

CASE REPORT

Iginia Mancinelli,¹ M.D.; Maurizio Pompili,¹ M.D.; Francesco Scapati,² M.D.; Simone Lazanio,¹ M.D.; Giorgio D. Kotzalidis,¹ M.D.; and Roberto Tatarelli,¹ M.D.

Enucleation in Psychosis Associated with Aqueductal Stenosis

ABSTRACT: Reports of self-enucleation are frequent in medical literature, but cases of enucleation towards another are rare. We report the case of a man, 20 years of age, who suffered from psychosis with hydrocephalus and aqueductal stenosis that required a forensic psychiatric investigation to ascertain whether he was of unsound mind when he assaulted and enucleated the right eye of an officer and led to the surgical enucleation of the victim's left eye. Based on his clinical interviews and hospitalization record, we conclude that at the time of the assault, he was suffering from a delusional disorder with religious and demonic content, visual and auditory hallucinations, illusion phenomena, delusional interpretations, imaginative elements, a feeling of terror, and command hallucinations that compelled him to perform the act of aggression.

KEYWORDS: forensic science, enucleation, religious delusion, schizophrenia

Cases of enucleation, i.e., the complete gouging of another person's eye, are sparsely documented in scientific literature. The ten cases of "eye gougers" reported by Bukhanovsky et al. (1) included four diagnosed as psychotic, one suffering from mental retardation and five classified as psychopathic. The diagnoses for the four psychotic individuals were as follows: 1) schizoaffective disorder and polysubstance abuse, 2) organic delusional disorder, polysubstance abuse, mild mental retardation and antisocial personality disorder, 3) schizophrenia, undifferentiated type, polysubstance abuse and a history of conduct disorder in childhood, 4) bipolar disorder with psychotic features, polysubstance abuse and antisocial personality disorder. The enucleations appear to be related psychotic exacerbation, all of which were impulsive and unplanned. Three of the four believed they were defending themselves against the devil leaving enucleation as an only means to cope. They believed the victim was a representation of the devil, his power being emanated from the victim's eye. The last individual believed the enucleation would help her daughter, who was begging to be killed. In all four cases, none of the victims died. In the case of the mentally-retarded individual, the assault was related to his poor communication skills with others. According to Silva et al. (2), religious delusions (such as the antichrist delusion) increase aggressive behavior. Finkenbine (3) described a case of a detainee who gouged and enucleated the left eye of another detainee with a pencil. The author reported that the "gouger" suffered from serious obsessive-compulsive disorder and that the action appeared to be the result of an obsessive thought that had become uncontrollable.

Reports of self-enucleation are more frequent in medical literature. Self-enucleation or oedipism is a term used to describe self-

inflicted enucleation. Self-enucleation has generally been reported in psychotic patients (4), most frequently in schizophrenics (5). After performing self-enucleation, patients were often found with a copy of Matthew's Gospel open at 5:29, where it is stated "... if the right eye offend thee, pluck it out and cast it from thee; for it is profitable for thee that one of thy members should perish and not that thy whole body should cast into hell." Apparently, the enucleation represented a literal interpretation of the text. Other cases of self-enucleation were reported in patients with drug-induced psychosis (6), with bipolar disorder (7), with obsessive compulsive disorder (8), with post traumatic stress disorder (9) and depression (10). In most patients with psychosis, religious and sexual delusions may be detected. A frequently-reported experience of these patients is guilt, the eye being considered the organ through which sin was committed. Matthew's Gospel (5:28) also states that "everyone who has looked at a woman lustfully has already committed adultery with her in his heart." Moskovitz and Byrd (11) found the following similarities in patients of self-enucleation: 1) the act was a means of saving themselves or the world; 2) the patient did not regret the action; 3) they often quoted biblical passages from the gospel of Matthew; 4) they were psychotic at the time. Hence, religious delusions with demonic features can be found both in cases of self-enucleation and hetero-enucleation performed by patients who suffered from schizophrenic psychosis; in the former the evil is localized in the patient itself, in the latter, it is localized in others.

We report on a case of enucleation that required a forensic psychiatric investigation to ascertain whether the patient was of unsound mind at the time of the assault.

Case Report

D., a man aged 20, was jailed after assaulting a non-commissioned officer while serving his military duties. He assaulted the victim by hitting his face and various parts of his body. During this assault,

¹Department of Psychiatric Sciences and Psychological Medicine "La Sapienza" University, Via Panama 68/70, 00198 Rome, Italy.

²University of Bari, Italy.

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the victim had his right eye enucleated by the patient and received serious damage to his left eye, which eventually required surgical enucleation. The patient gouged and enucleated the right eye of the non-commissioned officer with his fingers and was arrested while trying to gouge the other eye. The patient was also responsible for causing a concussion as well as thoracic and abdominal injury to the victim.

