

Autoenucleation in a 84-year-old dementia patient

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Abstract *Background* Autoenucleation is a severe, rare form of self-mutilation. The majority of cases have been reported in the 15- to 60-year age group, usually in psychiatric patients with a history of depression or schizophrenia, sometimes caused by drug abuse. *Case report* We report a case of left-sided autoenucleation in an 84-year-old dementia patient suffering from reactive depression. Medical reports mentioned a suicide attempt 2 weeks prior to the incident, whereupon the patient was admitted to the locked ward of a psychiatric hospital. During one night of inpatient stay, the patient manually autoenucleated his left eye. Inspection of the enucleated organ revealed a completely intact globe with an attached optic nerve 5.5 cm in length. The orbit was filled with a massive haematoma. A contrast-enhanced computed tomography (CT) scan showed an orbital haematoma, absence of the left globe and optic nerve and a chiasmatic lesion, accompanied by an intracranial bleeding into the subarachnoid space. Primary wound closure was performed without complications. Visual acuity of the right eye could not be tested due to the patient's lack of cooperation. *Conclusion* To the best of our knowledge, this is the only reported case of an elderly patient with primary dementia who performed autoenucleation. Other aspects, such as

patient history, suicide attempt, manual eye extraction and chiasma lesion are similar to cases reported earlier. The identification and evaluation of intracranial bleedings and chiasmatic lesions that can be associated with autoenucleation requires a contrast-enhanced CT, especially if a long optic nerve fragment is attached to the enucleated globe.

Keywords Autoenucleation · Oedipism · Self-enucleation · Self-mutilation

Introduction

Autoenucleation is a rare but severe form of self-mutilation which is primarily found in patients with psychotic disorders. These patients often suffer from depression or schizophrenia, sometimes based on drug abuse. The majority of cases involve young to middle-aged males. The incidence of autoenucleation is unknown, but during recent years there has been an increasing number of cases reported. Other similar auto-mutilations to the globe, such as bilateral intra-ocular injections of mercury leading to bilateral enucleation, have also been reported [1].

Case report

An 84-year-old male patient who had been hospitalized on the locked ward of a psychiatric hospital was

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found in the morning with a bleeding the left orbit and an intact globe lying next to him on the floor.

He had been admitted to the hospital after having attempted suicide 2 weeks earlier, and the psychiatric diagnoses included advanced dementia and reactive depression. The patient's room was free of sharp tools that might have been used for enucleation, and his fingers and face were covered with blood, which suggested manual extraction of the globe.

Examination of the patient after his transfer to the Ophthalmology Department revealed a massive haematoma which tamponaded the left orbit, thus limiting the bleeding. Vital signs were within normal ranges. Visual acuity and visual field of the right eye could not be tested due to the advanced dementia of the patient. A contrast-enhanced computed tomography (CT) scan showed a dense, left-sided orbital haematoma, absence of the left globe and optic nerve and thickened, ruptured extraocular muscles. The chiasmatic region exhibited fresh bleeding with diffusion into the subarachnoid space and the base of the third ventricle (Fig. 1).

The enucleated globe (Fig. 2) was intact, with no visible ruptures, and all extraocular muscles had been avulsed. A 5.5-cm long optic nerve section was attached to the globe, covered by about 3 cm of remaining dura. The free nerve ending diverged into a



Fig. 1 Contrast-enhanced axial computed tomography (CT) scan of the patient's head, showing a hemorrhage and diffusion into the subarachnoid space, most markedly in the area of the anterior longitudinal fissure



Fig. 2 Autoenucleated left globe with an attached optic nerve fragment 5.5 cm in length covered by about 3 cm of remaining dura (black arrow). The extraocular muscles have been avulsed

wider and more pigmented section, indicating the existing chiasma lesion.

Neurosurgical intervention was not considered to be necessary. Primary wound closure of the conjunctiva was performed without complications. During surgery, there was no sign of cerebrospinal fluid emerging from the deeper orbit. A control CT was performed 6 h after the initial examination and did not show an increase of the former subarachnoid bleeding. The patient was then transferred back to the psychiatric unit for further care.

Discussion

As a rare but well known type of self-mutilation, autoenucleation has been reported in mythology and history as well as in medical literature since the nineteenth century. The synonymous term "Oedipism" was derived from the Greek myth of king Oedipus, who reportedly gouged out his own eyes.

There are several theories regarding the motives of self-inflicted autoenucleation. In almost all reported cases the patients had a medical history of chronic psychotic depression or schizophrenia (sometimes drug-related) and were already in psychiatric care. Most publications on this topic point out its religious background, based on the bible verses of Matthew 5:29, and thereby explain the accumulation of cases in Western countries [2]. Other theories suggest sexual ideations and even biochemical theories, such as alterations in serotonin metabolism [3].

Our case differs from the above in several aspects. Most prior publications describe 15- to 60-year-old

patients with schizophrenia or depression. Our patient was in his eighties and was primarily diagnosed with advanced dementia. Unfortunately there is no medical information about his psychiatric status prior to the suicide attempt.

The manual extraction of the globe without application of any additional tool has often been reported. An experiment by Axenfeld in 1899 showed that manual enucleation without any external tool can be performed in about 1 min [4]. Davidson describes a case of a 28-year-old schizophrenic patient whose wrists were tied to the bed after attempted autoenucleation. In a short unattended moment, while not being in bonds, the patient enucleated his right eye [5].

Several authors mention intracranial subarachnoid bleedings due to chiasma lesions or damage to the ophthalmic artery. None of these lesions created severe neurological complications, nor was neurosurgical treatment required. In general, complications following autoenucleation have only rarely reported, although some cases of fatal meningitis were described by Nettleship in 1886; however, at this time antibiotics were not available [6].

An initial CT of the orbit and brain should be performed in any case of self-enucleation to rule out severe intracranial bleedings and to screen the intraorbital situation. In our patient, a control CT was performed 6 h after initial the CT examination to rule out progressive subarachnoid bleeding.

During primary wound closure, special attention should be paid to cerebrospinal fluid emerging from

the optic nerve ending. Systemic antibiotic therapy should be initiated; some reports propagate the anti-edematous effect of systemic corticosteroid application [7]. If possible, visual field examination of the remaining eye should be performed to identify hemianopic defects in cases of chiasmatic lesions.

According to current literature, patients who already attempted or performed one-sided autoenucleation are at a high risk to enucleate the second eye as well. Therefore, they should be monitored closely by a psychiatric service to prevent further self-injury.

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