

Pedophilia, Invasive Brain Surgery and Punishment.

Abstract:

Should it be ethical and lawful to prescribe invasive brain surgery to restore a pedophile's cognitive capacities to fit their punishment? Our manuscript reports and discusses the case of a man sentenced to prison in Slovenia for pedophilic and aggressive offences. While imprisoned, his cognitive capacities deteriorated and a large tumor in the left frontal lobe was discovered. The case we report raises significant ethical concerns, for the following reasons: 1) the prison sentence was suspended to allow invasive brain surgery, despite poor prognosis and patient capacity to consent; 2) the medical intervention could be interpreted as a way to restore the prisoner's cognitive capacities to complete punishment 3) the prisoner's full responsibility for his crime is questionable, given the tumor likely affected his ability to inhibit his disruptive acts while committing offence. At the moment of writing this article, the individual is scheduled to be returned to jail, depending on remission, to continue his initial punishment sentence.

Key words: Aggressiveness, Cognitive Impairment, Cognitive Capacities, Consent, Invasive Brain Surgery Pedophilia, Punishment, Tumor.

Introduction:

A possible relationship between brain tumors and acquired behavioral changes, including criminal conduct, has been the focus of a multidisciplinary debate for many years. A significant number of clinical cases demonstrating behavioral changes and cognitive impairment due to brain lesions have been reported in the medical literature for many decades (Vidor, 1951; Lishman 1968). A previous study we conducted on 86 patients suffering from brain lesions revealed that 38% developed disruptive personality and behavioral changes (including hypersexuality and aggressiveness) aligns with these clinical reports (x 2014). However, even if a correlation between acquired behavioral changes and brain tumors seems to be a plausible medical hypothesis, its exact legal and ethical interpretation is not.

Acquired pedophilia and aggressiveness can be defined as occurring in individuals who have been free of these behaviours prior the onset of disruptive neurobiological changes (Gilbert et al 2014, Regestein and Reich, 1978). Rare cases of acquired pedophilia have been documented. The literature reports cases of acquired pedophilia associated with: right orbitofrontal hemangiopericytoma (Burns et al., 2003), inflammatory demyelination involving the hypothalamic and septal regions of the basal prosencephalon (Frohman et al., 2002), frontotemporal dementia, bilateral hippocampal sclerosis (Mendez et al., 2000), hypothalamic glioma (Miller et al., 1986), right frontal arteriovenous malformation extending into the septal region (Miller and Cummings, 1991), epilepsy, post-anoxic encephalopathy (Berlin and Coyle, 1981), suprasellar meningiomas, multiple episodes of disrupted cerebral circulation, vestibular neuronitis (Regestein and Reich P. 1978), neurosyphilis (Kurland, 1960), post-encephalitic Parkinsonism (Fairweather, 1947), iatrogenic Impulse Control Disorder induce by dopaminergic therapy (Tasmania Law reform Institute 2012), right temporal lobectomy and others (Devinsky et al., 2009).

Acquired pedophilia seems to be a very rare, but nevertheless possible outcome among neuropathological impairments related to hypersexuality. No studies claim that acquired pedophilia can be predicted solely on the basis of a specific pathognomonic or an exclusive neurobiological cause (Joyal et al., 2007). The hypersexual disorder needs to be understood within a multidimensional framework with several factors interacting with each other (psychological, environmental, social, cognitive capacities, testosterone levels, dopaminergic rewarding system, etc.).

The very existence of acquired pedophilia raises substantial concerns in neuroethics. Should an individual who committed a pedophilic crime, but who fulfills the diagnosis of acquired pedophilia, be held (fully) criminally responsible? As well, when a patient's cognitive capacities are deteriorated due to brain dysfunction, does the criminal justice system have any moral obligation to restore these capacities through invasive brain surgery to ensure patients can fit their punishment, especially if there is a poor survival prognostic? In the next section we report a case study, and then discuss it in order to shed light on these questions.

Case Report:

A 48-year-old-male was brought to Novo Mesto General Hospital, Slovenia, following a series of epileptic fits in June 2013. Two months prior to admission, he had been sentenced to one year in prison for a pedophilia-related offence, namely, physical assault and sexual harassment of his pubescent step-daughter. Prior to condemnation, the individual had no history of sexual deviancy. Upon admission to the hospital, diazepam was administered to control epileptic symptoms. During the examination, due to administration of diazepam, the patient was somnolent and unresponsive, there was no spontaneous speech, he did not follow instructions. After the patient woke up, no focal neurological deficits were found. The patient was sent back to prison with antiepileptic therapy levetiracetam 2x250 mg. For the next weeks, the patient's condition was stable. He was depressed, apathic, and occasionally mildly aggressive. Six weeks later, a MRI was performed, revealing a large tumor in the left frontal lobe with central necrotic areas. The tumor was causing a mild subfalcine herniation and compressing the sulci on the convexity of the left hemisphere (Figure 1). Subsequently, the patient became confused and disoriented. He was seen by a psychiatrist and then admitted to the Neurological Department of the Novo Mesto General Hospital. A glioblastoma multiforme was suspected and a neurosurgical procedure was indicated.

