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Case Report

Undiagnosed Berry Aneurysm: A Silent Killer - A Case Report

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ABSTRACT

Subarachnoid haemorrhage (SAH) due to spontaneous rupture of Berry aneurysm is the second most common cause of death after coronary artery disease. Intracranial aneurysms cause more than 50% cases of spontaneous subarachnoid haemorhage. Rupture can occur in young to middle aged persons during innocent activities such as jogging, sexual intercourse and sporting exertion. Here we are presenting a case of sudden natural death due to spontaneous rupture of an undiagnosed Berry aneurysm without any precipitating factors in a previously healthy person.

Keywords: Subarachnoid haemorrhage, Berry aneurysm, Sudden death, Circle of Willis, Vascular malformations.

INTRODUCTION

Sudden and unexpected deaths form a vast majority of cases among the various autopsies conducted by Forensic Pathologists. Death is said to be sudden or unexpected when a person not known to have been suffering from any dangerous disease, injury or poisoning is found dead or dies within 24hours after the onset of terminal illness[1].

Coronary disease is the most common cause of sudden death, but massive subarachnoid haemorrhage, cerebral haemorrhage contribute to most of the vascular system causes for sudden death. Briefly subarachnoid haemorrhage was defined as a spontaneous rupture of a blood vessel; most often a cerebral aneurysm or arteriovenous malformation leading to bleeding into the subarachnoid space[2] .Subarachnoid bleeding can cause virtually instantaneous death, even though the mechanism is obscure. Numerous cases have been described where a previously fit person was seen to collapse and was apparently already dead when attended by onlookers. There must be an element of cardiac arrest in these examples, caused by the sudden bathing of the brainstem in blood from a jet of arterial blood impinging on the base of the brain[3]. Here we are reporting a case in which a middle aged person dies suddenly while taking lecture to college students.

CASE REPORT

30 year old male, lecturer by occupation, suddenly fell down while conducting class, they rushed to the hospital but he was declared brought dead. The diseased is said to have no past medical history.

On examination, Dead body of a male aged about 30 years, moderately built and nourished, measuring 180cms in length, light brown in complexion. Postmortem staining present over back of the body. Rigor mortis present all over the body. No external injuries found on the body. On internal examination, massive Subarachnoid haemorrhage noted with evidence of intact berry aneurysm at right middle cerebral artery. (Figure 1&2) Organs were sent for histopathological examination.

Histopathology report revealed Subarachnoid haemorrhage involving both cerebral hemispheres with two aneurysms at the base of the brain. One involving the anterior communicating artery measuring 0.5x0.5cm,

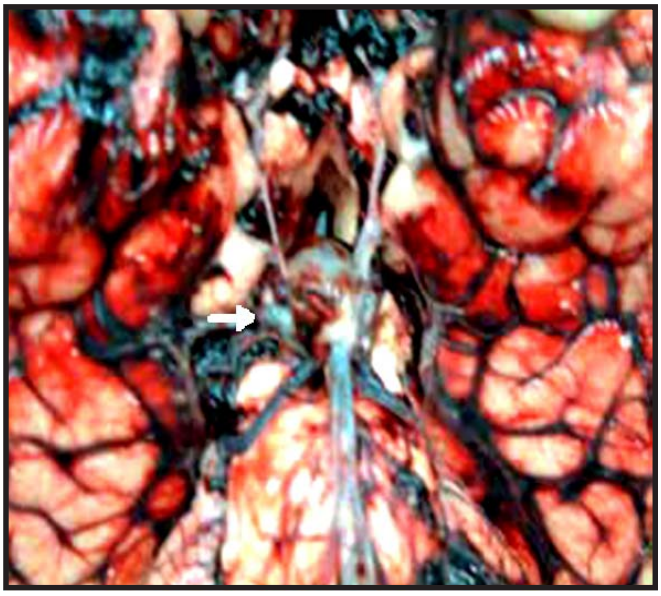

Figure 1: Berry aneurysm at right middle cerebral artery

Figure 2: Base of the brain showing Subarachnoid Haemorrhage

which is ruptured. Other involving the right middle cerebral artery measuring 0.5x0.5cm, is intact. All other organs were unremarkable.

