Temporal lobe epilepsy and Dostoyevsky seizures:

Neuropathology and Spirituality

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Religious Seizures

The fullest description of what have been termed 'religious seizures', comes from the writing of Dostoyevsky (hence the sobriquet 'Dostoyevsky seizures'), particularly in the character of Prince Myshkin in 'The Idiot,' whose epilepsy is a key motif throughout the book. For instance:

> *He [Myshkin] remembered that during his epileptic fits, or rather immediately preceding them, he had always experienced a moment or two when his whole heart and mind, and body seemed to wake up to vigour and light; when he became filled with joy and hope, and all his anxieties seemed to be swept away for ever; these moments were but presentiments, as it were, of the one final second (it was never more than a second) in which the fit came upon him. (page 139) (Dostoyevsky, 1869).*

The seizures described by Dostoyevsky do not have explicit religious content, so the term 'religious seizure' is unhelpful. More accurate perhaps is James Leuba's 'ecstatic seizures'. In his 1925 classic, he describes some cases:

> *Among the dread diseases that afflict humanity there is one that interests us quite particularly; that disease is epilepsy. Its main manifestation is often preceded by curious signs, varying greatly from person to person, but fairly constant in the same person. In some instances, the 'aura,' as these premonitory symptoms are called, is in the nature of an ecstasy. In Modern Medicine, Dr Spratling reports the case of a priest under his care whose epileptic attacks were preceded by a rapturous moment. Walking along the streets, for instance, he would suddenly feel, as it were, 'transported to heaven,' This state of marvellous enjoyment would soon pass, and, a little later on, he would find himself seated on the curb of the sidewalk aware that he had suffered an epileptic attack. The same author mentions elsewhere two other epileptic patients, 'teachers of noted ability' who speak of their aurae as 'the most overwhelming ecstatic state it is possible for the human to conceive of' (page 204-5 (Leuba, 1925)).*

A contemporary account of a temporal lobe seizure with apparent religious content comes from an anonymous contributor to an on-line chat room, who narrated (sic) in real-time the experience of the 'aura' of his or her accustomed focal seizures which persisted for twenty minutes (which technically is the state of 'complex partial status') before eventually leading to a convulsion:

> *This is the aura. The fit comes later, a sensation like a fast train. 00:19. it's not going to be a bad one. It's come up fast. The slow burn is the worst. 00:21 it was the smell that told me. I smell things like burning herbs. Then they go, and when it's over they're gone. 00:29 I can feel fragments of identity speaking to me. It*

gets harder to describe I taste salt and something else. I exult in these moments. it's the payoff for the bad times, the weary times. In these moments I kiss God. 00:31 I can see all the colours now, under your skin! Look at your hand. Do you doubt that you contain an infinity of shades? tone and chroma, chapter and verse. you are the book of madder-rose and indigo. my hands will be taken soon, for a while. but how lovely that i can speak colour with my hands, while the time lasts! 00:33 its coming. i break open like achrysalis, i split. cant say much more. but you are the divine! look at your hands, draw breth, and do not doubt that you taste eternity. 00:37 over soon. i would be a river if i could. i would bleed eternal/divine. wont see it when i wake up. see it NOW. all colours. when you see all the colours. all the colours, in any one colour. that is to taste the divine. over soon. I want to remember! the keys look like bone, like brick. pyramids and saints toes. all colours. all the colours. they all saw all the colours. 00:40 keys like bone, but containign all colours. the colours never leave us. God is spectrum, infinite spectrum. sound, colour touch all a spectrum 00:54 It's over. I had the fit, I'm fine except I think I hit my elbow on something and I bit muy tongue. (Anonymous, 2012)

One of my patients, A.S., a theologian who had suffered temporal lobe seizures since his teens, interpreted his attacks as ‘a gift from God’ or ‘divine inspiration’. But, his description of the subjective experience itself was free from overt religious imagery. He decried suddenly feeling content, ‘at peace, and the world around me is illuminated, as though I had gone from darkness to light’. This lasted for a few seconds.

