Zoophilic behavior in a patient with posterior cerebral arterial aneurysm

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Abstract

This paper presents a clinical co-morbidity between a cerebral arterial aneurysm and a zoophilic behavior. This association has not been previously described before in the literature cited by PubMed.

A 42-years old patient, without previous medical history, presented at the hospital with quite sudden onset of zoophilic behavior, disorientation and altered consciousness, was investigated and diagnosed with an aneurysm in the posterior cerebral artery.

The case is unique due to the uncommon psychiatric presentation (zoophilic behavior), and its organic substrate: the presence of posterior cerebral arterial aneurysm with interpeduncular location.

Keywords: cerebral aneurysm, zoophilic behavior, comorbidities.

Introduction

Cerebral aneurysms are pathologic focal dilatations of the cerebrovasculature that are prone to rupture. 90% of all cerebral aneurysms and are located at the major branch points of large arteries. Cerebral aneurysms frequently break into the subarachnoid space, accounting for 70-80% of spontaneous subarachnoid hemorrhages (28). Aneurysmal rupture also may result in intraparenchymal, intraventricular, or subdural hemorrhage. Giant saccular aneurysms, defined as greater than 25 mm in diameter, represent 3-5% of all intracranial aneurysms. Although giant aneurysms may cause SAH, these lesions frequently produce mass effects and result in distal thromboembolism (1).

Symptoms associated with cerebral aneurysms producing SAH are related to the location of the aneurysm, most frequent: headache, altered consciousness, seizures, meningeal irritation signs, autonomic disturbances (fever, nausea or vomiting, sweating, chills, and cardiac arrhythmias), focal neurological complaints (weakness, hemisensory loss, language disturbances, neglect, memory loss, or olfactory disturbances), visual symptoms (blurring of vision, diplopia, or visual field defects), respiratory dysfunction or cardiovascular instability, hormonal dysfunctions.

Cerebral aneurysms (either treated or not) account for a wide range of neurological, psychiatric and cognitive disorders: long-term cognitive deficits (31), temporal seizures as memory flashbacks (27), cognitive disturbances and low expectancies regarding the quality of life

(21), sudden headache, vomiting and blackout of consciousness, neck stiffness (11), delusional disorder (5), dysphasia (26), personality changes (33), amnesic syndrome, disorientation, alterations of verbal fluency and abstraction (36), confabulation (13), neuroendocrine disturbances contributing to disturbed quality of life, depression and sleeping disturbances (24), migraine with aura (10), anxiety, depression and lower functional status (20), deficits in decision-making (28), impairment of memory, executive functions, or attention (7). There is also a reported case where the rupture of the aneurysm and the subsequent SAH produced long-term resolution of bipolar II disorder and panic disorder (12).

Zoophilia is a disturbance in the sexual behavior, consisting in sexual interest and sexual arousal related to animals(2). Zoophilic behavior is, sometimes and in certain environments and cultures, quite a socially acceptable behavior. Usually, zoophilia is a pervasive pattern of sexual behavior, with no identyfiable external reason or trigger. There are several medical conditions accounting for zoophilic behavior, such as cerebral tumors located in the frontal lobe or in the lymbic system or hypothalamus.

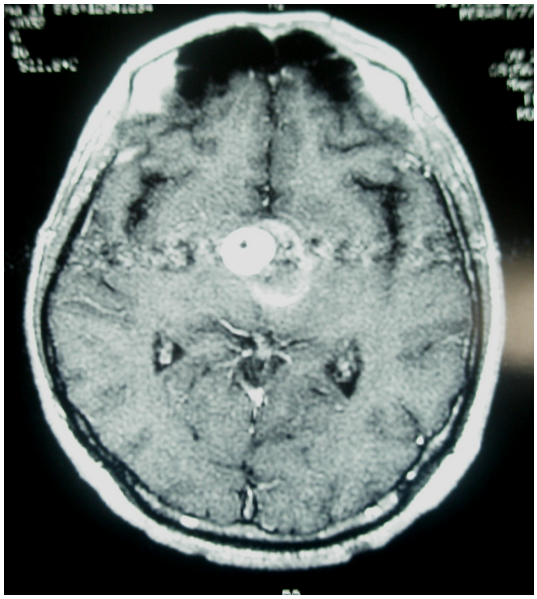
Case report

A 42 years-old male was admitted in the neurosurgery department for headache, dizziness and psychiatric symptoms (cognitive impairment, memory loss, iritability alternating with somnolence).

