LETTERS TO THE EDITOR

A flight of fantasy: false memories in frontal lobe disease

Several authors have shown that amnesic patients who confabulate have superimposed frontal lobe type deficits. The relationship between these frontal deficits, such as impaired error monitoring and set shifting, lack of insight and unconcern about behaviour, and amnesia and confabulation, is unclear. It has been argued that confabulations and amnesia may be dissociated. We describe a patient with a large frontal lobe tumour who presented with a false memory. Verbal recall was preserved.

A 53 year old bachelor was referred from another hospital. He had been found in his hotel room, confused, incontinent of urine and faeces, and rambling about a suitcase and falling off his plane seat on a trip to Tokyo.

He was unkempt, and had a large sacral bed sore. He was alert, but bland and apathetic with slowed verbal and motor responses. He only spoke when addressed. There was no formal thought disorder or thought alienation. Physical examination was normal.

The patient lived alone in a hotel. He held a BSc Honours degree and had been employed as a translator in various countries before resettling in South Africa where he ran a small business. He had always wished to work in Tokyo. His brother, who verified the above, told us that the patient had been a very private person who had always lived very frugally. On one occasion, he had succumbed to a whim and at great expense, flew on a day trip over the North Pole.

Electroencephalography showed bifrontal delta associated with occasional independent sharp waves. On CT, there was a large bifrontal mass with posterior displacement and splaying of both anterior horns of the lateral ventricles (figure). There was minimal contrast enhancement in the midline around the falx cerebri. The neuroradiological diagnosis was of a low grade "butterfly" corpus callosum glioma. Biopsy disclosed an astrocytoma, grade III.

During subsequent interviews with the patient, he stated that he had been to Tokyo the day before his first admission to hospital. Further probing disclosed that he believed he had obtained his ticket from the local travel agency, paid by credit card, and flown to Tokyo and back on the same day, but had not disembarked because his hotel manager had suggested that they return because the patient was ill. He did not know, not seem surprised, that the manager was also on the aeroplane. When questioned about this trip during the ensuing days, his brief answers were always the same. He never discussed this spontaneously, but his belief in the flight to Tokyo remained unshakeable.

Formal neuropsychological testing disclosed a verbal IQ of 114, performance IQ of 89, and full scale IQ of 101 (South African Wechsler intelligence scale). These scores were lower than expected given his academic qualifications. His immediate recall of prose passages (logical memory, Wechsler memory scale, WMS) by which he did not perform normal (71st percentile), and there was no significant loss of information after a delay (immediate score = 9.5; delayed = 7.5). By contrast, his learning of associative learning, WMS was below expected (11th percentile), but he retained six of seven associations learned after a 30 minute delay. Immediate recall of geometric designs (visual reproduction, WMS) was average (33rd percentile). The delayed score, which was depressed by his perseverative reproductions, was below expected (immediate score = 7; delayed score = 3). Whereas his copy of the multicomponent delayed recall complex figure was a good facsimile of the original (90th percentile) despite his haphazard drawing, he only reproduced eight elements after an interference task (below 10th percentile).

Further examination on frontal lobe type tasks disclosed impaired set shifting on Wisconsin card sorting task. He repeatedly sorted cards to number instead of colour. When questioned whether he had done this adequately, but then was unable to change set and sort to form. He reverted to number. His performance on both part A (178) and part B (220) of the trial making test was below the 10th percentile and he once lost set on Part B.

Throughout his stay in hospital, he remained unperturbed about his illness. The absence of an amnesic disorder was confirmed clinically when he accurately recalled medical information given to him earlier in his stay. While awaiting radiotherapy, the patient had a seizure, became comatose, and died, 30 days after admission. A postmortem was not done.

Confabulations, even those apparently outside of keeping with the patient's life story, have "some kernel of truth of genuine experience," or may be based on wish fulfillment. This was true of our patient, who had previously flown over the North Pole and had always wished to work in Tokyo. Unlike other fantastic confabulators, he never spontaneously discussed his trip, and when probed about the practicalities such as the acquisition of his ticket, his perfectly feasible (but patently false) replies were always identical. He never denied when questioned, and his wrong memory, which had a delusional quality, became fixed with repeated questioning.

Fabrications of extraordinary events are said to occur in amnesic patients with superimposed frontal lobe deficits. As in other patients previously described, our patient showed impaired shift setting and perseveration on the Wisconsin card sorting test, regardless of repeated instruction. Similarly, he was not able to respond appropriately about his trip to Tokyo could unhang his persistent belief. He was indifferent to our probing and his lack of critical appraisal, despite our allusions to the improbability of the event, was striking. Although these frontal lobe deficits probably contributed to his presentation, it is curious that his confabulation occurred in the context of preserved recall, and that unlike other confabulators, he did not confabulate on formal recall tasks.

