made in ascribing to prothrombinemia alone the deficient clot retraction observed in some cases of liver damage. A patient entered the hospital because of recurrent icterus. She was found to have marked hepato-splenomegaly. Icteric index 25. Whole blood coagulation time 7½ minutes. Prothrombin concentration 100%. Clot retraction index 31. The capillary fragility was markedly increased, and the platelet count was 65,000 mm^3.

It is obvious that the deficiency in clot retraction was probably due to decreased thromboplastin and not to any alteration in prothrombin concentration.

Summary. A relationship has been established between the prothrombin concentration and the clot retraction index. This should not be interpreted as a direct cause and effect relationship, inasmuch as other variables may influence both tests in common. In the case of the clot retraction index, thromboplastin, as well as prothrombin plays an important rôle in the reaction. The variation of the prothrombin concentration, when evaluated in terms of diagnosis, appears to be a more sensitive index than the clot retraction index.

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Age and the Rate of Venous Enlargement under Increased Venous Pressure.*

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By tying the vena cava of rats above the entrance of the renal veins an intense venous congestion is produced in the kidneys. The formation of urine stops and the blood urea concentration rapidly rises. In surviving animals a small amount of dilute urine containing a high concentration of protein and many renal failure casts is excreted after 24 hours, but the blood urea concentration still rises until 48 hours after operation it is more than 300 mg per 100 cc. Thereafter the volume of urine increases, the concentration of urea rises in the urine and falls in the blood, the proteinuria diminishes, the casts disappear and in a week after operation there is no evidence of any renal lesion.

The mechanism of the process of restoration is dependent on the

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rate of enlargement of venous connections between veins draining into the vena cava and veins in the pelvis that connect with veins in the abdominal wall returning blood to the heart above the ligature on the vena cava. The progressive enlargement of the veins in the abdominal wall can be seen through the peritoneum when the abdominal cavity of rats is opened at successive intervals of time after ligation of the vena cava. After the operation the blood from the renal veins has to run down instead of up the vena cava, and the venous pressure in the kidney falls as the connecting veins enlarge and allow the blood to return to the heart. When the rate of venous enlargement is sufficiently rapid the congestion in the kidney diminishes and urine formation is reëstablished. When the rate is slower the animal dies of uremia before the venous pressure has fallen sufficiently to make adequate excretion possible.

In the course of experimental studies on this acute reversible form of uremia[1, 2] we have had occasion to do many control operations on ♀ albino rats, all reared on a stock diet that contains 18% protein, and all maintained under the same conditions. The only variable (aside from the fact that in the groups of 6 months or more some had borne litters) was age. Table I shows the effect of age at the time of operation on the percentage mortality rate within 5 days after the ligation of the vena cava.

TABLE I.

Age in months	No. of rats	% mortality
1	52	0
3	55	3.6
6	211	5.2
12	139	17.8
18	36	30.6
23 (avg)	58	90.0

Conclusions. 1. After ligation of the vena cava above the entrance of the renal veins a plot of the logarithms of the percentage mortality on age seems to indicate that they are a linear function of the age at the time of operation. 2. It is suggested that the above relation may be the result of a decrease in the rate of venous enlargement under increased pressure as age advances.

[1] Addis, T., and Raulston, B. O., *Trans. Assn. Am. Physic.*, 1930, **45**, 318.

[2] Addis, T., and Lew, W., *J. Clin. Invest.*, 1939, **18**, 773.