

MEDICINE

Study Cancer Regression

Studies of spontaneous regression of tumors point to many possible causes; however, few cases can be said to actually disappear spontaneously, doctors warn.

► THE RESULTS of an extensive clinical study of the spontaneous regression of tumors in humans has resulted in plans to begin experimental reproduction of the same conditions in animals to examine better the mechanisms of cancer control.

A preliminary report, published in the *Annals of Surgery* (Sept. 1956), showed that of 600 reported cases of spontaneous regression of tumors, only 47 proved to be valid. Therefore, further studies and groupings were called for. Now, 101 cases, out of 1,000 reported, are the subject of this clinical study.

It was found independent factors could be responsible for the spontaneous regression, Dr. Tilden C. Everson, clinical associate professor of surgery at the University of Illinois Medical School, has reported.

They include: endocrine or hormone influences; surgical removal of a tumor, which can lead to destruction of other surrounding tumor cells; unusual sensitivity to inadequate radiation; acute infection; allergic reaction; interference with nutrition of the tumor; removal of the cancer-causing agent; and incorrect microscopic diagnosis of malignancy. It was found that in many instances of those cases where malignancy was reported and spontaneous regression occurred, the tumor was actually benign, Dr. Everson told science writers on a tour sponsored by the American Cancer Society.

Explaining the possibility of removal of a carcinogenic agent, he cited the nine cases of accurate tumor diagnosis of the bladder. This meant removal of the bladder after the urine was rerouted through the colon. When the bladder was removed several weeks after the rerouting, it was found that all traces of the tumor had regressed.

This could possibly have been due to some carcinogenic agent in the urine. However, no tumors then developed in the colon. This, in turn, could illustrate a certain sensitivity in the bladder tissue not present in the colon. Urine samples were not taken prior to bladder removal.

These clinical studies point the way to examination of spontaneous regression in cancerous laboratory animals to find what makes this "magic" disappearance occur.

In conclusion, Dr. Everson cautioned, the most important aspect of the study appeared to be the fact that so few tumor cases actually regressed spontaneously. He warned people should not rely on such an unlikely occurrence as spontaneous regression.

► HOW THE LYMPHATIC system, one of the biggest cancer spreaders throughout the body, distributes and moves particles along its complicated network, has been described.

A study of the factors influencing the

spread of disease through the lymph nodes revealed muscular activity is important in propelling the materials in the lymphatics. Certain enzymes, such as hyaluronidase, increase the speed and amount of pick-up.

The method by which these factors were finally measured was devised by Dr. Harold H. Sage, of New York City. He injected radioactive gold, in colloidal suspension, into the arm of patients. A radiation detector counter picked up the functional pattern of the gold particles as they passed through the body.

These pick-ups were then transformed into a graph that provided a continuous time record of each particle as it was picked up by a lymph node, the doctor said.

Both human and animal studies have been performed on nodes of both upper and lower extremities and the head and neck.

Before this method was devised, it was impossible to study the patterns of particles through the nodes. With this new technique, he said, quantitative amounts of disease spread can also be measured.

Many times, blockage of lymph nodes results from surgical scar, edema, radiation scar and cancer. When cancer is in the node itself, the node must be removed.

Paradoxically, this node removal results in the necessary removal of a disease barrier. This removal can harm the patient because the body normally relies on nodes to stop disease spread.

Dr. Sage cited the example of breast removal. The nodes of the area are also removed because usually they also carry cancer cells. Doctors in the future hope to be able to transplant successfully nodes to replace those that must be removed, he said.

Previous to Dr. Sage's work, no one was able to study the direct movement of lymphatic spread. Doctors hope to be able to use this method to help stop the flow of cancer cells in the body by detecting their movement along the lymphatic system before the cells become hopelessly imbedded. This method may eventually also guide the surgeon who is removing a malignant tumor, Dr. Sage predicted.

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AERONAUTICS

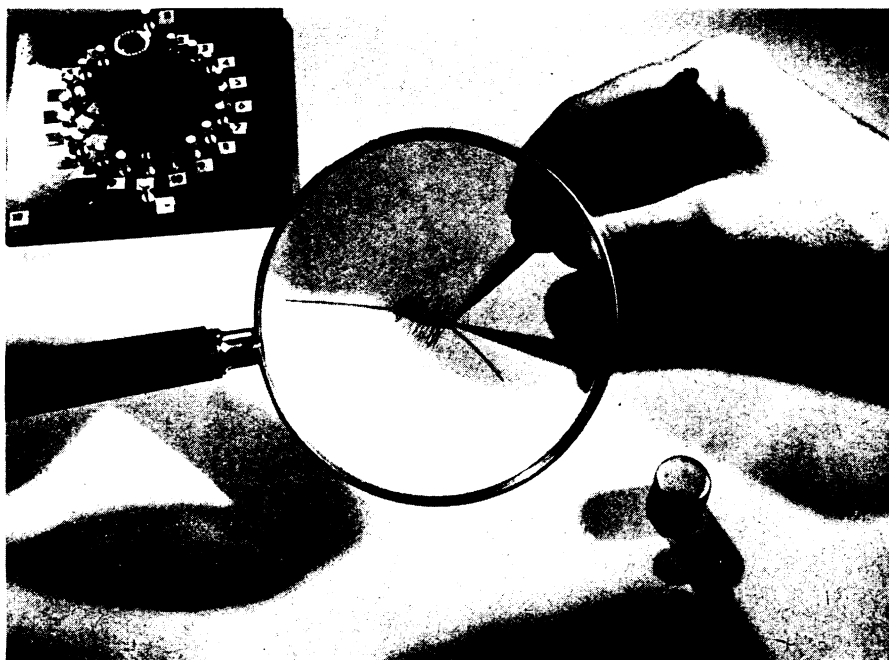
Navy Plane Extends Radar Warning Line

See Front Cover

► THE FIRST production model of the WF-2 Tracer, a saucer-topped early-warning plane designed for Navy carrier operations, has had a successful first flight, Grumman Aircraft Engineering Corporation announced.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows the plane and its huge radome, which houses long-range detection equipment.

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ULTRA-MINIATURE DEVICE—Under the magnifying glass is an experimental shift register transistor, developed by the Radio Corporation of America. Operation of it in the laboratory has shown the feasibility of integrating active and passive elements of a circuit. A testing unit appears at the upper left, while parts of a capsule in which an experimental unit may be enclosed appears at the lower right.