and T_3 tyrosinase activity in enzyme preparations from yellow mice cannot be readily explained. The biosynthetic pathway involved in the production of phaeomelanin (yellow pigment) is incompletely known, although tyrosine appears to be at least one of the precursors involved(14). It is possible that the absence of T_2 and T_3 reflects basic differences in the synthesis of phaeomelanin and eumelanin, or differing binding relationships between enzyme and protein matrix.

It is noteworthy that in both brown and yellow melanosomes structural defects in the protein matrix are a characteristic feature(2, 4). A relationship may exist between such alterations in structure and the variations in tyrosinase patterns reported here.

Summary. Extensive allelic substitutions at the *a* and *b* loci in mice reveal that multiple forms of tyrosinase separable by acrylamide-gel electrophoresis are subject to complex genetic control. Depending upon genic constitution at the *a* and *b* loci, a maximum of three electrophoretically separable forms of tyrosinase are demonstrable. Specific alleles at these loci have also been shown to influence tyrosinase activity.

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Received June 14, 1967. P.S.E.B.M., 1967, v126.

A Study of the Orifice of the Human Coronary Artery.* (32464)

DAVID H. BLANKENHORN
Department of Medicine, Cardiology Section, University of Southern California School of Medicine, Los Angeles

The origin of the coronary artery is a common site for atheroma formation and obstruction at the coronary orifice is one recognized cause of myocardial infarction(1). This is an area where two vessels with different architecture are joined and little is known of its physical properties, although extensive measurements of physical properties have been made *in vitro* and *in vivo* upon the aorta, and its major branches(2,3). A postmortem study of the coronary orifice has been performed to ascertain whether its physical properties resemble the aorta, one of its major branches, or some more peripheral vessel. The effect of calcium removal has also been studied for comparison with previous results obtained in the femoral artery.

Materials and methods. Aortas were obtained at autopsy from 10 men and 4 women aged 51 to 88 years. The aortic valve was removed intact and separated from the ascending aorta. Each coronary orifice and a surrounding cuff of aortic wall was dissected out. Tension-length diagrams were obtained with an apparatus used previously to study human femoral arteries(4). It was modified

* This investigation was supported by USPHS Grant HE 07197-04.

for this experiment by using #21 gauge hypodermic tubing to stretch the specimens. A Mettler P-1000 balance was used. Each orifice was stretched to a tension of 150 g for 3 minutes and then a tension-length curve determined for the first release. Vessel radii at 50 mm Hg and 100 mm Hg intra-arterial pressure were calculated from these curves according to the graphic method of Burton(5). A correction for balance travel and instrument error was determined and used in these calculations by appropriate rotation of the coordinates of each tension-length diagram. Each specimen was weighed and calcium removed by extraction with ammonium EDTA for 72 hours, after which a repeat tension-length diagram was obtained. Completeness of calcium extraction at 72 hours was verified by ashing small segments from the ends of each specimen. Original calcium content of specimens was determined by EDTA titration of solutions used for extraction(6). After extraction specimens were fixed in 4% neutral buffered formalin, frozen, and sectioned for microscopic examination with hematoxylin and eosin, hematoxylin and Sudan IV, and Verhoef-Van Gieson stains.

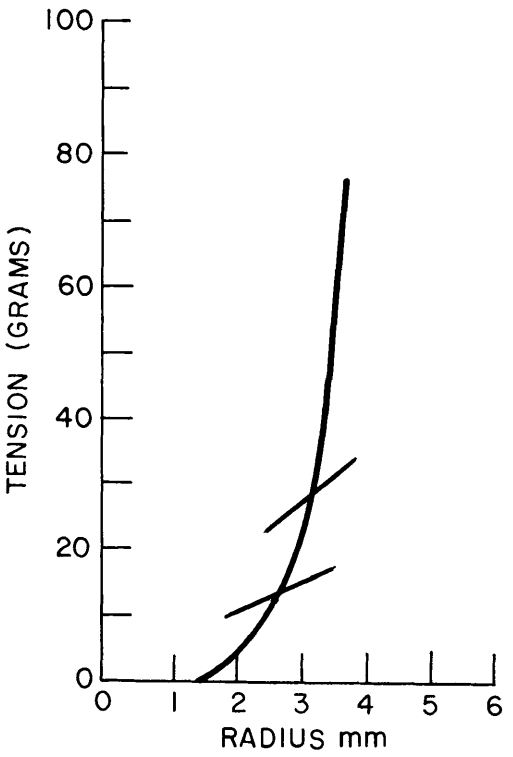

FIG. 1. A typical tension-length curve of the coronary orifice. The radius of the vessel at tensions equivalent to 50 mm Hg and 100 mm Hg intra-arterial pressure is marked on the curve.

