

**Report of a case of cyst of the cerebellum / by John M. Swan, M.D.,  
Philadelphia, pathologist to St. Mary's Hospital.**

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OF THE CEREBELLUM.

BY

JOHN M. SWAN, M. D.,

PHILADELPHIA.

*Reprinted from the*

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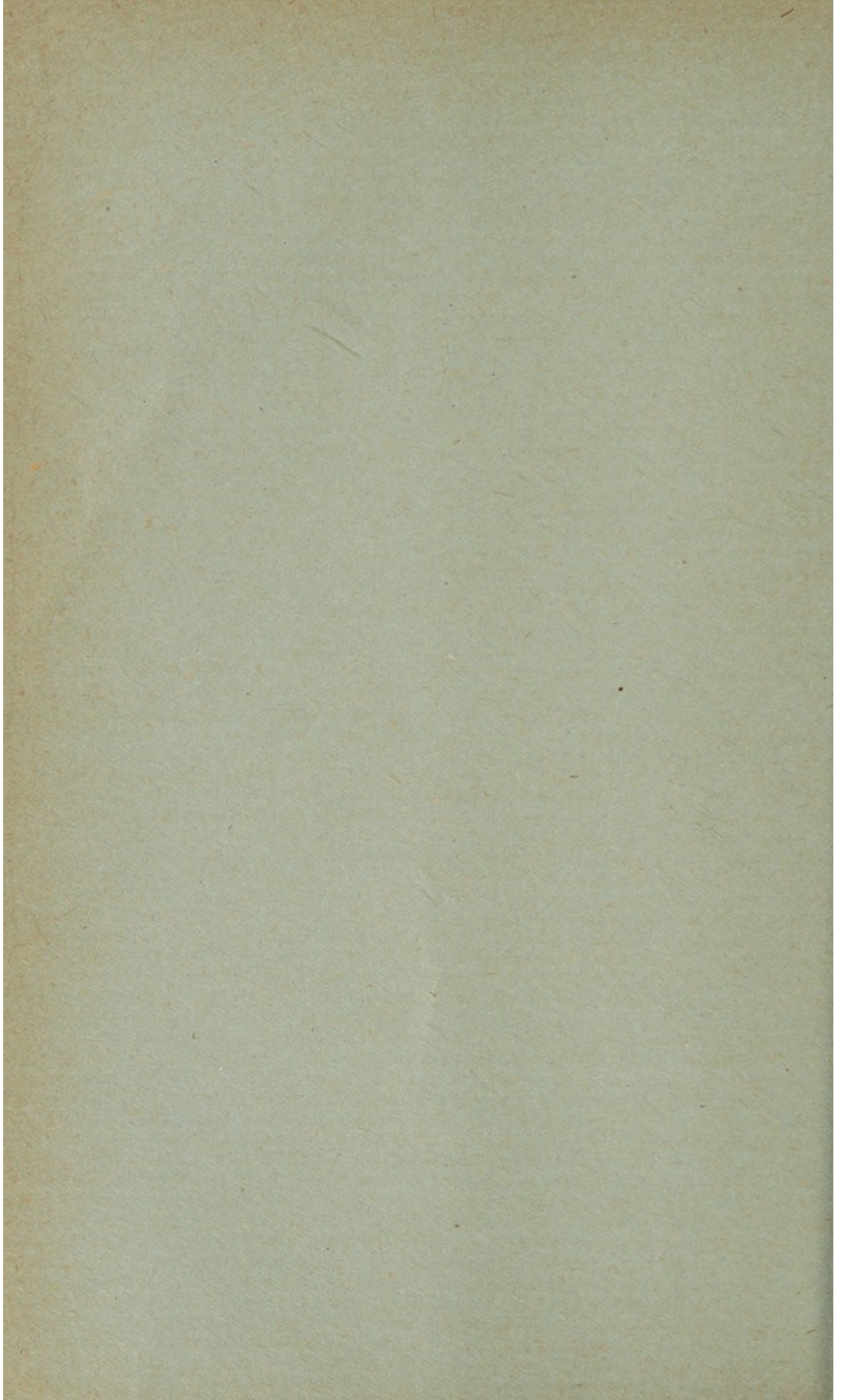
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## REPORT OF A CASE OF CYST OF THE CEREBELLUM.

By JOHN M. SWAN, M. D.,

PHILADELPHIA,

PATHOLOGIST TO ST. MARY'S HOSPITAL.

A girl, aged 18 years (No. 1735), was admitted to St. Mary's Hospital in the service of Dr. M. H. Fussell on December 5, 1904, complaining of severe headache. *The family history* obtainable was not very satisfactory. The patient's father was living, apparently in good health; her mother was living but was addicted to the use of alcohol. One brother and one sister were living and apparently well.

*Previous History.*—Aside from the memory of an attack of chickenpox in childhood, the patient was sure she had never been sick in bed. She was quite positive that she had never had a cough or night sweats. She had noticed some morning expectoration. Menstruation had begun one year before and had been normal.

