

DEFINITIONS

- 1 The brain and spinal cord are covered by three membranes or **meninges**.
 - 1.1 The **Pia Mater** is a delicate membrane which closely covers the brain.
 - 1.2 The **Arachnoid Mater** is a similar membrane lying outside the pia mater.
 - 1.3 The **Dura Mater** is a tough membrane which is closely applied to the inside of the skull.
- 2 The space between the arachnoid mater and the pia mater is named the **subarachnoid space** and is filled with **cerebro-spinal fluid**.
- 3 **Subarachnoid haemorrhage** is the term applied to bleeding into the subarachnoid space.

CLINICAL MANIFESTATION

- 4 The symptoms of subarachnoid haemorrhage are headache, vomiting, convulsions and unconsciousness.
- 5 There may also be signs of local nerve tissue irritation and compression such as visual field defects, mono, hemi, or quadri-paresis or –plegia with or without aphasia.
- 6 The severity and speed of onset of these symptoms depend upon the size of the haemorrhage and its rate of development.

AETIOLOGY

- 7 **Subarachnoid haemorrhage** may result from any condition in which there is rupture of one or more blood vessels so placed that the bleeding occurs into the subarachnoid space. The bleeding may be arterial, capillary or venous and its site of onset single or multiple. Thus subarachnoid haemorrhage may be caused by –
 - 7.1 head injury
 - 7.2 hypertension, particularly in combination with atherosclerotic disease
 - 7.3 blood dyscrasias and vasculopathies which produce bleeding in other parts of the body also
 - 7.4 capillary haemorrhage which may occur in exceptionally acute forms of encephalitis or encephalopathy
 - 7.5 rupture of an arterial aneurysm in some part of the cerebral arterial system. Such aneurysms are divided into –

7.5.1 **Fusiform aneurysms**, which are spindle-shaped aneurysms of arteriosclerotic origin.

7.5.2 **Mycotic aneurysms**, which result from septic emboli arising from bacterial endocarditis.

7.5.3 **Aneurysm with vasculitis**, a rare form of aneurysm associated with collagen vascular disease, usually polyarteritis nodosa.

7.5.4 **“Berry” aneurysms**.

8 With the exception of “Berry” aneurysms, in the conditions listed at paragraph 7 above the subarachnoid haemorrhage is an integral part of the underlying condition, the basic cause of the haemorrhage being thus that of the underlying condition.

9 “Berry” aneurysms are round or saccular dilatations of arteries, characteristically found at arterial bifurcations and most commonly at the base of the brain. They account for 80-90% of all intracranial aneurysms.

9.1 “Berry” aneurysms result from a congenital defect of the media of the artery at the point where the aneurysm occurs.

9.2 However, a medial defect alone is insufficient to cause aneurysmal formation and there must also be an acquired lesion which breaches the internal elastic intima of the artery at the same point as the medial defect.

9.3 This acquired lesion is usually atheroma, thus explaining why, despite the ubiquity of congenital medial defects in cerebral arteries, aneurysms usually appear and produce their effects in middle life.

10 The onset of bleeding from an aneurysm may occur during physical exertion but it can also occur during sleep and it seems likely that effort or a rise in blood pressure may simply precipitate bleeding from an aneurysm which was about to rupture spontaneously, the end result being the same as it would have been without the exertion.

11 In a small proportion of cases of subarachnoid haemorrhage, no cause can be found even at autopsy. It is thought that, in most such cases, a tiny aneurysm may have been present but was destroyed by force of the bleeding.

CONCLUSION

12 **Subarachnoid haemorrhage** is bleeding into the space between the innermost two membranes covering the brain and spinal cord. Such bleeding can occur in association with other diseases and, in these cases, the haemorrhage is an integral part of the underlying condition. The most common source of subarachnoid haemorrhage is from an aneurysm on a cerebral artery.

REFERENCES

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