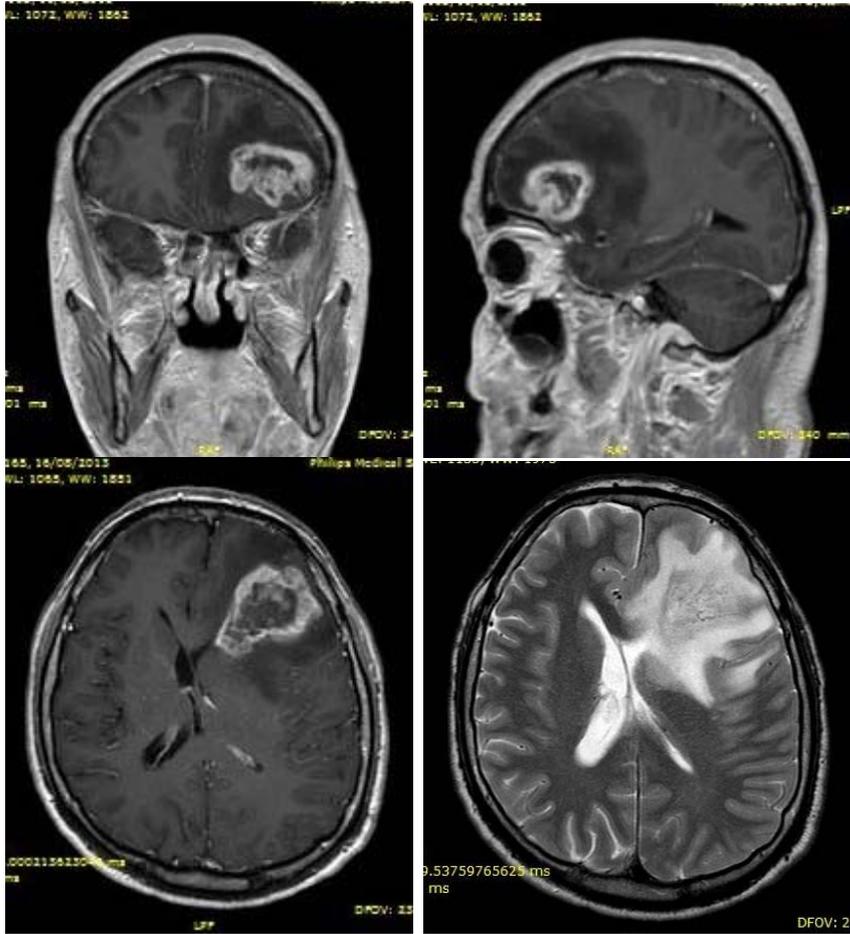


Figure 1: MRI-scan at the time of admission of the 48-year-old patient to the Department of Neurosurgery, showing a large tumor of the left frontal lobe. Prominent edema of the left frontal lobe can be observed on scan (D). (A) Coronal view. (B) Sagittal view. (C) Axial view. (D) Axial view T2 sequences. The neuro-oncology literature rarely reports on cases of aggression caused by a brain tumour. Few cases of unusual aggressive and antisocial behaviour have been correlated with glioblastoma involving left frontal lobe (Gilbert et al 2013).

In terms of histopathology, glioblastoma multiforme (GBM) is a highly malignant tumors. Median survival of patients with GBM is about 15 months, however new treatment approaches have been used in recent years, increasing possible life expectancy to 3 years and more (Adeberg et al 2014). GBM can grow as primary or secondary GBM. Primary GBM are malignant from the beginning on and their growth is very fast, usually in time frame of 2-6 month before becoming symptomatic. Secondary GBM are less frequent and develop from low-grade gliomas (LGG) which may grow slowly for many years (5-10 y) before they degenerate and turn into GBM. Secondary GBM are more common in younger patients (mean age 45 versus 62 years for primary GBM) (Ohgaki et al 2009).

Upon admission to the neurosurgical department, the patient was disoriented in time, apathic and introverted. He only spoke a little; however, his speech was euphasic. The patient cognitive capacities were impaired, as a result, he did not have the ability to consent to the surgery. The family choose to allow the invasive brain intervention. He was operated on a day after admission. A transcortical approach to the tumor without damaging any eloquent brain regions was done and the tumor was gross-totally removed. Postoperative course was uneventful and a post-op CT scan showed just mild postoperative edema (Figure 2).