*The present trouble* began nine weeks before with severe frontal headache and weakness, for which she had to go to bed. Even a week before, she had had headache all the time. Since going to bed she had vomited from once to three times a day and on one occasion she vomited blood. Her bowels had been constipated; there was severe pain in the back and in the left leg. When first taken sick the patient had several chills.

*On admission* the patient complained of constant headache; it was discovered that she was blind in the right eye. She was a rather anæmic white girl, with short, blond hair. The face was the site of an

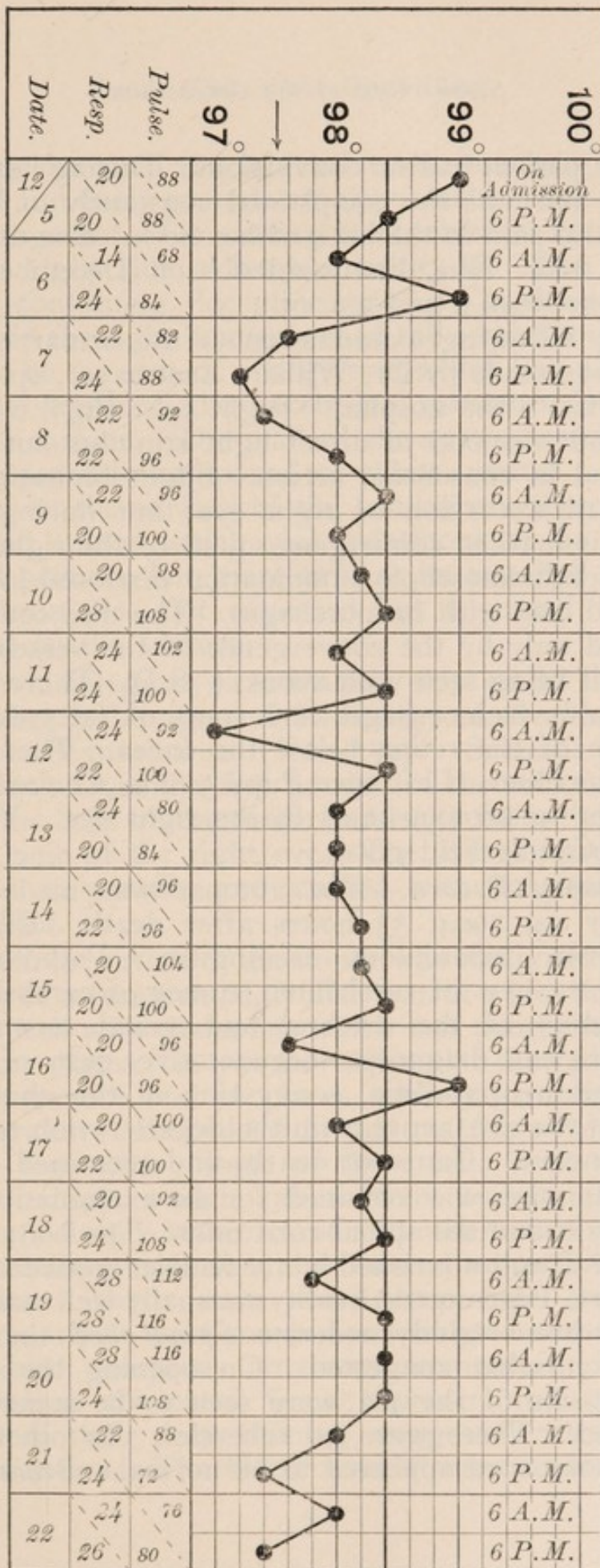


eruption appearing like acne and there were many acne pimples on the chest and back. The pupils were dilated, the right more than the left, and reacted to light and accommodation. Nystagmus was present. There was paresis of the right external rectus muscle and the patient could not count fingers correctly with the right eye. The tongue was coated and protruded to the left. The teeth were covered with sordes. There was no enlargement of the lymphnodes. There was no paresis of the muscles of the face. There was some stiffness in the muscles of the neck and of the back and some stiffness in the muscles of the extremities. There was no difference in the grip of the two sides of the body. The plantar reflexes and the knee jerks were absent; there was no clonus, and no evidence of the presence of Babinski's sign; but Kernig's sign was present on both sides of the body. The temperature was 99°, the pulse 88 and the respirations 20 per minute on admission. Examination of the lungs gave no abnormal signs, except a slightly higher pitched percussion note at the right apex than at the left. The apex beat of the heart was neither visible nor palpable. The area of cardiac dulness was bounded by the third interspace, the left edge of the sternum, the mid-clavicular line, and the fifth interspace. There were no adventitious sounds but both diastolic sounds at the base of the heart were accentuated. The liver and the spleen were normal. There were no areas of abdominal tenderness.

*Urine Examination.*—Color, amber; specific gravity, 1026; reaction, acid; sediment, flocculent. Microscopically, leucocytes and amorphous urates were present; no casts were found. Chemically, albumin and sugar were absent.

*Blood Count.*—Erythrocytes, 5,980,000; leucocytes, 12,640; hæmoglobin, 70 per cent. No differential count was made.