Based on the Autopsy findings and Histopathological report, the cause of death was opined as Death is due to Cardio-Respiratory Failure as a result of Subarachnoid Haemorrhage (Sudden Natural Death).

DISCUSSION

Spontaneous rupture of an aneurysm of the circle of Willis at the base of the brain is one of the most common causes of death in young to middle-aged adults, if coronary disease is excluded. In women, who are relatively immune from coronary occlusion up to the fifth decade of life, ruptured berry aneurysm is proportionately much more common than in men. Aneurysms are most often found at the bifurcation of the middle cerebral and posterior communicating arteries, at the bifurcation of the basilar arteries, on the middle cerebral in the Sylvian fissure, on the anterior communicating artery, or where the posterior communicating artery joins the posterior cerebral vessels[3].

Intracranial aneurysms cause more than 50% cases of spontaneous subarachnoid haemorhage. An aneurysm is present in about 85 per cent of spontaneous subarachnoid haemorrhages, but the remainders reveal no aneurysm, even after an exhaustive search. This may be because of destruction of a small aneurysm[3].

There has been some uncertainty about the frequency with which ruptured intracranial saccular aneurysms are associated with either instantaneous or very rapid death. Early Medicolegal literature, based on surveys of large numbers of patients who died before or on arriving at a hospital, found that 60% of the patients died immediately after rupture of the aneurysm. The mean age was 46 years and at necropsy there was massive subarachnoid haemorrhage in 96% of the cases, subdural haemorrhage in 22%, and intracerebral haemorrhage in 43%; in addition, patients with saccular aneurysms of the posterior part of the circle of Willis or arising from the internal carotid artery showed a greater tendency to die at the time of rupture than those with aneurysms arising from other arteries[4].

A rupture is a relatively common event in the young to middle aged persons who indulge in activities such as jogging, sexual intercourse, sporting and other activities of physical and emotional exertions, probably because of a transient rise in blood pressure and pulse rate. A potent element may be in the adrenal response, catecholamines rising up the blood pressure[1]. One case has been reported in which subarachnoid haemorrhage occurred during

sexual intercourse leading to death[5]. Subarachnoid hemorrhage constitutes 6.6% of all sudden death cases of Tokyo, a far greater percentage than that of New York (4.7%) and London (4.3%)[6].

Exertion has been linked to aneurysmal rupture. However studies report that nearly half of the patients are engaged in non-strenuous activities such as resting or sleeping at the time of rupture while the others are engaged in stressful activities just before rupture (eg. heavy work, exercise, sexual intercourse) or have a heightened degree of emotional tension[7].

In the present case, as already mentioned, there was no history of any pre existing disease and no stressful activities which may have caused the sudden rupture of Berry Aneurysm. This suggests that an undiagnosed and asymptomatic Berry aneurysm may rupture suddenly even in the individuals who are engaged in mild to moderate activities as shown in other studies.

CONCLUSION

Subarachnoid haemorrhage may occur at any age but more commonly seen in young and middle aged. Though emotional and physical exertion are the most common precipitating factors for the rupture of the Berry aneurysm, it can occur without any precipitating factors as noted in the present case. Sometimes, it is not possible to detect the exact location of the ruptured berry aneurysm, the rupture may destroy the aneurysm completely. In such case, an autopsy should rule out other possible sources of intracranial bleeding, such as vascular malformations, intraventricular spreading of intracerebral hematomas, neoplasia, hematological disorders, etc. Even if there is no history of illness which can cause rupture of the aneurysm, the rupture may occur suddenly leading to death. So a thorough and meticulous autopsy is needed in all cases of sudden natural deaths to find out the exact cause of death.

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