

MEDICINE

Surgical Aids for Heart

Cutting off the top of the heart and wrapping the aorta in plastic to prevent its bursting may help in prolonging the life of the patient.

► OPERATIONS in which a piece is cut off the top of the heart and others in which the aorta, main artery leading from the heart, is wrapped in plastic to prevent its bursting, were reported at the meeting of the American College of Surgeons in Los Angeles.

The heart topping operation is designed for patients with rheumatic heart disease who are in danger of having a clot plug an artery of arm or leg. In 90% of such cases the clots come from one of the upper chambers of the heart, particularly from the muscular pouches at the top of these chambers called auricular appendices. Two cases in which this operation was performed on the left side of the heart were reported by Dr. John L. Madden of Long Island College of Medicine and Kings County Hospital, Brooklyn. One of the patients survived, the other died.

The operation gives promise of providing surgeons with an avenue for easier operations within the heart than are now possible, Dr. Walter J. Burdette of Louisiana State University School of Medicine reported. Working on dogs, he found it possible either to remove the auricular appendix or merely to open it safely. Opening it gives greater visibility and consequently easier operation within the heart.

Any piece of heart muscle removed in such operations, Dr. Burdette advised, should be saved for studies which might help clear up some fundamental problems of human heart function and its changes in disease.

Five patients have lived one to three years with their aortas wrapped in one of the modern plastics, a commercial polyethylene film, Dr. J. Carl Poppe of Portland, Ore., reported. He has done the plastic aorta wrapping operation on 10 patients within the past 38 months. The patients each had a sac, called an aneurysm, formed by the dilatation of the aorta in the chest. The condition resulted from syphilis. It causes pulsating, or throbbing, pain in the chest and the patient is in danger of rupture of the big artery and massive bleeding.

Four of the five patients who had this operation from one to three years ago have had enough relief of pain in the chest so that they could make a partial or complete return to their normal activities. One of these five died a year and a half after the operation from rupture of another part of the aorta.

Of the other five patients, two died from progression of the disease within four to eight weeks after the wrapping, two can-

not be traced and are believed to have died, and one has been treated too recently for evaluation of the results.

The good results are due to the fact that the plastic wrapping is a substance foreign

to the body. In reaction to this foreign material, the body develops tough, fibrous tissue. In preliminary studies with animals, Dr. Poppe found that within two weeks after the wrapping the walls of the aorta were markedly thickened as a result of this fibrous tissue reaction, and the dilated bore, or lumen, had become smaller. The reaction was even greater three months later.

DuPont polythene film was found most suitable of all the commercial varieties because it contains dicetyl phosphate. This chemical was found to be the irritating material that caused the healing reaction.

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AERONAUTICS-CHEMISTRY

Fluid Cuts Fire-Hazard

► DANGER OF FIRE in an airplane from leaking hydraulic fluids used to operate essential mechanism is practically eliminated by a new non-flammable type fluid revealed by Monsanto Chemical Company of St. Louis, in whose laboratories it was developed.

This new hydraulic fluid, to be known as Skydrol, is an ester base and contains no halogenated hydrocarbons, salts or water. Chemically, it is virtually inert. It will not attack the structural metals used in an airplane. It is a stable organic compound,

highly resistant to aeration oxidation. In addition, it has high lubricating power.

The hydraulic system of an airplane is operated by pumps, and develops high pressures at high flow rates upward of 3,000 pounds per square inch. The fluid is used to activate the mechanism that controls such devices as retractable landing gear, brakes, wing flaps and even windshield wipers.

It must be oily to lubricate the rapidly moving parts of the pumps, and non-corrosive to avoid attacking the various metals



NON-FLAMMABLE FLUID — Planes will be safer from fire with this new hydraulic fluid. Picture shows Skydrol dripped onto a glowing red tube of stainless steel, which is heated internally to a temperature of 1300 degrees Fahrenheit. It bursts into flame momentarily and then vaporizes.