Results and conclusions. The tension-length curve of the coronary orifice resembles that of femoral artery(4) (Fig. 1). Wide differences can exist in the behavior of the 2 coronary orifices of one individual (Fig. 2). These differences are not directly correlated with the occurrence of coronary atherosclerosis (Fig. 3) and are of sufficient magnitude that change in tension-length diagram with change in age is not apparent in the present case series (Fig. 2). The shape of tension-length diagrams did not change with calcium extraction. A change in size occurred with calcium extraction, but this was small and variable; 12 coronary orifices increased in size (4% on the average), 5 coronary orifices decreased in size (3% on the average). The amount of calcium in these specimens was all within the range previously reported for human coronary artery(7).

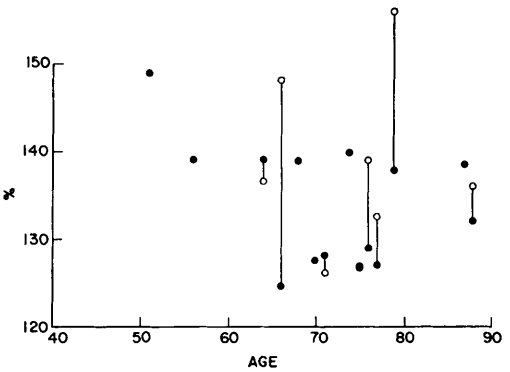

FIG. 2. Elastic characteristics of the coronary orifice. Each solid dot represents one left coronary orifice. Each open dot represents one right coronary orifice. Dots joined by a vertical line are from the same individual. The ordinate indicates radius at 60 g applied tension when unstretched radius is 100%. The abscissa indicates age in years.

The subjects of this study were all of an age when myocardial infarction is common. Demonstration that the 2 coronary orifices of an individual in this age group can have different physical properties appears important in relation to distribution and occurrence of infarction. Difference in the size of the 2

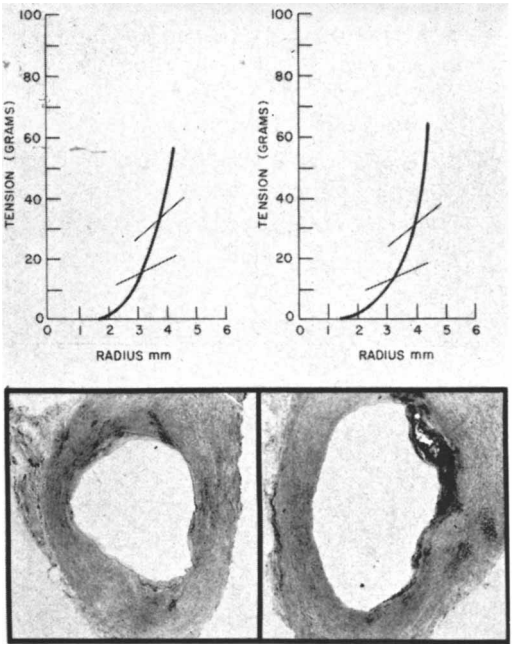

FIG. 3. Tension-length diagrams of the two coronary orifices of a 79-year-old man. The orifice on the right with early atheroma is more flexible than that on the left which shows none. Tension-length curves are marked as in Fig. 1. Sections are stained with Hematoxylin and Sudan IV × 6.5.

coronary orifices is well recognized as one determinant of the pattern of infarction and it seems reasonable to believe that difference in physical property could have similar effect. Because the relative elasticity of the 2 coronary orifices is not directly related to the occurrence of atherosclerosis, change in elasticity could either increase or diminish the affects of atheroma formation upon blood flow. This study does not indicate which possibility is more common.

A previous study has demonstrated that postmortem decalcification produces a consistent increase in size of the femoral artery (4). In this study calcium removal did not produce a comparable change in the coronary orifice and it seems possible that the difference is due to restriction of the coronary orifice by surrounding aortic wall.

Summary. 1. Tension-length diagrams of excised human coronary orifices resemble those obtained from human femoral artery. 2. Wide differences can exist in the two coronary orifices of one individual. These are not directly related to the occurrence of atherosclerosis and may affect coronary blood flow.

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Received June 14, 1967. P.S.E.B.M., 1967, v126.

Antihemostatic Effect of Heparin Counteracted by Adenosine Triphosphate.* (32465)

W. O. CRUZ† AND C. P. DIETRICH‡
Laboratory of Hematology, Instituto Oswaldo Cruz, Rio de Janeiro, Brazil

The antihemostatic effect of heparin has always been related to the inhibition of blood coagulation and platelet thrombus formation (1). Previous studies in this laboratory have shown that heparin injected in dogs did not affect the normal hemostatic response in about 60% of the animals, inspite of the fact

* Aided by grants from the National Institutes of Health, U.S.A. and Conselho Nacional de Pesquisas do Brasil.

† Deceased January 3rd, 1967.

‡ Present Address: Dept. of Physiology & Pharmacology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.