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Case Report

A Fatal Case of ruptured carotid aneurysm

A. Haricharan*, Soibam Neha**, Asho Angami*, Lourembam Frieny*, Th. Meera Devi***.

*Post Graduate Trainee

**Senior Resident,

***Head of Department,

Department of Forensic Medicine & Toxicology,

Regional Institute of Medical Science, Imphal.

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Corresponding Author:

Dr A. Haricharan,

Post Graduate Trainee,

Department of Forensic Medicine & Toxicology,

Regional Institute of Medical Science, Imphal.

email id: haricharanpr@gmail.com

Abstract: An aneurysm is an abnormal bulge or ballooning in the wall of a blood vessel and aneurysm ruptures may lead to sudden death. Aneurysms of the extracranial carotid arteries are uncommon vascular lesions and atherosclerosis is considered a common cause. The rupture of a nontraumatic, uninfected carotid aneurysm is an exceedingly rare event, with only a handful of cases documented in the scientific literature. The present case report is that of the sudden death of a person due to the rupture of a previously undiagnosed carotid aneurysm. The case has been presented considering its rarity.

Keywords: aneurysm, carotid artery, rupture, sudden death

Introduction: An aneurysm is an abnormal bulge or ballooning in the wall of a blood vessel. The most common artery to develop an aneurysm is the aorta, followed by the iliac artery, femoral artery, and popliteal artery. Less commonly, aneurysms can develop in the carotid, subclavian, renal, and mesenteric arteries.1 Aneurysm of the extracranial carotid arteries are uncommon vascular lesions and atherosclerosis is a possible cause. Most people have no acute symptoms, but chronic conditions may lead to fatal outcomes. The rupture of a nontraumatic, uninfected carotid aneurysm is an exceedingly rare event, with only a handful of cases documented in the scientific literature. The present case report is that of a sudden death of a person due to the rupture of a previously undiagnosed carotid aneurysm. The case has been presented considering its rarity.

Case Report:

In the late March of 2022 in Imphal, Manipur(India), a 58-year-old man was found in an unconscious state in his hotel room. According to the police report, the room was locked from the inside. The deceased was transferred to a nearby tertiary care hospital; however, he was declared brought dead upon arrival. On further investigation, the members of his family informed that he was a chronic alcoholic and hypertensive, who was on irregular medication for several years.

Autopsy Findings:

External Appearance/ Examination:

(a) Stature: 178 cm (b) Weight: 76 kg (c) Physique: Average

(d) Nutrition: Good (e) Posture: Normal

(f) Identification marks: Identified body

(g) Post-mortem changes and other appearances of the body: Rigor mortis fully developed. Post-mortem staining was present at back and fixed. Congestion was seen over

the face, eyes, and upper chest. Lips and fingertips cyanosed.

h). External Injuries: No external Findings

Internal Appearance/ Examination: In the head, meninges and vessels were congested, and the brain was congested. In the abdomen, the liver shows cirrhotic changes, and the pancreas was congested. In the thorax, bilateral lungs were congested. Chest cavity filled with about 500ml of blood and blood clots.

Histopathology Findings:

Heart : (gross findings)

Hypertrophied Heart weight was around 650 grams (Fig 1).

Heart examined around the flow of blood: All chambers are normal, papillary muscle, chordae tendinae and valves are normal. Left coronaries occlusion was present(Fig 2). The full-thickness transverse tear was seen over the left common carotid artery (Fig3). Aorta has fatty streak discolouration. Right Ventricular Width thickness 0.3cm, Left Ventricular Width thickness 1.4cm, Interventricualr Septum thickness 1.3cm.

Heart : (Histology findings)

The left ventricle wall shows congestion and mild hypertrophy of the cardiac myocytes. Sections of the left coronary artery show atherosclerotic change with 50 % occlusion (Fig 4). Left coronary artery show atherosclerotic change with 20 % occlusion. Sections from the aorta show atherosclerotic changes.

Cause of death: " Shock and haemorrhage resulting from spontaneous rupture of the aneurysm of the left common carotid artery".

Toxicology Findings: Ethyl alcohol (ethanol) was detected from blood.

Discussion: Extracranial carotid artery aneurysms are uncommon and may occur due to many etiologies. The reported incidence of extracranial carotid artery aneurysms (ECCA) is about 0.8-1% of all arterial aneurysms and about 4% of all peripheral arterial aneurysms.2 Though debated, atherosclerosis has been reported as the commonest aetiology for ECAA.3 Moreover, arterial hypertension and its frequent concomitant, atheroma, are important factors in the initiation, growth, and rupture of aneurysms.4 The present case has a long-standing history of hypertension with irregular medication. Aneurysms can arise at any time in life, especially between the ages of 30 and 70, and increase rapidly in size, though they may do so slowly. This makes the onset of hypertension at any age a possible factor in the initiation as well as the enlargement of

aneurysms.5 Further, evidence of the atherosclerotic changes was well evident from the histopathological examination of the cut section. The degree of arterial narrowing from atherosclerosis might not be sufficient to cause sudden death, but the complications of atherosclerosis may be responsible for further sudden. Sudden death in a hotel room had raised suspicions of foul play in this case. A meticulous autopsy helped in establishing the cause and nature of death.

Conclusion: Symptomatic aneurysms are easily diagnosed clinically. However, subclinical aneurysms may be misdiagnosed/missed. The present case, an extracranial carotid aneurysm, is an uncommon entity. This has been presented considering its rarity.

Ethical Issues: Ethical clearance is taken from Research Ethics Board Committee, RIMS, Imphal.

