

Neurology at the Movies

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A number of previous *ACNR* articles have examined the portrayal of neurological disorders in literary texts. Novels and stories have been a potent stimulus for film adaptations, and hence it is not surprising that neurological disorders, with their dramatic possibilities ("based on a true story"), sometimes crop up in films. However, films often exercise a powerful suggestion to the masses, and hence incorrect or inauthentic portrayals of neurological disease might exert adverse effects. Here we review a number of examples of "neurology at the movies". We say nothing here of psychiatric disorders portrayed in film, examples of which have been documented,¹ but note the power of films to influence public opinion, for example *One Flew Over the Cuckoo's Nest* (1975) probably did a great disservice to the cause of ECT. We have supplemented our own film viewing experiences with recourse to an internet movie database (IMDb.com) and reviews from Time Out magazine (www.timeout.com/film).² We are sure readers can think of further examples. Documentary films are not considered here, biographies and dramas being the genres most likely to involve portrayals of neurological disease.

Epilepsy

Epilepsy in films has been systematically (and entertainingly) examined by Baxendale.³ Included are film versions of Dostoyevsky's novels *The Idiot* and *The Brothers Karamazov* which feature characters with epilepsy. Also noted in this review is a film version of Shakespeare's *Othello* (1965), presumably based on Othello's blackout which is labelled as epilepsy by Iago. Objections to the notion that Othello has epilepsy have been raised, including the circumstances and the prompt recovery, which suggest syncope as a more likely diagnosis.⁴

More recent films with an epilepsy connection include *The Exorcism of Emily Rose* (pictured) (2005) and *Requiem* (2006), both based on documented German source cases of the early 1970s.

Emily Rose believes herself to be possessed by demons and undergoes an exorcism, only to die a couple of days later. The priest conducting the exorcism is then accused of "negligent homicide" when it transpires that he suggested cessation of Emily Rose's epilepsy drugs. A courtroom drama ensues, one issue being whether this patient had epilepsy and psychosis. In *Requiem*, the protagonist is Michaela who suffers seizures and hallucinations and stops anti-epileptic drug therapy of her own volition.

Multiple sclerosis

The celebrated cellist Jacqueline du Pre (1945-87) is perhaps one of the most high profile sufferers of MS. The biopic *Hilary & Jackie* (1998) documents her relationship with her sister, but the Time Out review fails to even mention Jackie's multiple sclerosis. The theme of young talent cruelly robbed by disease is also evident in the drama *Go Now* (1995), when a young soccer player develops MS. On a more positive note, in the TV drama *The West Wing*, President Bartlett (Martin Sheen) seems able to run the White House and the USA despite his MS, although he has concealed this diagnosis from the voters. Serious neurological illness in heads of state, and whether this should be known to the electorate has been previously reviewed.⁵

Parkinson's disease

Based on the Oliver Sacks celebrated book, *Awakenings* (1990) is an account of postencephalitic parkinsonism and the effects of levodopa. Otherwise, film accounts of PD seem few, despite its prevalence. The comedy drama *What we did on our holiday* (2006) features an elderly patient with PD.

Motor neurone disease

Despite its clinical rarity there have been a few films featuring motor neurone disease. In the US, the condition is sometimes known as Lou Gehrig's disease because the legendary New York Yankees first baseman developed this condition, as seen in

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A Love Affair: the Eleanor and Lou Gehrig Story (1978). MND is a surprising backdrop for a comedy romance in *Hugo Pool* (1997) wherein an LA pool cleaner falls in love with a young man dying with the disease. More typical of the "young life blighted by cruel disease" genre is *Jennifer* (2001).

Stroke

Biopics have occasionally featured stroke, for example *The Patricia Neal Story* (1981), about the actress, sometime wife of Roald Dahl, whose stroke-related aphasia threatened her acting career.⁶ Julian Schnabel's film of *Le scaphandre et le papillon* (The diving bell and the butterfly, 2007), based on Jean-Dominique Bauby's account of locked-in syndrome from the inside, is perhaps one of the most compelling film accounts of neurological disease.

Cognitive disorders, including Alzheimer's disease

Some films featuring characters with amnesia or memory loss have already been noted.⁷ It has been suggested⁸ that *Memento* (2000), wherein Shelby (Guy Pearce) suffers from a kind of memory loss whereby he remembers life before the murder of his wife but is unable since then to recall anything for more than a few minutes, was inspired by the classic case of HM who developed profound anterograde

amnesia after bilateral anterior temporal lobe resection, including parts of the hippocampi, for an intractable seizure disorder. Viewing the film, however, is little substitute for reading the many reports on HM. Shelby is never happy, in contrast with HMs apparent contentment.

