



ISSN 2394-6784(Print)
e-ISSN 2394-6792(Online)

Indian Journal of Pathology and Oncology

IJPO

QUIZ CASE: AN AUTOPSY SCENARIO

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A middle aged housewife, with a history of hypertension, complains of severe headache since morning. She takes paracetamol at home for pain relief. Her husband returns home and finds her collapsed on floor. An ambulance is called and she is declared dead. Her family doctor hadn't seen her for 6 weeks. Her blood pressure was well controlled when she saw her family doctor last (6 weeks back). A post mortem is performed to find the cause of death.

Post Mortem Report:

No significant external findings are seen. No external injuries are identified. On internal examination, about 250 mls of subarachnoid haemorrhage is found at the base of the brain. When dissected carefully, the Circle of Willis shows a ruptured berry aneurysm at the junction of the anterior cerebral and anterior communicating cerebral arteries.

The heart shows concentric left ventricular hypertrophy. No evidence of acute or old infarction is seen. Coronary arteries show only mild atheroma. Respiratory system, gastro intestinal system and genito-urinary system do not show any significant pathology.

Quiz Questions:

- 1) **What is the cause of death in this case?**
- 2) **What is subarachnoid haemorrhage?**
- 3) **What is a berry aneurysm?**
- 4) **What causes berry aneurysm to rupture?**
- 5) **What are the clinical features associated with ruptured berry aneurysm?**
- 6) **What can be the systemic findings associated with hypertension?**

Answers:

1) Cause of Death:

- 1a) subarachnoid haemorrhage
- b) Ruptured berry aneurysm

2) Hypertension

In this case, the type of death is natural and is caused by subarachnoid haemorrhage due to ruptured berry aneurysm secondary to hypertension. There is evidence of concentric left ventricular hypertrophy to support history of hypertension.

2) There are 4 types of intracranial bleeding. They are epidural, subdural, subarachnoid and intracerebral haemorrhage, depending on their location. Epidural and subdural haemorrhages are typically trauma-related. Subarachnoid and intracerebral

haemorrhages, in contrast, are often a manifestation of underlying cerebrovascular disease, although trauma may also cause haemorrhage in these sites.

Subarachnoid haemorrhage is usually caused by ruptured berry aneurysm. It may also result from extension of traumatic haematoma, rupture of a hypertensive intracerebral haemorrhage into the ventricular system, vascular malformation, haematologic disturbances and tumours.

3) An aneurysm is a thin walled outpouching from a blood vessel. Berry (saccular) aneurysm is the most common type of intracranial aneurysm. It is most commonly seen in the anterior circulation (90%) and are found near major arterial branch points. The majority of these occur sporadically but genetic factors (such as Ehlers-Danlos syndrome, Marfan syndrome, autosomal polycystic kidney disease) may be important in their pathogenesis. Hypertension and cigarette smoking are accepted predisposing factors (in about 54%).

4) Rupture may occur at any time but in 1/3rd of the cases, it is associated with acute increases in intracranial pressure.

Aneurysms more than 10 mm in size are have a roughly 50% risk of bleeding per year. It is more frequent in the 5th decade and is slightly more frequent in females.

5) Most common symptom is sudden excruciating headache and rapidly lose consciousness.

6) Systemic findings associated with hypertension:

Brain: Intracerebral haemorrhage (very common in putamen and thalamus)

Subarachnoid haemorrhage

Lacunar infarcts

Slit haemorrhages

Hypertensive encephalopathy

Lungs: Pulmonary oedema * (* in case of left ventricular failure due to hypertensive heart disease)

(Note: Quiz Case: An Autopsy Scenario, A Virtual Case Scenario for Educational Purposes Only)