Leuba has catalogue of the core features of Dostoyevsky seizures: ‘the subject's role is entirely passive; it is as if an external power had taken possession of him… The ecstasy may bring with it a sense of initiation, illumination, or revelation… The experience is so wonderful that the most extravagant descriptive terms and comparisons seem to fall short of the reality; it is an ineffable experience’ (Leuba, p.206 1925). To these, I would add a sense of calm and universality; one of my patients, G.A., described the sensation as ‘oceanic’.

Such experiences are described with explicit religious language and imagery only in those conditioned by a religious upbringing. Unfortunately, information on prior religious exposure is usually lacking in the literature on Dostoyevsky seizures. In the case of my patient, A.S., his ‘divine gift’ were key to his conversion, but prior to the onset of his seizures he had an unusually observant religious life, encouraged to take Catholic Mass several times a week. Likewise, 5 out of the 6 cases in a classic series of religious conversion precipitated by seizures had intense religious upbringings (Dewhurst and Beard, 1970). Case 1 was a regular attender of church up to the age of 18 and infrequently thereafter, but who insisted on sending his children to Sunday school. Case 2, whose father converted from Methodism to Christian Science, decided at the age of 9 to become a minister, and used to get up at 6 a.m. to sing hymns. Case 3 was brought up strictly in the Jewish orthodox faith and remained devout until the age of 17. Case 5 was brought up in a strict Non-conformist family. Case 5: was ‘always religious’.

A corollary of this hypothesis is that the same subjective ‘ecstatic’ experience may be interpreted in non-religious ways in those without religious conditioning. This was the conclusion of Japanese investigators who, in a survey of 234 people with epilepsy, found 3 with religious ictal experiences, all of whom came from families with strong

religious backgrounds, itself unusual in Japan (Ogata and Miyakawa, 1998). If not interpreted as religious, such seizures may be understood as erotic or just pleasurable. In a small series of 11 cases of 'ecstatic seizures' from Norway, 8 had sensory hallucinations, 4 had erotic sensations, 5 had 'a religious/spiritual experience' and several had symptoms that had no counterpart in human experience (Asheim Hansen and Brodtkorb, 2003). Likewise, there are examples of pure erotic (Amancio et al., 1994) or pure 'pleasure' seizures (Aull-Watschinger et al., 2008) arising in temporal lobe epilepsy.

How typical are Dostoyevsky seizures of religious experiences in people without neurological disease? There is certainly resonance with some elements catalogued by Alexander and Andrew Fingelkurts (Fingelkurts, 2009), namely (1) 'the sense of having touched the ultimate ground of divine reality'; (2) 'the experience of timelessness and spacelessness'; (3)' feelings of positive affect, peace, joy and unconditional love'; (4) 'blissful absorption into the present moment'; (5) 'experiencing in an extraordinary way that all things are ''One'' with a divine being'.

But some normal elements are absent: (1) 'a sense of special patterning of events in a person's life by a divine being'; (2) 'an awareness of receiving help in answer to a prayer'; and (3) 'an awareness of being looked after or guided by a presence of God'. An important difference between Dostoyevsky seizures and 'healthy' religious experiences are their frequency: it is usual for people to experience the latter perhaps once or twice in a lifetime (Fingelkurts, 2009).

The exact site within the temporal lobe which subserves these seizures is not known. It seems to have been outside of the reach of Wilder Penfield's stimulating electrode, when he explored the effects of stimulating the temporal lobe cortex in awake patients during epilepsy surgery (Penfield, 1955; Penfield, 1958). Instead, he catalogued reawakening of memories, induction of primitive emotions (especially fear) and 'interpretative illusions', especially time, such as deja vue and jamais vue.

