

ammonia enters the brain and combines with alphaketoglutaric acid by the reversal of glutamic dehydrogenase. This abstracts large amounts of the keto acid from the Krebs cycle, preventing regeneration of oxalacetate and further oxidative metabolism. The marked diminution of cerebral oxygen uptake which we have seen in hepatic coma(4) can thus be explained on the basis of the failure of the major oxidative pathway in the brain.

Summary. The arteriovenous difference of ammonia has been investigated in a variety of conditions and has been found to be elevated in hepatic coma, as has been the arterial level of blood ammonia. The evidence for a significant uptake of ammonia in comatose patients with liver disease suggests a mechanism

for hepatic coma. This mechanism could be the reductive amination of ketoglutaric acid to form glutamate with the concomitant removal of significant amounts of ketoglutarate, preventing Krebs cycle regeneration.

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Received December 10, 1953. P.S.E.B.M., 1954, v85.

A Simple Method of Gradually Producing Permanent Occlusion of Portal Vein in the Dog.* (20787)

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In our studies on the effect of interference with the arterial and venous blood circulation to the liver we have found a simple method of gradually producing a permanent occlusion of the portal vein which could likewise be used to advantage in other similar problems.

Acute complete occlusion of the portal vein by any method is not tolerated by the dog and is regularly fatal. To produce portal occlusion, a procedure has to be used which leads to gradual closing of the vein. Wrapping of irritative cellophane around the vein is unsatisfactory, because it causes marked adhesions and usually only incomplete closure of the vein. Partial constriction of the portal vein with a ligature of some non-absorbable material leads occasionally to complete obstruction of the vein but is fre-

quently without effect.

We have found that placing two constricting ties of umbilical cord (cotton No. 070 Bauer and Black, Chicago), around the portal vein at a distance of 0.3 to 0.5 cm, invariably leads to complete and permanent occlusion of the portal vein within 1-2 weeks. The ligatures should be tied as tightly as possible over the tip of a small curved hemostat. After withdrawal of the hemostat, the bowels are not cyanotic, and the afferent portion of the portal vein is not appreciably distended.

As a rule, this procedure is well tolerated. In all experiments, reoperation showed complete occlusion of the portal vein by a clot localized at the ligatures.

Summary. Gradual complete occlusion of the portal vein in the dog is obtained by placing two constricting ties around the portal vein. The procedure is recommended when gradual and complete permanent occlusion of the vein is desired.

* This investigation was supported by a research grant, from the Federal Security Agency, of the National Institutes of Health, Public Health Service. The Department is in part supported by the Michael Reese Research Foundation.

Received December 10, 1953. P.S.E.B.M., 1954, v85.