

Missouri Section.

St. Louis University School of Medicine, May 11, 1932.

6247

Origin and Structure of a Fibrin-Type in Normal Blood.

JOHN AUER.

From the Department of Pharmacology, St. Louis University School of Medicine.

If normal blood from the rabbit and guinea pig is washed and centrifuged 4 to 6 times in 20 times the blood volume of Ringer or Ringer-saline solution, the same type of fibrin-filaments attached to red corpuscles may be observed as were previously described.¹ These filaments appear within 25 minutes to 2 hours after the hanging-drop preparation has been made, and exhibit the same functional manifestations that were observed in ordinary blood hanging-drops. These filaments therefore have their origin in the red corpuscles themselves, and probably arise from the fibrinogen-like substance which Horino² isolated from washed red corpuscles.

The ordinary fibrin threads of plasmatic origin forming about platelets do not exhibit the phenomena described for the fibrin filaments attached to red corpuscles. Moreover the addition of sodium oxalate, hirudin or heparin in sufficient amounts to largely abolish the formation of plasmatic fibrin, had only little effect on the formation and activity of the fibrin-filaments from red corpuscles.

Observation of the fibrin-filaments issuing from red corpuscles shows in favorable instances that it is composed of fibrils which are twisted about each other like the strands of a rope. Rupture of such a fibril brings about the formation of small pellet which may rotate around the main stem with gradually increasing radius until it swings free on its own pedicle from the base of the main filament. Such pellets may again twist themselves around the parent stem in a spiral manner and disappear. The largest number of such pellets observed on one ruptured filament was 5. These fibrils are in turn composed of invisible (bright-light field) sub-fibrils. The

¹ Auer, J., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 618.

² Horino, K., *J. Biochem.*, 1928, **9**, 437.

presence of such invisible sub-fibrils is demonstrated by their distorting effects on red corpuscles, by the alternate disappearance and reappearance of sections of the filament, and by the sudden movement of apparently free corpuscles or microcytes.

The rotation or twisting of the fibrin filament is beautifully demonstrated at times by the rotation of a corpuscle stretched out between 2 filaments; the corpuscle changes from a view on the flat to a view on edge and back again.

6248

Loss of Blood as a Factor in Death from Acute Portal Obstruction.

ROBERT ELMAN AND WARREN H. COLE. (Introduced by Evarts A. Graham.)
From the Department of Surgery, Washington University Medical School, and Barnes Hospital, St. Louis, Missouri.

Sudden occlusion of the portal vein is followed very rapidly by shock and death within a few hours. The reason has never been explained. The blood pressure falls within a few minutes and soon drops to a shock level and continues downward until exitus. A decrease in the thrombocyte count and in clotting time has been recorded recently.¹ With the idea that a toxemia similar to that assumed to occur in low intestinal obstruction and strangulation might be present, we examined the lymph from the thoracic duct, the systemic blood and the portal blood from animals before and after portal ligation. By injecting the material into guinea pigs no differences in toxicity were observed.

Sufficient blood may have been lost from the general circulation into the engorged mesenteric veins and intestinal capillaries in dogs with obstruction of the portal vein to account for the rapid death. To investigate this both cats and dogs were used. Pairs of the same age, weight and sex were selected as far as possible and starved for 24 hours. The same anesthetic was employed and similar laparotomy at the same time was performed in each pair of animals. A ligature was placed around the lower rectum in each to prevent escape of intestinal contents. The portal vein was isolated in each and was tied in one. As soon as the one with ligation died the control was killed. The entire gastro-intestinal tract of each from the

¹ Tschernikoff, A. M., Malenjuk, W. W., Jakubovitch, M. I., and Klantaroff, M. Ch., *Arch. f. d. ges. Physiol.*, 1931, 2227, 85.