I conclude that the core experiences of such temporal lobe Dostoyevsky seizures are ineffable emotions comprising oceanic peace, universality and ecstasy, that resemble in part religious experiences in neurologically normal people. These emotions may be interpreted in traditional religious terms by those with appropriate conditioning. But overlooked in previous accounts is one outstanding feature of these attacks that deserves further analysis: those who experience may derive from them great personal significance, even after many years.

Non-compliance with medication is usual in such cases. In the Norwegian series of 11 patients with Dostoyevsky seizures, quote above, five consciously induced their seizures and four were non-compliant with anticonvulsant treatment (Asheim Hansen and Brodtkorb, 2003). Case 3 in Geschwind's original series was reluctant to take anticonvulsant medication because his seizures were 'important' to him (Waxman and Geschwind, 1975).

A trace of this sense of importance or significance of such experiences can be found in highly rational people. Dostoyevsky could describe ecstatic seizures so accurately in *The Idiot* because he himself experienced them. There are hints, in his biographical notes, of an ambivalence towards his seizures:

> *You are all healthy people... but you have no idea what joy that joy is which we epileptics experience the second before a seizure... I do not know whether this joy lasts for seconds or hours or months, but believe me, I would not exchange it for all the delights of this world. (Quoted in (Gastaut, 1978))*

Karen Armstrong also describes her seizures somewhat wistfully. She entered a Catholic convent at the age of 17. Seven years later, after a series of 'fainting attacks' she was diagnosed with epilepsy. She was treated and no longer had seizures. She left the convent and lost her conventional Catholic faith, but has made theology her profession. In one of her autobiographies, she wrote:

> *My neurologist once told me that people with temporal lobe epilepsy are very often intensely religious. Certainly just before I have a grand mal fit I have a 'vision' of such peace, joy and significance that I can only call it God. What does this say about the whole nature of religious vision? Certain episodes in the lives of the saints have acquired a new meaning for me. When Theresa of Avila had her three-day vision of hell, was she simply having a temporal lobe attack? The horrors she saw are similar to those I have experienced, but in her case informed by the religious imagery of her time. Like other saints who have 'seen' hell she describes an appalling stench, which is part of an epileptic aura. Is it possible that the feeling I have had all my life that something – God, perhaps? – is just over the horizon, something unimaginable but almost tangibly present, is simply the result of an electrical irregularity in my brain? It is a question that can't yet be answered, unless it be that God, if He exists, could have created us with that capacity for Him, glimpsed at only when the brain is convulsed. What I can say, however, is that if my 'visions' have sometimes let me into 'Hell' they have also given me possible intimations of a Heaven which I would not have been without. (Armstrong, 1983)*

Both authors seem, albeit with much reservation, to attribute from events they know to be generated by a disease (an 'electrical irregularity').

Exaltation of the religious sentiment in temporal lobe epilepsy

What sort of religious life emerges from a lifetime of temporal lobe seizures? Steve Waxman and Norman Geschwind proposed that people with temporal lobe epilepsy had a personality characterised by religiosity and compulsive writing, often on moral or religious nature. In evidence, they offered three case histories, and alluded to many more (Waxman and Geschwind, 1975). In a later paper, Geschwind elaborated that the syndrome included: 'increased concern with philosophical, moral or religious issues, often in striking contrast to the patient's educational background, an increased rate of religious conversions (or strongly justified, rather than casual, lack of religious feeling), hypergraphia (a tendency to highly detailed writing often of a religious or philosophical nature), hyposexuality (diminished sex drive sometimes associated with changes in sexual taste), and irritability of varying degree.' Geschwind thought the syndrome important because, speculating that it arose from kindling in the amygdala due to temporal lobe spikes, he described it as 'unique in being the only cause of major behavioural change for which a reasonably detailed pathogenesis exists' (Geschwind, 1979).