Source of funding– Nil

Conflict of Interest – Nil

References:

1. Mohan IV, Stephen MS. Peripheral arterial aneurysms: open or endovascular surgery?. Progress in cardiovascular diseases. 2013 Jul 1;56(1):36-56.
2. El-Sabrout R, Cooley DA. Extracranial carotid artery aneurysms: Texas Heart Institute experience. J Vasc Surg 2000; 31:702-12. Comment in: p. 823-5.
3. Moreau P, Albat B, Thévenet A. Surgical treatment of extracranial internal carotid artery aneurysm. Ann Vasc Surg. 1994 Sep;8(5):409-16. doi: 10.1007/BF02133059. PMID: 7811577.
4. Crompton MR. The pathogenesis of cerebral infarction following the rupture of cerebral berry aneurysms. Brain. 1964 Sep 1;87(3):491-510.
5. Graf CJ, Hamby WB. Report of a case of cerebral aneurysm in an adult developing apparently de novo. Journal of Neurology, Neurosurgery, and Psychiatry. 1964 Apr;27(2):153.

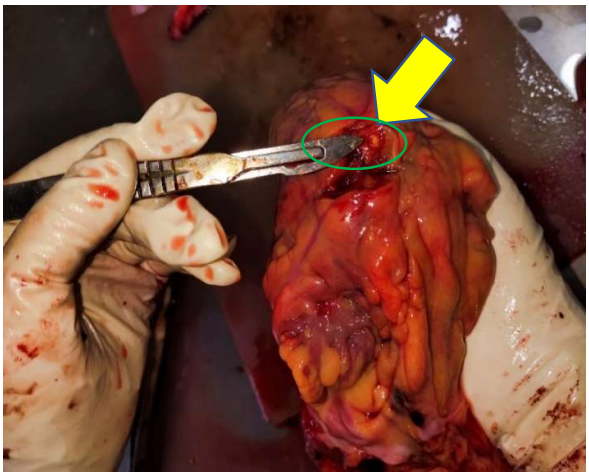

Figure 1: Showing removal of big bovine heart(0.6kg)

Figure 2: Showing Left Anterior Descending Artery occlusion, a branch of the Left Coronary Artery.

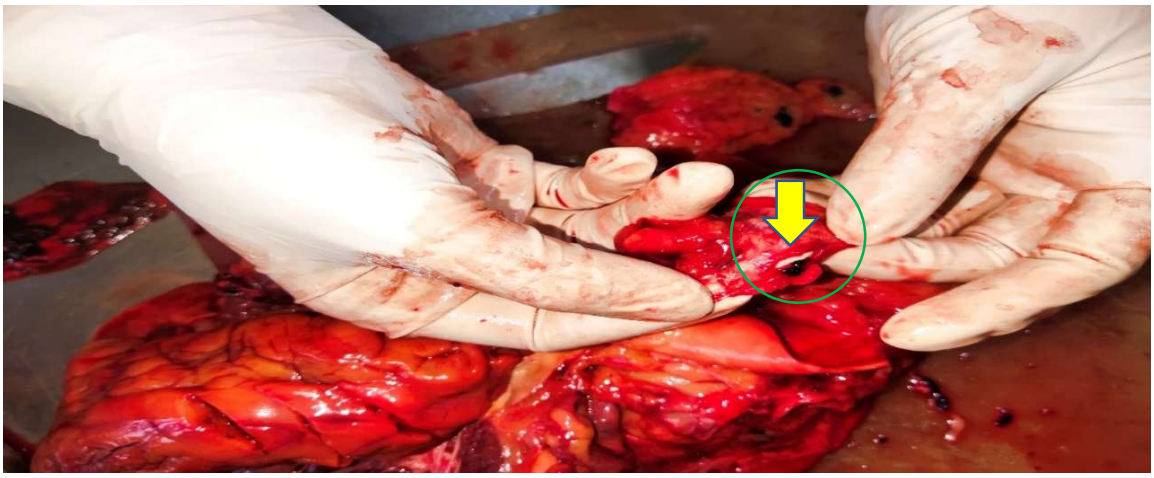

Figure 3: Showing Full thickness transverse tear seen over the left common carotid artery.

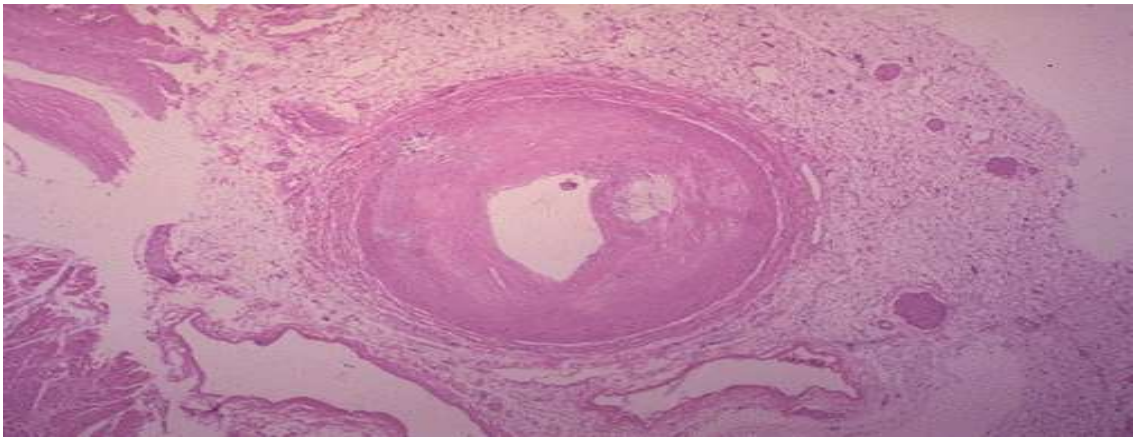

Figure 4: Showing left coronary artery atherosclerotic change with 50% occlusion.