At the admission the patient was aware (Glasgow Coma Scale score of 15), cooperative, but with temporal and spatial disorientation. Neurologic exam revealed a right peripheric facial palsy, with no other motor deficits, no ataxia, no nistagmus, negative Romberg sign. He had no signs of meningism, no speech disturbances, normal visual field and sharpness.. The blood preasure was 135/85 mm Hg, heart rate was 68/min, regular rithm . The rest of physical examination revealed no other abnormalities.

Lab results were in normal range, as well as paraclinical investigations (ECG, pulmonar radiography). On the ophthalmologic examination: normal fundus, right eye lagophthalmos, and hypermetropic astigmatism were found. The ear, nose, mouth and throat examination diagnosed, beside the right peripheral facial palsy, deafness of the right ear.

Neuroimaging studies were performed. On cranio-cerebral computer-tomography was described suprachiasmatic expansive process, 35/21 mm, with calcifications, and intense iodofilia on a peripherical zone of 2 cm raising the suspicion of partial thrombosed aneurysm. Further exams (MRI and angio MRI (Figure 1) described a well defined mass, 32/26/21 mm, with heterogeneous signal (degradation products of hemoglobin to hemosiderin stage) and with central enhance contrast, localized interpeduncular (compression on the left peduncle), retroselar, posterior optochiasmatic region, leading to compression on right thalamic and subthalamic region (partial thrombosed aneurysm). Four-vessels angiography (Figure 2) revealed a normal bilateral carotid system and a sacular aneurysm with maximum diameter 22 mm and at the right P1 segment of the posterior cerebral artery located at about 3 mm from the basilar trunk origin, with the highest axis oriented superiorly; the aneurysm compresses both PCA origin (especially the left one).



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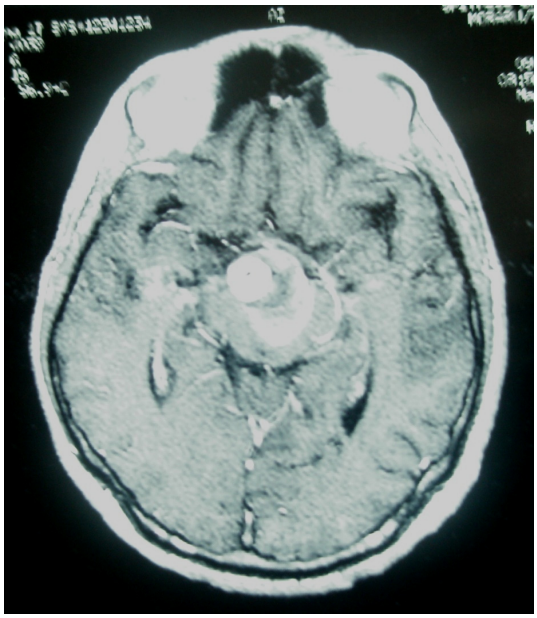

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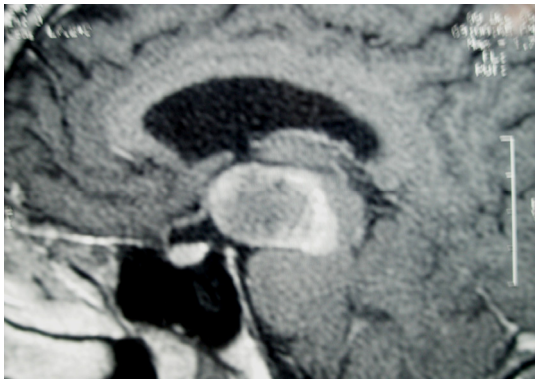

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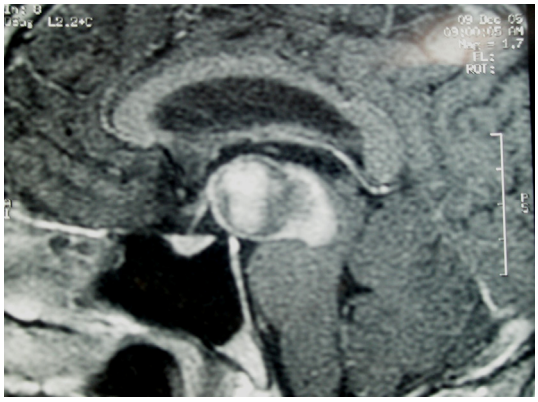