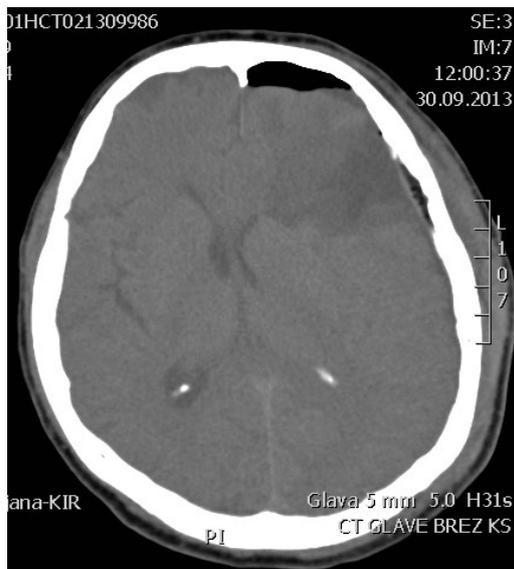


Figure 2: CT-scan after operation, showing tumor removal and mild edema.

Symptoms of apathy and depression were still present after surgery. The imprisonment was suspended to allow treatment (oncological indications with radio- and chemotherapy). On routine check-up, the patient was slightly apatic, slow, however fully cooperative and without any speech or motor disturbances. There has not been any new aggressive episode reported by the family when specifically asked by the surgeon during follow-up. The patient's jail sentence is still pending, upon remission and treatment completion.

Discussion:

This case raises many legal and ethical issues. The main question concerning the sentence suspension is: Was it ethically justifiable to restore the man's cognitive capacities through the use of invasive brain surgery in order for him to continue his initial punishment, especially given is life expectancy was low? Responses to this question can be broken down into different kinds.

First, a traditional legal answer might be that the patient had a tumor which had to be removed by intrusive means, even though it was only expected to prolong the patient's life for a few months. Consequently, suspension of the patient's prison sentence was appropriate to allow the medical treatment to be undertaken. The court ordered punishment must then be completed at the conclusion of treatment; whether or not it is 'deserved' is irrelevant to the traditional legal answer, once the sentence has been given.

However a more nuanced response admits some of the complexity generated by ethical considerations about the appropriateness of punishment, when a physical cause may have been identified, and then remedied. As seen above, when LGG are growing in so called "non-eloquent" areas (no-speech, motor or sensory areas), there is a high probabilities they are completely asymptomatic for years before degenerating into GBM and start causing symptoms due to their size. In the above case, it is strongly difficult to rule out that the tumor was a LGG for many years (patient age matching LLG histopathological mean). In addition, the tumor grew in the non-eloquent area of the left prefrontal cortex – the area that is responsible for inhibiting antisocial behaviours. Consequently, it could have caused very subtle symptoms that were interpreted as patient's antisocial behavior (leading to crime conviction), however tumor only started causing major symptoms when becoming GBM and accelerating its growth (while being incarcerated (cognitive impairment, speech trouble, no consent etc.)). The presence of this tumor likely affected the patient's inhibitive system, contributing at least to some extent to the inception of the urge leading to the offences. In this case questions arise as to what extent the patient should be held accountable for his actions and to what extent he deserved – and continued to deserve - his punishment? In other words, to what degree did the tumor contribute to exacerbate impulsive behaviors and impair the inhibitive neuronal network?

When pedophilia is attributable to acquired brain abnormalities (brain tumors), we can question whether the individual should be held (fully) responsible; and we can therefore question the deservedness of the punishment and the moral justification of restoring cognitive capacities to fit sentence, especially through intrusive brain surgery and patient has no ability to consent. The philosophical debate on responsibility has been mostly focussed on how capacities (cognitive, affective, conative) lead individuals to act, but this debate is too often biased by a metaphysically informed theory of free will. This biasing idea is often described as a *contra-causal freedom*; namely no neurobiological cause is ultimately at the origin of one capacities to act (Kane, 2002; Van Inwagen, 1983). Put differently, a *contra-causal freedom* mean that no organic cause could have truly been enough to force the patient to commit his crime. We understand this position as a sort of *contra-causal responsibility*: due to the absence of neurobiological cause, one is ultimately responsible for one action (Gilbert, 2009). As a result, patient's responsibility is incompatible with a mere neurological impairment causing his deviant behavior. Given this *contra-causal responsibility* concept, an individual would be fully or partly responsible, since no cause would have been sufficient –besides the individual's own capacities– to freely act (Glannon, 2008).

