MEDICINE

Cancer From Plastics?

Typical cosmetic plastics have been found to cause cancer when implanted in rat tissue and could be dangerous when used by humans.

➤ MANY HUNDREDS OF WOMEN who have had plastics imbedded under the skin for cosmetic reasons are believed to be in danger of cancer.

To enlarge breasts and remedy other defects, a wide variety of water-insoluble polymers have been implanted in the human body.

Evidence is growing that the implanted plastics can cause various kinds of cancers when embedded internally or for long periods beneath the skin.

Cancerous reactions from the plastics used in human surgery seem to require a long induction period that could last some 30 years or more. For that reason, fortunately, cosmetic surgery often used upon older persons may not have a cancerous effect until late in life.

The latest findings in many experiments upon animals to determine the dangers are reported by Dr. C. W. Hueper, cancer authority and recently retired chief of the environmental cancer section of the National Cancer Institute, Bethesda, Md., in the Journal of the National Cancer Institute, 33:1005, 1964.

Dr. Hueper performed a series of experiments on rats with a silicon polymer (Silastic rubber) and various types of polyurethan plastics. These plastics have been commonly used in cosmetic surgery.

Dr. Hueper objects to the use of plastics in such cases because of the "possible delayed cancerous reactions."

In one of Dr. Hueper's recent experiments, pieces of completely cured Silastic rubber were implanted in the nape of the neck of 35 black rats. Twenty-one of the implants were recovered at autopsy, ten of them causing malignant growths.

In another test, polyurethans implanted in rats as foams or rigid plastics often caused malignant tumors in tissues or organs that came in contact with the implants. Many of the implants had actually deteriorated in the rats, spreading the disintegrated products to nearby parts of the body. These disintegrated parts may cause cancerous growths.

As a result of his findings Dr. Hueper cautioned against the "indiscriminate use" of these plastics in medical practice.

He said, however, that he is not against using plastics in important medical cases, such as in heart operations, where the risk of death may be greater than the risk of contracting cancer.

Experiments in the past few years with hydrocarbon and silicon polymers, such as polyethlene, polyestyrol, nylon, rubber, cellophane, linen, silk, ivory and silicon polymers have shown that these substances when embedded often cause cancerous tumors in laboratory animals.

• Science News Letter, 87:55 January 23, 1965

TECHNOLOGY

Air Drill Used in Surgery

➤ A SCREWDRIVER-SIZED surgical drill that runs by compressed air is replacing the saws, chisels and mallets ordinarily used in bone operations.

The precision drill, which can cut through bone and cartilage as easily as a surgeon's knife slices through tissue, is part of a new concept in surgery, called air surgery, introduced at the annual meeting of the American Academy of Orthopedic Surgeons in New York.

Air surgery, developed by Dr. Robert M. Hall, Pittsburgh, utilizes lightweight, air-driven instruments to cut through large leg bones, automatically drill holes and insert screws in broken bones, wipe away bunions, shape the bones of the face and perform hundreds of other surgical tasks.

Two of three instruments, called Airtomes (air cutting), developed for this new kind of surgery, were demonstrated for the first time.

Both of these instruments are advanced designs of the air-powered surgical drill-saw made by Dr. Hall in 1958. The latter, which received a patent last April, rotates at 100,000 revolutions per minute, some 20 times faster than a typical automobile engine when run "wide open." Introduced into the medical profession a little more than a year ago, this instrument, called the Hall surgical drill, has since been adopted by more than 800 of the nation's leading hospitals, clinics and medical centers and is being used daily by surgeons throughout the world.

Basically, all three of the surgical drills are tiny air motors driven by compressed air or nitrogen. They resemble somewhat the high-speed, water-cooled drill used by dentists for drilling teeth. The surgical drills, however, are cooled by air rather than water.

One of the newly introduced drills is particularly adapted to cutting through and opening the skull in brain operations. The instrument weighs less than a pound and rotates at speeds up to 20,000 rpms.

The second instrument is designed to drill holes for bone surgery, and automatically insert and remove pins, wires, bolts and screws in bone, among other uses. The instrument, which weighs 12 ounces, with speeds up to 350 rpm, replaces the usual braces, hand drills, screwdrivers and similar hand tools used for repairing broken bones.

In addition to saving time, shock and pain during bone operations, the surgical air drills have found a valuable use in heart surgery. The drill has been used to safely sculpture away the hard calcium deposits which block the valves of the heart in rheumatic heart disease.

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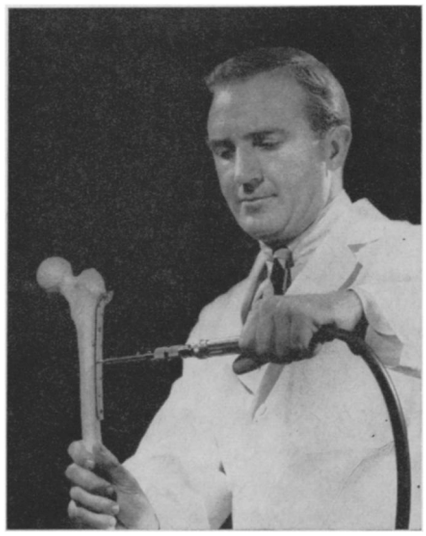

Air Instruments Inc.

AIRTOME USED — Dr. Robert M. Hall, a Pittsburgh oral surgeon, demonstrates the new high-speed air-driven instrument that he developed. He is using it to secure a bone to a metal plate.

MEDICINE

New Antibiotic Now Available to Doctors

➤ A NEW ANTIBIOTIC that is reported to be effective either when injected or taken orally is now available to U. S. doctors.

The agent, Lincocin, is said by the developer, the Upjohn Company, Kalamazoo, Mich., to have a unique chemical structure making it effective against many bacteria that resist other antibiotics.

It has performed "impressively," the Upjohn Company claims, against staphylococci, streptococci and pneumococci. In clinical tests, "good to exellent" results were reported in about 2,500 humans treated for infections—including scarlet fever, wound infections, infection of the middle ear, acne and bronchitis.

A "major advantage" reported is that an initial dose of Lincocin can be given by injection for speedy effect, followed by maintenance doses by mouth.

The agent was isolated in 1955 from a soil sample from the Midwest. Clinical trials have been underway since 1961, and the drug has been commerically available in England and several Latin American countries for some months.

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