Whether these symptoms really co-segregate with temporal lobe epilepsy remains controversial. If you look uncritically for the syndrome, you will certainly find it. Michael Trimble assembled 15 examples of hypergraphia in temporal lobe epilepsy from his and Geschwind's practice (Roberts et al., 1982) and, of these, at least 9 showed hyperreligiosity and 12 had altered sexuality. But, the same constellation of symptoms has also been found in people without epilepsy but with schizophrenia (O'Connell et al., 2013) or fronto-temporal dementia (Postiglione et al., 2008). And, in the largest study of the type, 66 people with temporal lobe epilepsy were found to be no more religious than 31 patients with generalised seizures and 26 with non-epileptic seizures (Tucker et al., 1987).

Methodological limitations mean no study has yet been definitive. Not only do most studies tend to involve only a few cases, but also a robust metric of the Geschwind syndrome is lacking. Bear and Fedio designed an 18-item scale to identify the syndrome (Bear and Fedio, 1977), which showed that people with temporal lobe epilepsy had 'deepened emotions', circumstantiality, altered religious and sexual concerns and hypergraphia, compared to healthy controls and other disease subjects. This scale has not been subjected to a rigorous psychometric analysis. Nonetheless, Michael Trimble and colleagues have expressed confidence in it, although even in their hands it has not always supported the existence of the Geschwind syndrome. For instance, when comparing people with temporal lobe epilepsy with and without self-identified hyperreligiosity, the scale identified greater emotionality and depression, but not hypergraphia in the former (Trimble and Freeman, 2006). Two other studies, using the Bear-Fedio scale, have shown that the Geschwind syndrome is not specific to temporal lobe epilepsy but rather a measure of general psychopathology (Mungas, 1982; Rodin and Schmaltz, 1984). And a recent study found no differences, using this scale, between 41 patients with temporal lobe epilepsy and 37 people with psychogenic seizures (Tremont 2012).

Leaving aside problems with the Bear-Fedio scale, Trimble's 2006 study is interesting for two reasons. Firstly, none of the 28 people with temporal lobe epilepsy who self-identified as hyperreligious had Dostoyevsky seizures, but rather they had much higher rate of post-ictal psychoses than the non-religious people with epilepsy. Secondly, when compared to members of a liberal Anglican church, the hyperreligious group were more conscious of evil, the miraculous, Near Death Experiences and of being close to powerful spirit forces; and they scored higher on scales of the noetic quality of their experiences, ineffability and timelessness.

In a study that remains unpublished, 91 unselected people with severe temporal lobe epilepsy from New York were studied using the respected Brief Multidimensional Measure of Religiousness /Spirituality scale. Compared to the general US population, this cohort had more frequent spiritual experiences and more prevalent spiritual beliefs, but less frequently attended a place of worship (Hayton, Boylan, Jackson & Devinsky, presented at the American Academy of Neurology meeting, 2002). This may just be because this group were having the high average seizure frequency of 22 a month, which would subvert most lifestyles. But others, looking at populations with lower seizure frequency, have also noted an inclination of the 'hyperreligious' epilepsy patients to belong to non-traditional religious institutions or even none at all. For instance, Waxman and Geschwind observed that 'the preoccupations of the patients often have a cosmic or global flavour, and may transcend the limits of established religions; we have seen a patient who, when asked if he were religious, replied that he

was ‘beyond religion’ and that he was a ‘cosmic minister to the world’’ (Waxman and Geschwind, 1975).

So, the religious lives of people with temporal lobe epilepsy may be caricatured as being highly ‘spiritualised’ with mystical and philosophical preoccupation, but not usually contained within an established worshipping community.

Conclusions

Dostoyevsky seizures provide the opportunity of the ‘experiment of nature’ to study the content of numinous experiences induced artefactually by brain disease. They should be studied further to:

- explore the limits of the ‘religiousness’ of these experiences themselves, and to define the interaction between bottom-up causation and any interpretation influenced by prior conditioning;
- understand what sort of religious life emerges from the person who has numinous experiences far more frequently than is encountered in the religious lives of healthy people;
- examine why such seizures seem to be attributed with long-lasting personal significance even by rational people well aware that they are due to a disease.

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