VERTEBRAL ARTERY ANEURYSM

Case Report

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A verified case of fatal subarachnoid haemorrhage due to rupture of an aneurysm of the right vertebral artery is reported. This case is unusual in that the patient died within one hour of the onset of subarachnoid haemorrhage. Cruveilhier (1835) first described vertebral artery aneurysm. Since then cases have been reported by a number of authors.

Aneurysm of the vertebral artery is uncommon. McDonald and Korb revealed only 59 out of a total of 1,023 intracranial aneurysms—less than 6 per cent. of the total. In Dandy's series of 133 intracranial aneurysms only two were situated on the vertebral artery.

Case Report

A young woman of 15 years was admitted at midnight, in a state of coma, to the Lowestoft Hospital. From her parents it was learned that she had suffered from unilateral (right) migrainous headache for the last six months. One week before admission she had gone to a cinema on three consecutive nights and each night, after her return, she used to complain of severe unilateral migrainous headache, for which she had to take aspirin. On the night of admission she had complained of a more severe headache on returning from the cinema and suddenly went into coma. She was admitted to hospital in this condition at midnight.

On examination she was completely comatose with flaccid limbs and neck, the pupils were dilated, fixed and inactive to light, there were no corneal reflexes and deep tendon reflexes were all absent. The fundi showed no abnormality. Systemic examination revealed complete cessation of respiration with no air entry in the lungs, but feeble heart sounds on auscultation, the blood pressure was not recordable and the pulse imperceptible. Just after completion of the examination re-auscultation of the heart revealed absence of cardiac sounds and lumbar puncture was postponed. She died shortly afterwards. A provisional cause of death suggested subarachnoid haemor-

rhage probably due to a congenital aneurysm or congenital vascular malformation.

Autopsy

A large subarachnoid haemorrhage was found with dense extensive clots of blood surrounding the medulla. After careful dissection of the dense clots surrounding the medulla a large aneurysm was revealed, 1 cm. in diameter, arising from the right vertebral artery. There was evidence of leak from this aneurysm, but no thrombosis within it. There was no other vascular anomaly on the Circle of Willis or angioma of the cortex. There was a small layer of blood covering the cerebral hemisphere. No foraminal herniation of the medulla was seen.

Discussion

Subarachnoid haemorrhage is a frequent cause of death but does not often cause sudden death. Many cases of subarachnoid haemorrhage take hours and days before death occurs. This young girl died within one hour (45 minutes) after the onset of bleeding—the source of bleeding was a right vertebral artery aneurysm. The cause of death was respiratory failure due to compression of the medulla due to dense blood clot. The observation that after complete cessation of respiration heart sounds were audible reveals that the respiratory centre in the medulla is more susceptible to pressure and anaemia than the cardiovascular centre.

Foraminal herniation may account for sudden death in some cases, but it is not always found. The amount of bleeding and oedema of the brain do not appear sufficient to account for sudden death since they occur with equal severity in cerebral and ventricular haemorrhage, neither of which is a cause of sudden death. In some cases a sudden increase in intracranial pressure with foraminal herniation of the medulla accounts for this death, but in others no definite cause can be assigned.

Vertebral artery aneurysm like other intracranial aneurysms may remain silent. That sudden subarachnoid haemorrhage with or without coma and death may occur, or unilateral migraine or sudden and progressive localizing neurological signs, due to pressure on neighbourhood structures, may reveal the existence of the vertebral aneurysm. Dandy has emphasized bilateral motor signs and symptoms as being strongly suggestive. Vertebral angiography probably is the best current diagnostic aid.

Summary

A case of right vertebral artery aneurysm with unilateral migraine is described, rupture of which caused fatal subarachnoid haemorrhage.

Subarachnoid haemorrhage caused death in less than one hour (45 minutes). This event simulated coronary thrombosis or pulmonary embolism, but these were dismissed as unlikely due to the age of the patient.

Mechanism of death was due to medullary compression and consequent respiratory paralysis by dense blood clots around brain stem and medulla.

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Book Reviews

CIBA FOUNDATION COLLOQUIA ON AGEING

Vol. I—General Aspects

Edited by G. E. W. WOLSTENHOLME, O.B.E., M.A., M.B., B.Ch. and MARGARET P. CAMERON, M.A., A.B.L.S. Pp. xii + 255, illustrated. London: J. & A. Churchill Ltd. 1955. 30s.

Colloquia on Ageing—Vol. I, is the verbatim proceedings of a symposium 'Ageing—general aspects,' sponsored by the Ciba Foundation and held in London immediately prior to the Third Congress of the International Association of Gerontology, July 1954.

The list of those participating in or attending the Colloquium gives an idea of the wealth of interest and factual data likely to be found within the pages of this book. The reader has the opportunity not only of studying the scientific papers submitted, but also of reviewing all the discussions which followed each other with the names of each contributor—and this added information must provoke greater thought on and study of the subjects discussed. The Chairman's opening remarks indicate at once the broad interpretation of the subject to be discussed—'during the course of our discussions we shall wander from the most general aspects of the problem to the particular . . .'

The introduction 'The definition and measurement of senescence,' makes a fascinating opening to a subject which is so far riddled with insoluble

problems—but again as the chairman said in his opening remarks, 'Perhaps it is too much to hope that at the end of this conference we shall be able to define ageing precisely and clearly—but possibly many of us would feel that a lot of fun had gone out of life if the riddle were solved so easily.'

The book contains results of research work and information of intrinsic interest to biologists, biochemists, nutritionists, doctors, psychiatrists, pathologists, research workers and indeed to all those with a scientific training who are interested in ageing.

The relative roles of genetics, environments and stresses and strains upon the process of ageing are discussed again and again throughout the papers and the arguments propounded and conclusions drawn are worthy of study. The sections on the 'Mental aspects and Psychological aspects of ageing,' touch upon matters of great importance in considering the medical and social aspects of old age. Other subjects of outstanding importance include those concerned with 'Respiratory function and Age,' 'The changing incidence of certain vascular lesions of the skin with ageing,' 'Calcium metabolism in old age as related to ageing of the skeleton,' and the sections on nutrition.

Although no dogmatic conclusions are drawn, the questions provoked and the free discussion recorded opens a window on to the subject in a way which is seldom afforded except to those taking part in such a conference.

The Ciba Foundation is to be congratulated that