

vessels, giving the entire organ a highly vascular appearance. The connective tissue of the villi is that of the pia mater. Covering the villi of the plexuses is a layer of large spheroidal cells, in each of which may be seen, in addition to the nucleus, yellowish granules. These cells are probably the secretory cells of the organ. The appearance of the plexuses strongly suggests an inverted gland which, instead of pouring its secretion into a series of ducts, empties directly into the ventricular system of the brain.

If one strips the chorioid plexuses from both the lateral ventricles of a dog recently killed by bleeding, and rubs them up in 2 c.c. of normal saline solution and injects the filtrate into the jugular vein of another

a man 35 years of age, five and one-half hours after death from pneumonia.

Extracts made from the chorioid plexus of the fourth ventricle produce the same reaction.

The reaction exhibited in Figure 3 is independent of the action of the vagus nerves, since the same effect is obtained when both vagus nerves have been divided.

The thought suggested itself that possibly in certain cerebral affections, particularly in such as were associated with hypersecretion of cerebrospinal fluid, the fluid might contain an excess of this depressant evidently secreted by the chorioid plexuses. Accordingly experiments were made with cerebrospinal fluid obtained by lumbar puncture in three such cases.

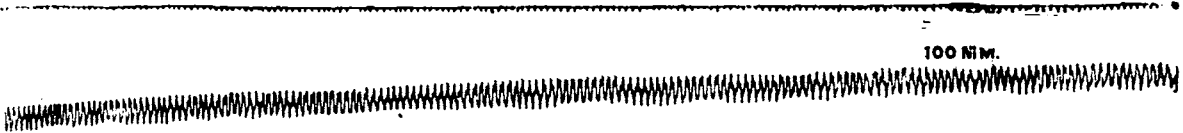


Fig. 4, continued.

dog, it will be found that this extract causes a marked fall in the blood-pressure. This effect was found to be constant in ten experiments.

Figure 1 is from a tracing of such an experiment. The blood-pressure was obtained by connecting the carotid or femoral artery of the animal with a mercury manometer. The respirations were recorded by means of a Paul Bert pneumograph connected with a Marey tambour, so arranged that the up-stroke represents inspiration, the down-stroke expiration. The time of injection was recorded by an electric signal. The injection was made into the jugular vein. In all experiments the animals were under light ether anesthesia administered through a tracheal tube. This animal received 1 c.c. or half the total extract made from the chorioid plexuses of the lateral ventricles of another dog killed by bleeding. The drop in blood-pressure, which in this experiment was preceded by a slight momentary rise (not constant), began fifteen seconds after the beginning of the injection, reached its maximum (that is, 50 mm.) twenty-eight seconds after the beginning of the injection.

Figure 4 is a tracing obtained from a dog into whose jugular vein were injected 12 c.c. of cerebrospinal fluid obtained by lumbar puncture from a patient with edema of the brain following a blow to the head producing a subtentorial hemorrhage. It will be seen that the injection caused a marked (55 mm.) and prolonged fall in blood-pressure, followed by an exceedingly slow and incomplete recovery. The cerebrospinal fluid in this case evidently contained a great excess of the "chorioid depressant."

Figure 5 is a tracing obtained from a dog into whose jugular vein were injected 5 c.c. of cerebrospinal fluid drawn from a marked case of delirium tremens. This fluid was much more depressant than that from the previous case.

The injection of 10 c.c. of the same fluid fifteen minutes later into the same dog produced a most violent and prolonged depression, from which the animal incompletely recovered only after an interval of eight minutes. This is shown in Figure 6.

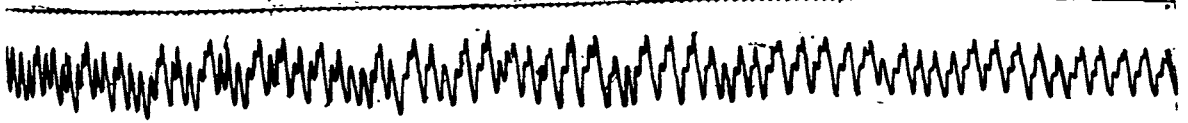


Fig. 8, continued.

tion, and returned to within 5 mm. of the original pressure in two minutes and twenty-five seconds. The rate of the heart-beat was apparently unchanged. The respiration was increased in rhythm from 40 to 60 per minute. Extracts made from the chorioid plexuses of the human brain show the same effects in even smaller doses.

Figure 2 is a tracing obtained by injecting into the jugular vein of a dog 1 c.c. of an extract made by rubbing up the plexus from one lateral ventricle in 10 c.c. of normal saline solution. The brain was removed from

Figure 7 is a tracing obtained by injecting 30 c.c. of cerebrospinal fluid drawn from a subject who had recovered from delirium tremens. There was but little depressant effect, a fall in blood-pressure of not more than 5 mm., which was quickly recovered. The individual from whom this cerebrospinal fluid was obtained had had a mild attack of delirium tremens which had lasted only forty-eight hours, and, at the time the fluid was withdrawn, the patient's pulse was normal again and the attack of delirium tremens had disappeared.