Despite this *contra-causal freedom* bias, we suggest the opposite. What matters when deciding on holding acquired pedophile responsible is not whether metaphysical

explanations are at the origin of the acquired behavior but rather how neuropathological disruption leads to acquired hypersexual urge, impairs executive function, affects judgment and disinhibits behaviours. To some extent, we speculate that the control to refrain from an acquired hypersexual urge may be inversely proportional to the location of the affected brain area, size and type of tumoral cells. However, it is critical to indicate that an exclusive neuropathological origin is not sufficient to discard one's responsibility. Our review of the literature above describes all kinds of histological as well as anatomical diversity of brain disease associated with acquired pedophilic behaviors. These evidences diminish the likelihood that acquired pedophilia is reliably associated with a unique neurohistopathology; explanations should be proportional to others factors (environmental, social, psychological, testosterone levels, dopaminergic rewarding system, etc.). A proportional explanation should prevail on any metaphysical informed theory of free will. Reconsidering responsibility in light of patient fulfilling the diagnostic of acquired pedophilia introduce the idea that in those cases (including the case above), it is far from obvious that imprisonment is the right answer, and treatment rather than punishment might be called for. With low survival prognostics, it may be argued that non-invasive treatment is the most defensible approach, both from an ethical and a public safety perspective (Focquaert, F, 2014).

In addition, there is an "unknown" answer. Should the criminal justice system have avoided ordered an intrusive brain surgery in a case where a less invasive treatment, such as radio- and chemotherapy could have been chosen instead? Conceivably, when patient ability to consent remains preserved, should convicted acquired pedophile be forced to have the tumor removed by invasive means? These concerns arise in a context of a 'moral panic' in which strong media and public pressure is constantly demanding that something be done about convicted pedophilia (Hier 2008; Neuilly MA & Zgoba K 2006). Such pressure places the medical and legal profession (MLP) on dangerous ethical ground. On the one hand, in a case where the patient is cognitively incapable to consent, the MLP may be complicit in performing invasive brain surgery under duress, although knowing that such invasive brain intervention would not necessarily be beneficial to patients. On the other hand, MLP may risk becoming complicit in form of dual-punishment (physical brain intrusion & prison) which could ultimately be applied to an almost unlimited range of criminal behaviours. Put otherwise, there is a substantial risk of not stopping with acquired pedophilia, but imposing psychosurgery on most violent and sexual criminals.

With respect to invasive brain surgery, acquired pedophilia and aggressiveness are sensitive notions. As seen above, evidence tends to suggest that acquired pedophilia and aggressiveness can disappear, if proper treatments are available. The notion of acquiredness conveys the possibility of rehabilitation and treatment that may successfully curb the underlying acquired pedophilic and aggressive propensities, compared with 'innate' pedophile and aggressive behaviour in general. This significant difference illustrates ethical issues that acquired pedophilic and aggressive patients could potentially be subjected to force or compulsory invasive treatment despite no medical prescription *per se*. A reminder, a distinction between intrusive brain surgery and psychosurgery needs to be drawn. Psychosurgery is not medically vital to the patient's life. Psychosurgery can be characterized by the absence of indications for compulsory life threatening treatment.

The question is whether invasive brain surgery is ethically permissible for the sake of the societal interest of protecting others, as in cases when the tumor is not threatening patient's life, only causing disruptive pedophilic and aggressive behavior. What is more, with regard to neuroethics and law, it is necessary to explore whether forced invasive brain surgery on individuals with such acquired deviancy should be acceptable and permissible on the grounds of restoring individual cognitive capacities to fit punishment. The MLP's role should be to act only in accordance with the principles of beneficence and non-maleficence to the patient. Otherwise, what alternative principles could be put into operation to justify offering invasive brain surgery in an inherently coercive context? Plus, given the state of the art (namely, its unpredictable effectiveness and risk of irreversible tissue and psychological damage), it would be premature to argue for an ethical obligation to prescribe invasive brain surgery to restore the acquired pedophile's cognitive capacities to fit punishment. It is difficult to indicate whether non-invasive or invasive options are more effective in general; we need a case by case answer. However, in terms of ethics, should sufficient evidences demonstrate the former is more effective; then non-invasive intervention should be prioritised.

Conclusion:

A significant proportion of patients with brain tumours may experience behavioural changes, that in a few cases may lead to actual criminal activity. A number of ethical and legal questions then arise: Should such patients be (fully) accountable and (fully) to blame for their disruptive urges? How can invasive brain surgery on a convicted individual with acquired pedophilia be justified, especially when tumor prognostic indicates low survival rate? Promoting patient's best medical interests (curing patient) is one possible answer. However, patient's best medical interests are not isomorphic with patient's best interests. Respecting patient consent is another potential justification, but it would not be straightforward solution given behavioral changes may induced decision inconsistent with patient's choice without changes. Beyond the fundamental concerns specifically associated with a patient's inability to give consent, it is essential to question to what extent prescribing an invasive brain surgery for the purpose of restoring one's cognitive capacities to fit punishment is ethically acceptable and permissible – within the acquired pedophile population in particular, but also within the incarcerated pedophile cohort in general.

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