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Cyanosis Produced by Anastomosis of Pulmonary Artery to Left Auricle.

MILTON MENDLOWITZ AND ALAN LESLIE.

(Introduced by G. Schwartzman.)

From the Laboratories of the Mount Sinai Hospital, New York City.

Cyanosis, such as occurs in congenital heart disease, is caused by a shunt of unoxygenated blood from the right side of the heart to the left. In order to reproduce this experimentally, it is apparent that a communication must be made at a point where unoxygenated is at a higher pressure than oxygenated blood. The only surgically accessible site for this procedure is the point of contiguity of the main and left pulmonary artery on the one hand, and the pulmonary vein or the left auricular appendage on the other. It was found that because of its relatively small size, the pulmonary vein could not be used.

The procedure therefore employed is as follows: A large dog anesthetized with sodium pentobarbital is placed on its right side, artificial respiration being maintained by intermittent positive pressure insufflation via a trans-oral tracheal cannula. An incision is made in the fourth left intercostal space, the ribs retracted, and the lung packed posteriorly. The pericardium is then incised posterior and parallel to the phrenic nerve, thereby exposing the site for the anastomosis. After isolation of the left pulmonary artery by dissection, an especially designed U-shaped serrefine is placed longitudinally on the main and left pulmonary artery. Blood flow to the right lung is not impaired by this maneuver. A rubber covered short intestinal clamp is then applied to the base of the left auricular appendage. Parallel incisions are now made in the isolated portions of the artery and auricle, which are anastomosed with a vaselized arterial silk suture on an atraumatic needle. Approximation of intima to endocardium is accomplished by the use of an everting, continuous mattress suture. After the operation the animal is heparinized, according to the method of Murray, *et al.*¹

This procedure has been performed successfully in 3 dogs, in each of which pronounced cyanosis of the tongue and depression of the oxygen content of the arterial blood were observed. Long term observations on these animals, as well as further experiments are now in progress.

¹ Murray, D. W. G., Jaques, L. B., Perrett, T. S., and Best, C. H., *Surgery*, 1937, **2**, 163.