical condition was good and routine investigations were normal. The crying nearly always occurred in the presence of his family or friends, rarely when alone, and never in front of the ward staff, who were surprised to hear about the crying. The emotional nature of events preceding the episodes was easily discernible and nearly always sentimental. For example, he cried when his neighbour visited to help arrange a home visit, and when a fellow patient gave him a birthday card. His mood did not change but afterwards he felt embarrassed and frustrated. His mood between episodes was normal and there were no features of a mood disorder. He had hardly ever cried in the past.

Case 2

A 45 year old man developed emotionalism following a subarachnoid haemorrhage. A computed tomographic (CT) scan showed moderate hydrocephalus with a large haematoma distorting the third ventricle. A ventriculo-peritoneal shunt was performed 10 days after presentation. There were no residual neurological signs and a cerebral angiogram was normal. Although he had marked retrograde amnesia he was not confused. His general physical condition was excellent and routine investigations were normal. The crying occurred once or twice per day and lasted 2–10 minutes. There was no warning and the episodes were beyond his control. The crying was characterized by a sudden change in facial expression followed by rapid evolution to sobbing. Most episodes occurred at home when watching television: news items reporting personal suffering or tragedy were particularly liable to affect him. Crying always followed events which had an understandable emotional meaning, for example, an argument with his wife, and never followed neutral events such as noises or ordinary conversation. He felt 'a deep sorrow' as he cried but otherwise his prevailing mood was cheerful. His wife said that he had hardly ever cried before the haemorrhage but that he had tended to be sentimental.

Case 3

A 67 year old woman with heart failure appeared to ward staff to be depressed. She had cried once or twice on most days since developing a right hemiparesis two years previously. Examination at the time of the stroke showed right sensory inattention but no visual field defect or aphasia. A CT scan showed infarcts in the left frontal lobe and internal capsule and a possible infarct in the right posterior frontal region. Her general physical state was poor due to heart failure and chronic lung disease but routine investigations including thyroid function were normal. Crying occurred either when she was alone or in the presence of ward staff. A variety of stimuli preceded attacks: cross words with the staff; failing to achieve a goal; being asked specifically about the crying; thinking about past sad events; and most commonly, when offended by comments made to her by particular nurses. She had little control over the crying, which sometimes helped to relieve tension but more often left her feeling frustrated and miserable. She had had treatment for minor neurotic complaints in the past but there was no history of depression requiring treatment. She had always cried easily, and had never fully resolved the grief for her son who had died at the age of 14. Her brother had died four weeks before admission. She cried frequently but when distracted was able to bring it under control and talk about unrelated topics. She felt sad as she cried, and her mood between episodes was depressed, irritable and anxious. She had fearful thoughts about her future and was generally pessimistic, but no 'biological' features of depression and no cognitive impairment could be demonstrated.

Discussion

Poeck[11] has postulated that there are two types of crying or laughing after brain damage. The first 'pathological crying or laughing' has three main characteristics: it is precipitated by non-specific stimuli; there is a lack of relationship between affective change and observed expression; and there is no voluntary control over the extent and duration of the episodes. In contrast he describes 'emotional lability' as an unusual tendency to sudden crying or laughing, occurring in appropriate situations, and always accompanied by an alteration in mood. In addition, the behaviour in emotional lability does not follow a fixed sequential pattern, and can be interrupted by external events. None of these patients fits into either of these categories. Case 1 does not fulfil the criteria for emotional lability because he did not feel sad during episodes of crying, nor does it fit pathological crying since the episodes were never preceded by 'non-specific stimuli'. Similarly, Case 2 is not an example of emotional lability because the crying was beyond control; and it is not pathological crying because of the mood change and definite emotional nature of events preceding the episodes. The cases also highlight the number of components that make up emotionalism: the changes in facial expression, respiration and posture; the control over the extent or duration of the changes; the nature of the preceding stimuli; the accompanying

mood; the accompanying thoughts; and the social context in which the behaviour occurs.

The complex nature of emotionalism can be appreciated by considering each of the components in more detail. The frequency and intensity of the crying varies considerably. For example, in some patients the episodes occur frequently, without warning, and the accompanying facial movements evolve rapidly to an extreme stereotyped form. There may be marked sobbing and loud vocalizations. Recovery can be as rapid as the onset, but sometimes the crying seems to smoulder on, with only partial recovery between episodes. At the other extreme, episodes are infrequent and the crying or laughing can be difficult to distinguish from normal. Control over extent and duration also varies: some patients have no control and episodes are not modulated by outside intervention, whereas others retain some degree of control. It is often said that the emotional responses are inappropriate, in the sense that they follow stimuli which have no apparent emotional meaning.[11,12] This is true in a few cases, for example, when episodes are preceded by events such as a door opening or a loud noise, but in most cases the events preceding the crying or laughing do have an emotional nature: in the patients described, crying followed kind gestures, sad news items or sad thoughts about the past. In future work it would be more valuable to determine the nature and personal significance of the events preceding the episodes than attempt to make a subjective judgement about their appropriateness. There are no accounts of the thoughts that precede episodes of emotionalism. Patients are often able to describe specific thoughts which lead up to episodes, for example, thoughts about their family or the future, and these might be amenable to interventions of the type used in cognitive therapy.

Much emphasis has been placed on the dissociation of mood and motor behaviour, for example crying but not feeling sad.[11,12] This pattern is sometimes encountered (Case 1) but in many patients the situation is less clear cut, with complex changes in mood both during and following an episode. In Case 2, for example, the patient felt sad as he cried, but his usual mood was cheerful. In Case 3, on the other hand, not only did she feel sad as she cried, but also her usual mood was depressed. The social context in which emotionalism occurs may be limited or varied. Some patients cry mainly in the presence of close family members or in only one particular setting. Others cry in the presence of strangers and in public places. Again it would be more valuable to determine the nature and personal significance of the social context than to judge whether or not it is appropriate.

The three cases demonstrate the considerable variation in how the different components of emotionalism are expressed and combined in individual patients. Research is needed to describe each component separately, and to measure its range and severity. This requires the development of a standardized form of assessment from which ratings may be made of each component. With such information it should be possible to determine the relationship between each component, and between the components and other pertinent factors. Such factors include co-existing psychiatric symptoms and syndromes, other emotional and behavioural changes, cognitive function, location and extent of brain damage, and degree of disability. By studying these relationships it will be more clear whether emotionalism can be classified into subtypes or whether there is a continuum of severity.

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