He had no history of neuropsychiatric disturbances at the time. At the age of two months, the patient suffered from a meningococcal infection that caused serious meningoencephalitis. This was treated with barbiturates for three years and subsequently resulted in aqueductal stenosis and consequent hydrocephalus. He attended high school and was successful in obtaining a high-school degree and a job that he held for only a few months. His parents described him as a quiet and rather shy boy who had fair relationships with teachers and friends and strong family bonds. He had always had a deep interest in religion. He used to meet with a friar, known to be an expert in exorcism, in order to receive religious instruction and attend exorcistic rituals. The onset of the first signs that may be considered indicative of psychopathology date back a few months before he left for military service, consisting of bizarre behavior, mostly after alcohol abuse. The patient was called to serve military service at about the same time he was suffering the end of a romantic relationship. About three or four days before leaving for military service, he experienced delusional ideas of the persecutory type, with religious content. His thought disorder worsened when he arrived at the military base. He recalled that the atmosphere at the base was not what he had expected. He emphasized that everybody knew each other and that everyone had tried to befriend him. Officers and non-commissioned officers had treated him politely, and strangely enough to cause an "odd fear" within him. A few days later, he assaulted a non-commissioned officer. He mentioned that on the evening of the assault, he had seen people jumping on their beds and performing somersaults. This made him experience a deep fear, as he was sure that the devil was taking possession of their souls. He wanted to leave and talk it over with the exorcist friar. He went to the infirmary to ask permission to leave, but once there he feared for his life and was also afraid of being robbed. He also believed that he was in the presence of the devil, who had taken possession of the non-commissioned officer's body. This urged him to violently assault the man whose help he was seeking. He recalled "... I then saw a bright light. It was all white, I was in front of God." During the assault, he suffered mental confusion which lasted several days. He was therefore hospitalized in a psychiatric unit where he underwent several diagnostic procedures that led to the non-DSM-IV diagnosis of "acute psychotic condition in a subject with hydrocephalus and aqueductal stenosis."

During hospitalization, he was subjected to brain imaging procedures that confirmed aqueductal stenosis. A perfusion-computerized tomography (CT) scan revealed the existence of hydrocephalus, with a dilation of the 3rd and both lateral ventricles. At the level of the ventricular trigone, on the right side, contiguous to the posterior interhemispheric fissure, two tenuously hyperdense areas could be identified which pressed against the fissure and the temporal horn of the lateral right ventricle, moving them concentrically. Magnetic resonance imaging of the brain (MRI), performed with concomitant infusion of a contrast medium, showed the aforementioned three ventricles to be dilated, particularly the left lateral one (Fig. 1), while the fourth ventricle appeared to be normal. Periventricular hyperintensity, especially near the left lateral ventricle was observed. This picture is compatible with Sylvius' aqueduct stenosis.

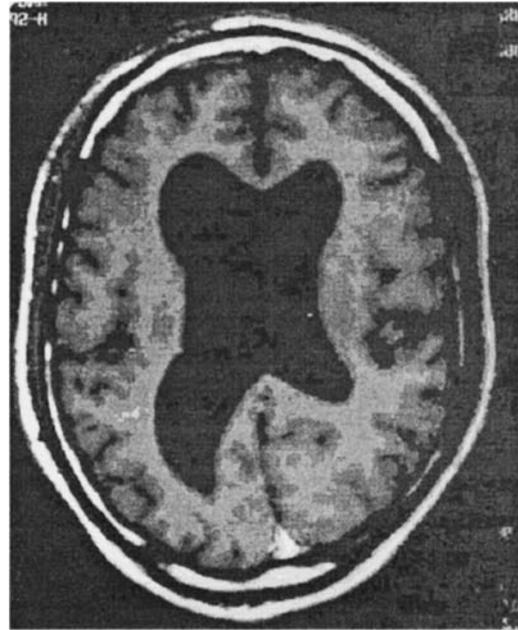


FIG. 1—Transverse section (MRI scan) of the patient showing enlargement of both lateral ventricles, especially the left.

The patient also underwent an assessment of cognitive function through the Wechsler Adult Intelligence Scale (WAIS). He obtained an IQ of 85, indicating deterioration of cognitive function of non-clinical significance in a subject with an average intellectual level.

Psychiatric forensic investigation took place in an Italian prison three months after the assault. This investigation showed the presence of persecutory thought focusing on religious and demonic issues. The patient suffered from hallucinations, delusions of being controlled and possessed by the devil; insight was poor. Furthermore, he frequently experienced symptoms "as if everything was unreal and detached." His affect was generally blunted. Nevertheless, when the subject was under pressure, such as that during neurological examinations, his affect was characterized by strong emotional reactions, i.e., the patient felt threatened and scared. He also experienced anxiety with paranoid content.

