

- (c) Granting of fellowships to institutions for training of workers to acquire new techniques and wider experience.
- (d) Maintenance of continuing individual contact with workers in field.
- (e) Provision, on a participating basis, for continuing economic security for professional workers.
- (f) Liberal attitude toward the investigator's work, his publication and reports.

To assist it in the fulfillment of its advisory functions the Committee, on its part, will make free use of either ad hoc or standing subcommittees in specific fields of interest. Furthermore, it proposes to arrange conferences of competent groups for discussion of problems, for interchange of reports, etc.; make surveys to analyze problems or to determine progress in areas of special interest pertaining to cancer; evaluate, through study by subcommittees and by the main committee, basic and clinical research undertakings, and submit recommendations for support to the American Cancer Society; initiate and plan broad or specific programs of basic and clinical research, through activities of the subcommittees and main committee, and secure the cooperative efforts of investigators in the general undertakings.

The Committee has established a central office in the Washington headquarters of the Council where information on all phases of cancer research will be as-

sembled and from which reports may be distributed to interested investigators.

Many members of the Committee have participated intensively in the broad programs of research conducted under the pressure of war. It is both the hope and the sanguine expectation of the Committee that the fruitful pattern of cooperative investigations so successfully established during the war years, can now be carried on, modified and tempered to existing needs, into the continuing war against disease.

Membership of the Committee, as now constituted, includes the following:

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 Dr. Florence R. Sabin, Secretary
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 Dr. Charles B. Huggins
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 Dr. M. C. Winternitz

Philip S. Owen, M. D.

For the Committee on Growth
 Division of Medical Sciences
 National Research Council
 2101 Constitution Avenue
 Washington 25, D. C.

Cancer Of The Lung

Alton Ochsner, M. D.*

Contrary to general conceptions, primary cancer of the lung is of frequent occurrence and its incidence is apparently increasing. Between 1 and 4 per cent of all autopsies that are performed show a primary cancer of the lung, and cancer of this organ represents from 10 to 15 per

cent of all cancers that are found in the body. The number of deaths from cancer of the lung is increasing both actually and relatively, that is, the death rate per hundred thousand population is increasing and has been for a number of years. Whereas the incidence of cancer in other organs has

*From the Department of Surgery, School of Medicine, Tulane University and the Section on General Surgery, Ochsner Clinic

remained about the same or is somewhat less, the incidence of malignancies of the lung has definitely risen within the past two decades. Although there are many who believe that the increased incidence of lung cancer is due to the fact that physicians are more aware of its possibility and recognize it more frequently than previously, this is not the only factor; because even though cancer of the lung is being recognized today and was missed previously, the incidence of cancer of the lung as determined at autopsy, a procedure which misses nothing, has definitely increased. At the Charity Hospital in New Orleans in 1931 the incidence of cancer of the lung in autopsy cases was 0.47 per cent, whereas in 1940 the incidence was 3.2 per cent. During this same period of time, in the stomach, which is a frequent site of cancer, the incidence of cancer, has varied very little and has remained about 2.5 per cent.

Cancer of the lung is primarily a disease of the male sex. In a series of 240 cases which we have observed, 87 per cent occurred in men and 13 per cent in women. As in cancer elsewhere in the body, it is primarily a disease of advancing life. In the 240 cases, mentioned previously, the average age was fifty years, the eldest patient being eighty-three years and the youngest twelve years. Twenty-three per cent were in the fifth decade, 33½ per cent in the sixth decade, and 30 per cent in the seventh decade. In a group of 90 cases in which the lung was removed for a primary lung cancer, the age incidence was somewhat lower, as might be expected, because the younger patients, being better risks, were operated upon. Twenty-three per cent were in the fifth decade, 37.8 per cent in the sixth decade, and 24 per cent in the seventh decade.

The cause of cancer of the lung is not known, but as in cancer elsewhere chronic irritation is undoubtedly an important factor in the production of cancer. It has been suggested that the inhalation of gases from tarred roads might be responsible for the development of cancer of the lung since tar is a well known carcinogenic agent.