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The patient had no convulsions. During her stay in the hospital she complained constantly of headache and pain in the back of her neck. She did not sleep well. She died suddenly on December 23, 1904, between 4 and 5 a. m.

The following examination of the ocular condition was made by Dr. William Zentmayer, ophthalmologist to the hospital. Right eye: Pupil 6 mm., does not respond to direct light stimulus but does respond in consensual action. Slight limitation of outward excursion of right eye; but during rest there is marked convergent squint of the right eye. The ophthalmoscopic examination disclosed intense choked disc with hæmorrhages. The disc could be located only by the convergence of the vessels; its summit being seen with about + 8 D. There were numerous hæmorrhages and spots of fatty degeneration of the retina below the fovea. The right eye was blind. Left eye: Pupil 5 mm. Choked disc but not so prominent as in the right eye. Vision  $\frac{1}{60}$ . Candle field good.

*Autopsy Record.*—The autopsy was made December 24, 1904, 33 hours after death. Clinical diagnosis, tuberculous meningitis. Pathological diagnosis, cyst of cerebellum, tumor of cerebellum, congestion of the cerebral and spinal meninges. Histological diagnosis, degenerative cyst of the cerebellum, papillitis, congestion of the chorioid coat of the eye, acute retinitis, degeneration of the optic nerve. Cause of death, undetermined.

Permission was obtained for an examination of the brain and the spinal cord only. The body was that of a well nourished white female, apparent age 18 years. Post mortem lividity unusually well marked. Post mortem rigidity moderate. *Spinal cord*: the dura was somewhat congested. On opening the dura the vessels of the pia were seen to be somewhat injected. There were no tubercles. In other respects the cord appeared to be normal. *Brain*: on



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opening the skull the internal table was seen to be eroded and finely granular in appearance. The dura was congested. On cutting the tentorium cerebelli on the right side a large quantity of clear, pale serum containing flocculi escaped. On delivering the brain the right hemisphere of the cerebellum was seen to be the seat of a large cyst which had almost entirely replaced the cerebellar substance on its ventral surface. The wall of the cyst was smooth and apparently composed of white matter. Projecting on the surface of the hemisphere there was a round tumor which was gelatinous at its peripheral portion, but more firm at its attached base. The brain was not dissected but appeared to be normal on the surface.

The histological examination was made in the McManes Laboratory of Pathology of the University of Pennsylvania (No. 359). Sections were made (1) from the free portion of the tumor; (2) from the base of the tumor; and (3) from the posterior pole of the right eye. The tissues were embedded in paraffin and stained with hæmatoxylin and eosin.

The free portion of the tumor was composed principally of a fragmented, friable matrix which stained fairly well with eosin; but which was poorly stained in many places. It was more granular than fibrillar in appearance and in places entirely structureless and hyaline. Embedded in this matrix were relatively few cells. Some of these cells were round with multiple nuclei; others were spindle shaped and very deeply stained; and still others were somewhat stellate in outline and showed more than one nucleus. There were some deep blue staining masses, which were sometimes lobulated and which resembled corpora amylacea somewhat. They showed no concentric lines, however, and, on account of their deep staining, suggested calcareous degeneration. The blood vessels were surrounded





by large, perivascular lymph spaces and their walls were the seat of an inflammatory process which in some instances obliterated them.

Section from the base of the tumor mass showed a tissue on the side next to the free surface of the tumor which had much the same appearance as that already described. It was not so fragmented, however, but it showed the same absence of fibrillæ and the same granular appearance. The blood vessels in this portion of the tumor were shrunken, the perivascular lymph spaces were relatively much increased in size, the walls of the vessels were thickened and their lumina distorted. The cells were less clearly stained and appeared to be in process of degeneration. Many degenerating nuclei were seen. In the molecular layer of the cortex the same change was to be seen and the friability of the tissues was very marked. The cells presented the same characters as those already described. The cells of Purkinje were fewer than normal, and those that persisted were poorly stained. The cells in the granular layer of the cortex were numerous but showed degenerative changes and the intercellular substance was also granular as already described. The blood vessels showed the same changes.


Section of posterior pole of right eye showed endarterial changes in the sclera, marked congestion of the chorioid vessels, and marked fibrosis of the retina. The inner surface of the retina was covered over with a loose fibrous layer, thickest close to the optic papilla, and diminishing toward the equator of the eye. This tissue was rich in new blood vessels and contained numerous fibroblasts. The looseness suggested separation by hydropic infiltration. The optic papilla was prominent. The optic nerve was completely degenerated, no fibres having been found after fairly careful search. It was the seat of marked fibroid changes. The subarachnoid space was distended and occupied by

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young, loose, fibrillar tissue and a granular, eosin staining substance which was probably fibrin.

*Interpretation.*—The tumor was probably a portion of the cerebellar substance which had not yet undergone complete degeneration. The cyst was probably due to a hydropic degeneration of the cerebellar substance due to an obliterating endarteritis. There were no characteristic appearances of syphilis in this process, unless the vascular changes be so regarded.





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