Amnesia as a feature of dementia or Alzheimer's disease (AD) has attracted screen portrayals such as Mia Farrow in *Forget Me Never* (1999) and Judi Dench in *Iris* (2001), the latter based on John Bayley's memoir of his wife Iris Murdoch's illness, and Michael Caine in *Is Anybody There?* (2008). In *Away From Her* (2006), Fiona (Julie Christie) and Gordon are an aging couple whose lives are affected by AD: Time Out stretches credibility when stating that "the most compelling element ... is the suggestion that Fiona's AD is in part Gordon's cross to bear for his past misdemeanours [infidelity]!" The film is a "rare if difficult pleasure", for which Christie was Oscar nominated. In *The Notebook* (2004), Duke reads to Allie from a storybook about the relationship of two ill-fated young lovers. Time Out spots the glaring inconsistency: "Apparently Allie can no longer recognise her husband or children, but has retained enough short-term memory and powers of concentration to follow Duke's romantic narrative from day to day". Similar qualms may be voiced about *Cortex* (2008) in which a police inspector with AD solves a murder mystery in a

clinic treating neurodegenerative disorders.

Miscellaneous others

Many neurologists may never see a case of X-linked adrenoleukodystrophy unless they attend a showing of *Lorenzo's oil* (1992), documenting the Odone family attempting to develop a treatment for this rare condition. Lorenzo's oil (4:1 glyceryl trioleate-glyceryl trierucate) reduces hexacosanoic acid levels, and following clinical trial has been recommended in asymptomatic boys with normal brain MRI results.⁸

Daniel Day Lewis won an Oscar for his rendition of Christy Brown, a sufferer from cerebral palsy, in *My left foot* (1989).

Jack Nicholson portrays a writer with obsessive compulsive disorder in *As good as it gets* (1997), although an altogether more compelling rendition is given by Tony Shalhoub in the US TV serial *Monk*.

Conclusion

To paraphrase:¹ Should neurologists watch films? What has cinema ever done for neurology? Is "biopic" simply a blend word for "biographical myopic"? Although licence is integral to the art of film making, the majority of (non-documentary) filmic portrayals of neurological disease are simply dishonest. Maybe they should carry a health warning. ♦

ABN CASE PRESENTATION PRIZE WINNER



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Chorea – Could the Plumbing be Humming?

A right-handed 73-year-old gentleman developed problems with right upper limb coordination, most noticeable when writing and cutting meat. This occurred on a background of well-controlled hypertension and hypothyroidism. Initial examination revealed right upper limb cortical sensory loss and pseudoathetosis. A CT brain showed a left parietal infarct and he was started on aspirin. On review a month later, he had developed marked right-sided chorea affecting both upper and lower limbs, and a left carotid bruit was heard. Magnetic resonance imaging of the brain confirmed the left-sided parietal lobe infarct which involved the post-central gyrus and the underlying white matter; the basal ganglia were normal. Intracranial magnetic resonance angiography was normal. Carotid duplex ultrasonography revealed 90% stenosis in the left internal carotid artery, with a high peak systolic velocity of 430 cm/s and an abnormal waveform. Other causes of chorea were excluded.

A left carotid endarterectomy was performed under general anaesthetic and carotid bypass. Postoperatively there was immediate and complete resolution of the hemichorea. The right upper limb cortical sensory loss and associated pseudoathetosis

persisted.

One explanation for chorea is the extensive loss of proprioception secondary to parietal lobe damage which may result in extreme pseudoathetosis mimicking true chorea ("parietal chorea"). Another possible explanation is haemodynamic chorea, secondary to critical carotid artery stenosis and hypoperfusion of the ipsilateral basal ganglia. There is laboratory and clinical evidence showing that the basal ganglia are particularly susceptible to ischaemia. The right hemichorea resolved after carotid endarterectomy, and the cortical sensory symptoms attributable to the parietal infarct did not. This shows that the infarct was not the cause of chorea, but it is consistent with a haemodynamic origin for the chorea.

The incidence of haemodynamic chorea is unknown and needs further study. We have recently described three cases of hemichorea associated with contralateral critical carotid artery stenosis; complete resolution of chorea occurred after carotid endarterectomy in all cases (Neurology 2008 Dec 9; 71 (24):e80-82). It is argued that cerebral vascular imaging is an important consideration in new onset hemichorea, even in the absence of other neurological signs suggestive of cerebrovascular disease. ♦