The fact that in Russia where there are practically no tarred roads the incidence of carcinoma of the lung has increased as in other countries tends to disprove this theory. It has also been suggested that the inhalation of exhaust gases from automobile engines might be a factor in the production of cancer of the lung. We have shown, however, that there is no parallelism between the sale of automobile tags and the incidence of lung cancer. On the other hand, there is a distinct parallelism between the incidence of cancer of the lung and the sale of cigarettes, and it is our belief that the increased incidence of lung cancer is due to the increased incidence of smoking and that smoking is a factor because of the chronic irritation that it produces. It is well known that the smoker has a chronic cough, the so-called smoker's cough, which because of its irritation might alone be responsible for the development of lung cancer. However, in addition to this it has been shown by Professor Roffo, Director of the Institute for Malignant Disease in Buenos Aires, tobacco contains a tar which has a carcinogenic effect and that the application of this tar to the skin and the mucous membrane of the respiratory tract in animals will produce cancer.

Unfortunately, the symptoms and signs of lung cancer are not characteristic and it is for this reason that the condition is likely to be overlooked unless the physician considers this possibility. Usually there is a history of a previous respiratory infection, such as influenza, from which the patient does not recover as he normally should. There is a persistent cough, which may have changed if the patient had a smoker's cough previously. Not infrequently there is a spitting of blood and a patient is aware for the first time that he has lungs. Although he may not complain of pain in his chest, there is a thoracic discomfort. Occasionally wheezing of a persistent character may be present. The late symptoms of lung cancer consist of fever, which is usually due to the breaking down of the growth with secondary infection, and pain, the pain usually being the result of involvement of the chest wall. Loss

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of weight and digestive disturbances usually accompany these late manifestations.

Lung cancer is a slowly growing type of tumor, which is fortunate because even though there may be some delay in making a diagnosis, the tumor remains sufficiently localized so that it can be treated. As in cancers elsewhere the tumor spreads by direct extension throughout the lung, through the lymphatic and blood streams, and through the bronchial tubes. The extension through the lymphatic stream is to the regional lymph nodes at the base of the lung, which can be removed at the time the operation is done.

The diagnosis of lung cancer is not difficult to make. X-ray is of great value. If the tumor is large enough to cast a shadow, it can be seen on the x-ray film. At times a relatively small tumor which begins in the bronchial tube will obstruct the bronchial tube so that no air can enter the lung distal to that area. The air in that portion of the lung is absorbed resulting in a collapse of the lung, which is of diagnostic importance on the x-ray film. Visualization of the bronchial tube by introducing a substance which casts a shadow is of value also in the diagnosis of lung cancer. Of greatest value in the diagnosis of lung cancer is visualization of the tumor by means of a bronchoscopic examination. In this way the bronchoscopist can not only see the tumor if it is in one of the larger bronchi, but can also obtain a piece of tis-

sue for microscopic examination. Occasionally, a tumor may be so far out in the lung that it cannot be visualized on bronchoscopic examination. In such an instance, exploration of the chest is justified, a procedure which is perfectly safe when done correctly.

The treatment of lung cancer consists of removal of the lung and the regional lymph nodes. By this procedure a tumor which is limited to the lungs and to the regional lymph nodes, which is usual for a relatively long time in lung cancer, a cure can be obtained. Although it may seem that removal of a lung is a formidable procedure and is attended with considerable risk, experience has shown that this operation can be done perfectly safely and following it one can remain absolutely well with no disability. It has been shown that one can get along with only 15 per cent of his lung function, and, whereas the removal of one whole lung would remove about 50 per cent of the lung function, this is tolerated with practically no disability. The mortality rate following removal of the lung for lung cancer although prohibitively high in the early stages of this method of treatment is now well within safe limits. The operative mortality rate at the present time is between 5 and 10 per cent. Although this is still a high mortality rate, when one considers that if cancer of the lung is not removed it invariably kills, the results obtained by this method of therapy are very satisfactory.

Fight The Big Three*

It is interesting to note that early detection and treatment of cancer is a major theme in the thinking of health officials and medical leaders throughout the world. In the August issue of the "Antiseptic," published in Madras, India, we find an

article entitled, "Fight the Big Three," from which we are quoting the following paragraphs:

"Tuberculosis, Leprosy and Cancer are the three most dangerous scourges that ravage the land from one end to the other.

*"The Antiseptic"—A Monthly Journal of Medicine and Surgery. Editors: U. Rama Rau & U. Krishna Rau, M.D., B.S. Editorial and Printing Office: Ramarau Building, 323-24, Thambu Chetty St., G. T., Madras, India.

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