At the neurological examination, no pathological signs or symptoms could be elicited. During forensic control, the patient filled out the Minnesota Multiphasic Personality Inventory (MMPI-2); the profile indicated clinical validity. The scores obtained on control scales indicated he truthfully answered the questions. The perception of imagined threats, anxiety, low self-esteem and thought disorder emerged. Guilt, most likely related to sexual and aggressive conflict, could also be inferred. The profile was compatible with that of an impulsive subject, competitive and with somatic concerns. Depressive characteristics were also identifiable. Content subscales show the presence of thought disorder related to obsessive-compulsive behavior, phobia, and anxiety. The analysis of Harris and Lingoes' (12) subscales underlined the presence of serious persecutory ideas, social alienation, and rumination.

Discussion

The analysis of the patient's clinical interviews and records of his hospitalization led us to the conclusion that at the time of the assault, he was suffering from a delusional disorder with religious and demonic content, visual and auditory hallucinations, illusion phenomena, command experiences, delusional interpretations, imaginative

elements and feelings of terror. A serious psychotic condition was indicated by the intrusion of delusional thoughts, experienced in an atmosphere of terror and apocalypse and likely to be accompanied by restricted consciousness. Similar to the psychotic patients described by Bukhanovsky et al. (1), our patient acted impulsively. The assault was unplanned, as he believed he had to defend himself from the devil.

Overall, at the time of the assault, the patient was not in control of his own mind and was affected by severe persecutory delusion disorder. At the psychiatric forensic investigation, about three months after the assault, a DSM-IV diagnosis was given of paranoid schizophrenia.

Several hypotheses on the pathogenesis of schizophrenia have been advanced. Schizophrenia may arise from either genetic causes (13), or be the result of some perinatal insult to the brain, such as intrauterine viral infections (14) or obstetric complications (15). All these possible causes would trigger developmental abnormalities, as predicted by the neurodevelopmental hypothesis of schizophrenia (16), which according to the vulnerability model of the disorder, would give rise to a vulnerable brain that would be responsible for the onset of symptoms in periods of increased stress (17). The neurodevelopmental hypothesis is supported by the type and time course of ventricular enlargement found in this disorder (18), as in our patient.

Clinical history of the patient revealed hydrocephalus and aqueductal stenosis. Only a few cases relating aqueduct stenosis and psychosis have been reported. Roberts et al. (19) reported five cases of adult patients with hydrocephalus, aqueductal stenosis, schizophrenic psychosis with delusions, hallucinations and social withdrawal. These authors suggested that dysfunction in subcortical structures, notably the mesencephalic/diencephalic regions of the brain, may play an important role in the etiology of schizophrenic psychosis associated with aqueductal stenosis. It is also possible that an intrinsic brainstem abnormality is responsible for aqueductal stenosis and also for the associated psychosis. O'Flaithbheartaigh et al. (20) reported two cases of adults with schizophrenia and hydrocephalus with aqueductal stenosis. They suggested that in such cases schizophrenia may represent a late complication of an intrauterine viral infection. Their data also agreed with the neurodevelopmental hypothesis of schizophrenia, which states that the disorder arises from faulty migration of marginal zone cells of the subplate during the second-third trimester of pregnancy (21). It is possible that during a critical period, a viral infection could affect these developing cells, as well as initiate aqueductal stenosis or hydrocephalus. According to Reveley and Reveley (22), aqueductal stenosis may serve as a stress factor that uncovers an underlying and variable predisposition, rather than acting as a specific etiological circumstance.

In agreement with Reveley and Reveley (22), we believe that our patient was rendered vulnerable by aqueductal stenosis, and in a period of increased stress, which in this case was his service in the army along with the end of a romantic relationship. This constitutes per se a risk factor for the onset of a psychotic episode in a vulnerable individual that led to delusional disorder. Curiously enough, another case of increased religious involvement after the end of a long-standing romantic relationship was described, eventually leading to the development of full-blown delusional symptomatology (23).

According to Silva (2), demonic persecutory delusions constitute an identifiable risk factor in committing serious aggressive acts,

both self-inflicted and towards others. We therefore suggest that psychiatrists should be aware of this possibility when dealing with such patients.

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Additional information and reprint requests:

Iginia Mancinelli, M.D.
Department of Psychiatric Sciences
and Psychological Medicine
“La Sapienza” University
Via Panama 68/70
00198 Rome, Italy
E-mail: iginia.mancinelli@uniroma1.it