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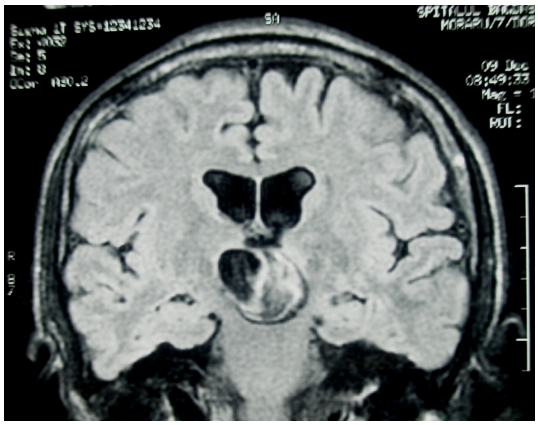
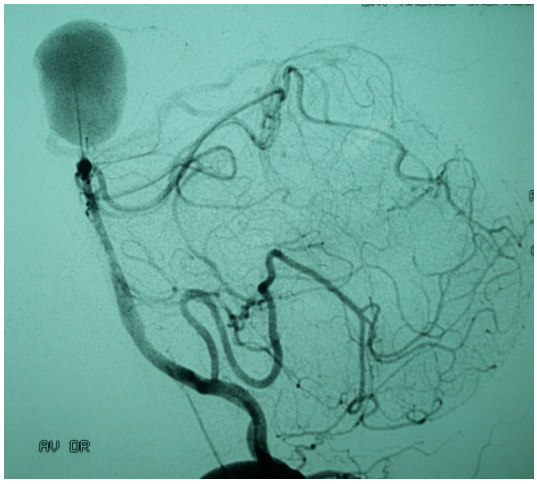


E

Figure 1 MRI examination described an partial trombosed aneurysm: well defined mass of 32/26/21 mm, with heterogeneous signal and with central enhance contrast (**Figure A and B** – axial T1 section). The location is interpeduncular retroselar posterior to optochiasmatic region, and compress the left peduncle, leading to compression on right thalamic and subthalamic region (as shown in figure **C, D** on midline sagittal sections and **E** on pons coronal section)



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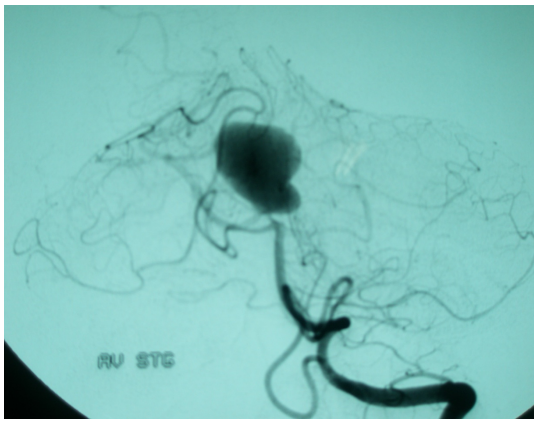

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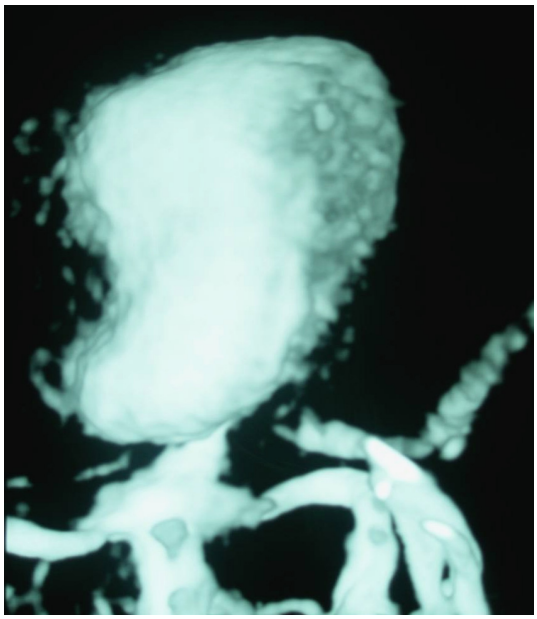

C

Figure 2 Four-vessel angiography: the sacular aneurysm with maximum diameter 22 mm at the right P1 segment of the posterior cerebral artery located, at aproximativelly 3 mm from the basilar trunk origin, with the highest axis oriented superiorly; the aneurysm compresses both PCA origin especially left (**Figures A and B**). Also the 3D reconstruction (**Figure C**) was available.

On psychiatric exam: the patient had temporal and spatial disorientation, with marked slowed ideative rythm, marked memory deficits for late and recent events, answers with long latencies, mostly irrelevant, inadequate behavior. The history of the actual episod provided by the family show the actual syptoms (disorientation, confusion, iritability) started suddenly several days ago, with increasing intensity thereafter. An extremely important aspect was the change in patient's sexual behavior, as he started to behave with zoophilic tendencies. Therefore, the patient's wife said the first intriguing sign in patient's behavior (that appeared few weeks ago) was the sexual interest towards the hens in his own yard, as she found him several times in explicit postures. At those moments the patients was not able to coherently explain what he was doing. The family members did nothing but to closely watch the patient and they brought him to the hospital only when his behavior became grossly disorganized.

