SPONTANEOUS RUPTURE OF THE CEREBRAL VENTRICLES

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In cases of stenosis of the Sylvian aqueduct or occlusion of the 3rd ventricle, the cerebrospinal fluid that is produced within the cavities of the lateral ventricles is prevented from arriving at the place of resorption, that is, the subarachnoid space.

While normally resorption of the fluid takes place at the same rate of speed as production, in cases of obstruction the subarachnoid space is not filled with cerebrospinal fluid in proportion to its production. A condition arises which is characterized by a pressure that is higher above the place of obstruction than below. With occlusion of the foramina of Monro, a relative hypertension exists within the lateral ventricles, and with occlusion of the Sylvian aqueduct, relative hypertension exists within the lateral ventricles and the 3rd ventricle as compared with the pressure in the subarachnoid space.

In cases of relative intraventricular hypertension the walls of the ventricular system are under abnormal tension, and if the difference between the pressure inside and outside the ventricular system is great enough, a rupture of the ventricular wall may take place.

The result of such a rupture depends entirely upon the details concerning its location and its relationship to the membranes covering the central nervous system.

Occasionally hydrocephalic patients give a history of sudden subsidence of the signs of increased intracranial tension which conceivably may be due to ventricular rupture with formation of a short circuit giving the cerebrospinal fluid direct access to the subarachnoid space. This explanation is likely in the cases published by de Lange,4 van Stockum7 and Sweet.8

Indeed, it is surprising that ruptures of this kind do not occur more frequently. The translucent film constituting the anterior wall of the 3rd ventricle (lamina terminalis) would seem to make it a common location for such spontaneous rupture. However, only 1 instance of rupture in this location (Sweet8) was found in the literature.

Until recently ruptures of the cerebral ventricles have been accidental findings at autopsy. However, observers aware of this kind of lesion must have encountered it not infrequently. Penfield, for instance, mentions that he has found 5 such cases. The literature on this subject is scarce. Judging by the cases that have been published the rupture occasionally takes place bilaterally in the posterior wall of the lateral ventricle (Penfield,5 Childe and McNaughton1). The temporal lobe is another known location (Cruveilhier2). That the posterior wall of the 3rd ventricle may be the site of a spontaneous rupture is evident from 2 of my cases.
The time has now come for the clinical recognition of this condition. Pneumographic air studies should move the place for such diagnosis from the postmortem room to the x-ray department. In order to widen our experience concerning these lesions it may be justifiable to publish case reports of some patients who have come under my care.


Anamnesis. For 2 years she had suffered from periodic headaches, especially in the back of the head. On 2 such occasions she had lost consciousness, and 4 or 5 months before admission a spell occurred during which she was unable to move limbs or body for about 5 min., although she was mentally clear. There was gradual loss of vision, starting on the left, and exophthalmos, loss of hearing and impairment of memory developed.

Examination. Vision of left eye was reduced to light perception; on the right, visual acuity was 6/12. There was bilateral papilledema with choked discs of about 3 D., and also left optic atrophy. There was bilateral exophthalmos, more marked on right. The corneal reflex was diminished and there was decreased sensation on right side of face. Coordination tests showed slight general disturbance, especially on left side. There was also slight hypotonia on the left. Deep and superficial reflexes showed no certain changes. Cerebrospinal fluid, urine, blood, and thoracic and abdominal organs were normal.

Roentgenograms of skull showed the bony walls to be thin, and there were rather marked convolutional impressions. The sella showed considerable destruction and faint contours. The optic foramina seemed to be enlarged but were not clearly visible because of generalized atrophy of the cranium.

![Images of ventriculograms showing air in the 3rd ventricle and infratentorial cyst.](image-url)