

S15. Studies on Experimental Cerebral Vascular Lesion. Reference to Ischemic Angionecrosis and Microcirculation

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Angionecrosis as a manifestation of hypertensive vascular change is proved to be a pathogenesis of cerebral hemorrhage. On the other hand the significance of an angionecrosis occurring under an ischemic change is not sufficiently solved yet.

In this respect, we pursued the significance of an angionecrosis due to ischemia through experimental cerebral vascular lesion.

METHOD AND MATERIAL

Three hundred and eighty seven dogs weighed 8-15 kg. were used. 0.2 cc of homologous blood clot was injected into internal carotid artery and sacrificed 30 min., 1, 2, 4, 6, 18, 24 hours, 1, 2 weeks and 1 month after the injection for the pathological studies.

RESULT

Twenty three white infarcts were encountered in 13 dogs killed within 24 hours and 92 in 256 dogs killed over 1 week. Angionecrosis was not at all observed in and around these white infarcts, however many angionecrosis were seen in and around hemorrhagic infarct as well as a massive hemorrhage.

Sixteen dogs killed over 1 week and 10 dogs killed within 24 hours were selected at random for the analysis of these angionecrosis.

As to the calibre of vessels, angionecrosis was observed almost equally in vessels with diameter of less than 30 micra and those with diameter from 30 to 100 micra, consisting 90% of total. The number of angionecrosis accompanying a perivascular hemorrhage was apparently increased in those killed over 1 week.

More angionecrosis were disclosed in cortex and brain surface in dogs killed within 24 hours, while more found in the region of basal ganglia in those killed over 1 week. According to the observation of microcirculation by Evans Blue infusion, angionecrosis, as a rule, developed secondarily to the disturbance of circulation, and yet it never occurred unless a small amount of blood flow was retained in the vessel. As to the relationship between a massive hemorrhage and angionecrosis, it was characteristic that angionecrosis were found exclusively in the distended vessels of "aneurysmal or venous shaped" with large diameter ar-

round a massive hemorrhage.

From the finding of microcirculation it was well conjectured that such as a large vessel with angioneurotic change could easily rupture by a sudden increase of blood flow.

CONCLUSION

Ischemic angioneurosis develops in a vessel, wherein blood flow is disturbed but retained imperfectly.

Massive hemorrhage occurs exclusively from an angioneurosis of large vessel.

Most angioneurosis undergo resolution and absorption in the repairing process.

S16. Experimental Study on the Surgical Treatment of Brain Haemorrhage

Effect of blood Aspiration

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Brain haemorrhage was experimentally produced by means of the auto-blood injection into dog brains. After 24-48 hours, the injected blood was aspirated with the stereotaxic apparatus. The animals were killed 7-60 days after the aspiration and brains were histologically and histochemically studied to compare with the control (non-aspirative cases).

In non-aspirative cases the activity of succinic-, malic-, lactic- and α -glycerophosphate dehydrogenase in nerve cells was markedly or completely diminished in the haemorrhage area and its surrounding areas, while in aspirating cases, the activity of these enzymes was well preserved.

According to the above results, it was elucidated that the aspiration of haemorrhage was effective on the preservation of degeneration of nerve cells caused by haemorrhage.