SURGERY

'Glue' Replaces Stitches

Naturally adhesive gelatin that chemically resembles scar tissue has been used as a suture in animal surgery and may be useful for man

➤ OLD-FASHIONED surgical sutures may go out of style in favor of chemically treated gelatin that has been used to "glue" cut tissues of animals.

An adhesive made with gelatin, which is a naturally occurring protein, included the addition of the chemical resorcinol. This increased the strength and resistance of gelatin to water, Dr. C. W. Cooper of the Battelle Memorial Institute, Columbus, Ohio, told a Conference on Materials in Biomedical Engineering, sponsored by the New York Academy of Sciences.

Gelatin chemically resembles scar tissue and is naturally adhesive, Dr. Cooper said. Adding aldehydes decreased its solubility and increased its strength, but gelatin treated with aldehydes alone deteriorated quickly in water containing some salt.

The gelatin-type suture has been used in animal surgery on the heart wall, the lung (where the material was also used to seal leaks and control bleeding), the descending aorta, the liver and the kidney.

Closing wounds without sutures is the aim of research reported by Dr. Fred Leonard of Walter Reed Medical Center, Washington, D.C., who told the conference that some synthetic tissue adhesives spread rapidly on tissue, coat it with a sealing film and "set" quickly. The adhesives are eventually broken down and replaced by the body's own tissue.

Dr. C. W. Hall, part of a team including Drs. Michael E. DeBakey and Domingo Liotta, who have implanted artificial booster hearts in humans, reported tests of velour felt fabrics as heart linings. All three men are on the staff of Baylor University College of Medicine, Houston.

Velour felts of nylon, rayon, Dacron and polypropylene have a pile, or napped surface, that entraps a clot, preventing it from being released into the blood stream where it might block vital blood vessels.

These researchers also are experimenting with artificial blood vessel grafts of velour felt. This felt, with a vulcanized Silastic backing, may someday be used as skin replacements and as a means of anchoring artificial limbs to tendons if present experiments are successful.

Dr. Y. Nose, who has been working at the Cleveland Clinic Foundation on the implantation of artificial hearts in animals, said there is now a four-chambered artificial heart made of Silastic that can be implanted within the chest cavity.

In animal tests, the Silastic did not damage red blood cells in 48 hours, and clotting occurred inside the artificial heart in only two of 18 cases. Unfortunately, he said, Silastic was found to be too weak to withstand the stress imposed on an artificial heart, and a stronger elastic inert material is needed.

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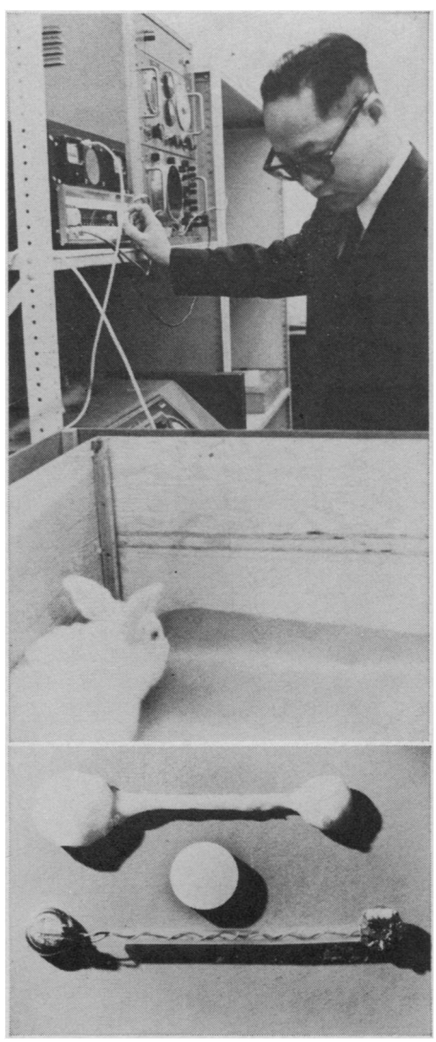

Case Institute of Technology

IMPLANTED RABBIT—Prof. Wen H. Ko of the Case Institute of Technology, Cleveland, is steadying the electrical activity of the muscles of an implanted rabbit using a tiny FM transmitter and the recording devices in the background. The coated battery power source (below), looking somewhat like a Q-tip, is compared to an aspirin and an FM transmitter.

MEDICINE

Possible Virus-MS Link

➤ THE CAUSE of multiple sclerosis, the baffling disease that cripples hundreds of thousands of young men and women, may be discovered at last as a result of virus research just getting underway.

A rare gift of funds to a Government agency from a voluntary group, the National Multiple Sclerosis Society, will make possible the purchase of test antigens, extracted from some 10 or 15 viruses that will be studied in the laboratory of Dr. John L. Sever of the National Institute of Neurological Diseases and Blindness, Bethesda, Md.

A check for $59,816 was given to finance the tests, agreed upon because of recent developments in research. Already chosen are 100 multiple sclerosis patients and 200 "controls," who have been matched for age, race, sex, geographic location and length of hospital stay. Samples of their blood will be taken for screening of antibodies against viruses, including measles, mumps, herpes simplex, salivary gland, varicella, respiratory syncytial, canine distemper, parainfluenza and influenza A.

Investigators at leading medical centers are being invited by Institute scientists to take part in the research effort. The test antigens will be used exclusively in a search for possible MS viruses—possibly a related family of viruses rather than one culprit.

Research on possible virus cause of MS up to this point has lacked controls and techniques that will give the present investigation its fundamental character.

Probably every disease except cancer has been suggested as a cause of MS, Dr. George A. Schumacher of the University of Vermont College of Medicine and chairman of the MS Society's medical advisory board, told a news conference in Washington.

Attempts at cures based on unproved links with nutrition, infection, tuberculosis and other suspected causes have all proved futile.

Dr. Richard L. Masland, director of the National Institute of Neurological Diseases and Blindness, said he did not expect an immediate breakthrough, but he believes this virus research could lead to something fundamental. Virus links would not rule out another theory—that of autoimmunity, he said. The two causes could co-exist.

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