Considering the major risks of surgical intervention, based on the deep location of the aneurysm, a conservative approach was decided, and the the patient was referred to a neurologic department.

Diagnosis at discharge (according to ICD-10):

1. Giant partial thrombosed unruptured aneurysm of right posterior cerebral artery.
2. Right peripheral facial palsy.

3. Other sexual preferences.

The patient died several weeks after due to the rupture of the aneurysm.

Discussion

Data from English-literature available on pub-med do not present any case of a patient with neurosurgical condition in comorbidity, namely the aneurysm, with a paraphilic behavior. The presented case represents, according to the authors knowledge, the only case reported until now presenting a cerebral aneurysm as the cause of a zoophilic behavior. Even more, the psychiatric nosographies (ICD-10, DSM-IV-TR) do not include a valid code for a paraphilic disorder due to a general medical condition. This disorder will probably receive more attention in the DSM-V (16,25)

This cause-effect association is due to the aneurysm's location in a region which accounts for the instinctive life (compression on sub-thalamic region and on lymbic system). The rapid development of the symptoms, in several weeks from the onset of the inadequate behavior, might indicate an aneurysm's growing in dimensions, with increasing compression on these cerebral structures. Should the patient's family have brought him earlier at the hospital, the neurosurgical condition would have been totally different. Delaying presentation at the hospital presumably resulted in an enlargement of the aneurysm and in cerebral compression to the point when the operatory risk became inacceptabile. Nonetheless, the patient died several weeks after the discharge, the cause of death being the aneurysm's rupture.

Several case reports described various clinical symptoms in patients with interpeduncular aneurysms. Choreic movements represented the clinical presentation of an giant unruptured aneurysm impinging upon the left thalamus, putamen, globus pallidus, cerebral peduncle, midbrain, and subthalamic nucleus (4). Other movement disorders like hemibalism (34)(30) or paroxysmal dyskinesia (14) were associated with subthalamic lesions. Interpeduncular basilar aneurysm was found as cause of progressive locked-in syndrome (19). Depresive symptoms were the clinical equivalent of the aneurysm due to subthalamic lesions (22).

Zoophylia, as paraphylic behaviour, has different approaches: an ethical/moral and legal approach (15), that led to the need of a clasification and nosological unification as terms of zoophilism, bestiality, zooerasty and zoorasty have been used (2).

Several studies, mentioned that the prevalence of zoophylia seems to be overlooked and therefore stress the need of questions exploring this topic that should be included in the psychiatric interview. (3,6). In a study performed in 1991, psychiatric patients were found to have a statistically significant higher prevalence rate (55%) of bestiality than the control groups (10% medical in-patients and 15% psychiatric staff) (3).

The only link we could found related to the organic pathway of the lesion in subthalamic area with our case, is another case report on a patient with Parkinson disease who developed zoophilia as a possible complication of dopaminergic therapy (17). The 74-year old man started the treatment with controlled-release levodopa and increased dose of bromocriptine for marked disability during the off periods and severe peak-of-dose dyskinesias. He developed hypersexuality

with zoophilia 5 days after the initiation of treatment. This abnormal behavior ceased 2 days after the doses were reduced.

The pedunculopontine nucleus was described as playing a role in the pathophysiology of Parkinson's disease (8, 37). There are several case reports were hypersexuality is linked to dopaminergic drug treatment in parkinsonian patients (38) (39) (29, 32) (9, 35). On the other hand, selective serotonine reuptake inhibitors have been used in the treatment of paraphilias (23).

As regard to the neurobiology of paraphilia and the known endocrinological, pathophysiological and genetic aspects of this disorders, in an elegant review, Jordan et al (18), discussed about the role of changes in hypothalamic-pituitary function, prolactine levels, and dopaminergic or serotonergic functions. As the pedunculopontine nucleus has a role in the pathophysiology of Parkinson's disease (8, 37) as mentioned above, we can speculate that lesions in this zone can be linked to zoophilia.

Conclusion

We present a patient with zoophilic behavior as result to an aneurysm of the posterior cerebral artery in the interpeduncular region with compression in subthalamic areas. This peculiar condition was produced probably by organic disrupture of serotoninergic-dopaminergic pathways. As zoophilia can occur in relation with several psychiatric and neurological conditions like treated Parkinson diseases, investigation of such behavior in the patient's interview should be useful.

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