Previous reports illustrate that the nature of the amnesia in confabulating patients may differ. A patient is said to be globally amnesic if both recall and recognition memory are impaired. One other confabulating patient with a frontal lesion in whom recall was preserved has been reported previously. He had frontal lobe deficits despite normal psychologi- cal testing, but showed a "pathological certainty" about his incorrect responses on formal recognition testing. The authors conclude that their patient had a "misleading subjective experience of confabulation," elicited by the distractors on recognition testing. However, they caution against an overly simplistic acceptance of a relationship between impaired recognition memory and confabulation, and refer to the patient with frontal lobe deficits mentioned earlier, in whom recognition memory was intact. This patient's delayed recall was severely impaired. Thus it is more likely that he had intact familiarity judgement, but lacked the organisational skills to guide the search process for recall.

Our patient differs from these two patients in that recall was preserved in the context of frontal lobe deficits. One explanation may be that the preservation of his memory accounted for his belief in normal memory mechanisms, thereby precluding the usual evanescent confabulation. The other may be that he also had impaired familiarity judgement, and a faulty subjective sense that his memory of the flight to Tokyo, which probably arose during postictal confusion, was true. Practice to improve familiarity judgement, and ironi- cally, it may be that our frequent question- ing cemented his false belief.

Finally, it is a moot point whether the fixed belief of our patient was a confabulation or a delusion. This case study stresses the importance of understanding the underlying pathology by testing all aspects of memory (including those we omitted) in all patients with false memories.

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Dostoevsky's epilepsy induced by television

The great Russian writer Fyodor Dostoevsky (1821–81) had a special type of epilepsy that was described by himself as sudden and brief episodes with an "aura" consisting of pleasure, happiness, and comfort, followed by tonic-clonic seizures. This type of epilepsy has been called "ecstatic epilepsy" or "Dostoevsky's epilepsy," although it has been suggested that some historic persons had the same type of seizures. Dostoevsky projected his affective experiences on to his literary characters—for example, in the case of Prince Myshkin in The Idiot.

We report a 25 year old woman, without prior personal or familial history of neurological disease, who was evaluated because of a 10 year history of recurrent paroxysmal "ecstatic" episodes induced by close proximity to a television screen. The episodes began abruptly with fixed posture and isolation from the external environment, which was followed by a sensation of "internal peace," calmness, and intense pleasure without sexual connotations. She compared this sensation with "being drugged," and to a sense of full personal satisfaction, as "watching the sea". Her relatives had to separate her from the television to control the situation. Three episodes were followed by tonic-clonic seizures. When the patient was under an emotional stress, she alone was able to induce the episodes by placing herself in front of the television set. The episodes were easily induced and were independent of the content of the television programme. Neurological examination, interictal EEG, cranial CT, and MRI were normal. An EEG obtained while she was approaching the television screen showed generalised spike and polyspike wave complexes lasting three seconds during which she had a mild degree of impaired awareness.

Our patient had "ecstatic epilepsy," similar to that described by Dostoevsky. This type of epilepsy has rarely been reported. She is exceptional because of the induction by television and the presence of generalised epileptiform activity. Of the reported patients, only two had focal abnormalities in the brain, consisting of a right temporal sural, and a right temporal epileptiform activity.

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Influence of obtaining a neurological opinion on the diagnosis and management of hospital inpatients

There are relatively few clinical neurologists in the United Kingdom (about 1,234,000 population). Most are based at regional neuroscience centres but regularly visit district general hospitals. A few general hospitals are served by physicians with an interest in neurology. As a contribution to debate about the future provision and distribution of neurological services in general hospitals, we have audited the influence of obtaining the opinion of a clinical neurologist on the diagnosis and management of inpatients under other specialties in a multidisciplinary (teaching) hospital (The Royal Free Hospital).

Referrals of inpatients were recorded over a six-month period. The notes of the 169 patients seen were then reviewed and the following information recorded: age and sex of the patient, date of admission and of the neurological opinion, specialty of the referring consultant, diagnosis at referral, neurologist's diagnosis, and suggested management and outcome. Referral patients were assessed by both consultant and trainee neurologists. If initial assessment by a trainee did not yield a clear diagnosis, the patient was immediately reviewed by a consultant. When the diagnosis remained uncertain, ultimate outcome was ascertained by review of the patient's hospital records 12–18 months after the opinion.

Of the 169 patients seen, 80 were male and 89 female. Mean age was 54 (range 7–92) years. The table gives the specialty of the admitting referring consultant and the diagnoses made by the neurologists. As a consequence of the neurological consultation 91 patients (54%) had their diagnosis confirmed. A further 30 (18%) had their diagnosis changed. Examples included changes from the referring doctor's diagnosis of cerebrovascular disease to Wernicke's encephalopathy (one patient), from epilepsy to other causes (including pseudoseizures, cardiogenic syncope, and postural hypotension—seven patients in total), from cervical disc to spasmodeal torticollis (one patient), from dementia to phenytoin toxicity (one patient), from subarachnoid haemorrhage to middle cerebral artery infarct.

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