CELL PROLIFERATION AND DNA SYNTHESIS IN ORGANIZING WHITE MURAL NON-OCCLUSIVE AORTIC THROMBUS IN RABBITS. J. Rabinovitch, B.I. Weigensberg, R.H. More and A. Gotlieb. Department of Pathology, Pathology Institute, McGill University, Montreal, Canada.

White mural non-occlusive thrombus induced experimentally in the aortae of rabbits contains appreciable numbers of proliferating cells which contribute bulk and mass to the lesion. As these cells proliferate they produce appreciable amounts of collagen, elastin, and mucopolysaccharide which make the lesions resistant to dissolution by enzymes. In this study the proliferation of cells was monitored at serial time intervals up to 60 weeks by radioautography and chemical measurement of [^3H]thymidine incorporation into DNA in order to determine over what time intervals appropriate antiproliferative drugs might be tested to arrest the growth of these cells. DFM [^3H]thymidine incorporation into DNA became significant on Day 2, remained very high until Day 14 and then declined. The concentration of DNA per mg delipidated dry weight of thrombus between Day 0 and 4 was highly variable (6 to 60 $\mu\text{g}/\text{mg}$) due to the highly variable ratio of nucleated cells (monocytes and polymorphonuclear leukocytes) to fibrin and platelets. Between Day 4 and 4 weeks the DNA concentration became less variable as the polymorphs and monocytes were replaced by macrophages and spindle-shaped cells (10 to 20 $\mu\text{g}/\text{DNA}$ per mg delipidated lesion). After 4 weeks DNA concentration declined continuously until by 60 weeks there was 2 ± 1 μg DNA/mg delipidated dry weight of lesion as it was diluted by collagen, elastin, and mucopolysaccharide. It is concluded that if antiproliferative drugs are to be used, they must be started as early as Day 2 and be maintained for at least 2 weeks.

ELECTRON MICROSCOPY OF GLOBULAR HYALINE MICRO-THROMBI. U. Bleyl. Dept. of Pathology, Faculty of Clinical Medicine Mannheim, University of Heidelberg, Mannheim, West Germany.

Globular hyaline micro-thrombi (GHM) are round or oval, eosinophilic, strongly PAS-positive intravascular coagulation products with a diameter between 3 and 60 μ . Immunohistochemical investigations give strong evidence that they are composed of highly polymerized fibrinogen derivatives. The ultrastructure of these GHM is characterized by spherical space lattices of frequently interconnected bundles of fibres with a periodic transverse striation and the fibrin-characteristic axial periodicity of 23 nm. The densely packed spherical space lattices are surrounded by a so-called corona, plump or slender bundles of fibrin fibres characterized by the same uniform periodic axial striation of 23 nm that spread radially over the surface of the micro-thrombi. GHM apparently originate from the interlocking and inter-netting of intravascularly preformed, partly polymerized, filamentary intermediates of fibrinogen-fibrin conversion in the flowing blood. Part of these GHM, on the other hand, lack this axial periodicity and the fibrillary structure of the spherical space lattices is replaced by nearly amorphous fine-grained precipitates. The disappearance of the axial periodicity and of the fibrillary structure of the spherical space lattices is considered to be the morphological equivalent of a secondary fibrinolysis in the centre of the GHM. The morphogenesis of GHM in states of hyperdynamic shock is discussed.

EFFECTS OF A POLYOXYETHYLENE DETERGENT ON PLATELET FUNCTION. P.G. Barton, Department of Biochemistry, University of Alberta, Edmonton, Canada.

Low concentrations of a polyoxyethylene detergent, Brij 58, inhibited the secondary phase of platelet aggregation induced by ADP in human citrated platelet rich plasma but had no effect on primary aggregation. Thrombin-induced aggregation of washed human platelets suspended in Tyrode's buffer was inhibited after incubation of cells with 4.5×10^{-6} M detergent. Development of prothrombin-converting activity and efflux of [^{14}C]-serotonin, $^{45}\text{Ca}^{2+}$ ions and labile endoperoxides were abolished concomitantly. Aggregation of washed platelets by collagen or sodium arachidonate and the attachment of cells to clean glass surfaces were also inhibited by the same concentration of Brij 58 that inhibited thrombin aggregation. This concentration of Brij 58 did not itself produce any release of a cytoplasmic marker, lactate dehydrogenase, from platelets. Higher concentrations of Brij 58, exceeding 10^{-4} M, lysed the cells liberating all of their serotonin, Ca^{2+} and lactate dehydrogenase. These results suggest that low concentrations of Brij 58 stabilize a membrane conformation against the action of platelet stimulatory agents while high concentrations produce membrane destabilization and cell lysis. The presence of albumin (BSA) in the suspending fluid increased by tenfold the concentrations of detergent required to elicit these effects and this could be attributed to competitive binding of the detergent to albumin, demonstrated with [^{14}C]-acetylated Brij 58.