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EDITORIAL

CANCER OF THE LUNGS*

H. JAMES HARA, M.D.

Cancer of the lungs is definitely on the increase. It constitutes 10 per cent of all forms of malignant diseases. Chronic irritation appears to be one of the chief factors in its pathogenesis. Ninety per cent of a series of patients reported from the Cook County Hospital in 1936 were chronic smokers. In a series of 175 cases observed at the St. Luke Hospital and the Research and Educational Hospital, Chicago, in 1945, 50 were heavy smokers, 14 non-smokers, and the remainder were noncommittal as to their smoking habits.

Exhaust gases from automobiles, tar on roads, repeated respiratory infections, and hazards from industrial dust and fumes have been suggested as predisposing factors in cancer of the lungs. So far nothing definite has been accepted as truly causative. It is a disease of white males of cancer age, though it is occasionally seen among the colored races and in those under twenty years of age.

The onset of bronchiogenic carcinoma is almost always insidious. Cough, sputum, and pain are the triad symptoms of early bronchiogenic carcinoma. The cough is invariably irritating and nonproductive at first. Those who smoke often attribute their cough to the irritating effect of tobacco on the mucous membrane of the respiratory tracts. Some try to reduce the quantity of their daily consumption of tobacco, others change the brand of

cigarettes, and still others voluntarily give up smoking without any appreciable change. A much larger group consider the cough as resulting from a so-called cold or virus bronchitis, which fails to clear up as does their usual seasonal upper respiratory infection. Often cough recurs after subsiding for a week or two, and is interpreted by the patient to be a fresh head cold. Sputum of bronchiogenic carcinoma is scanty and mucoid at first. Later, when ulceration occurs, it gradually increases, becomes blood streaked and purulent.

Pain of bronchiogenic carcinoma is more or less a dull ache, always limited to the side affected, intermittent, and of short duration in the earlier periods. In some it appears as a substernal ache, radiating to the shoulders. "Tightness," a "bandlike constriction around the chest," "inability to fill the chest with each inspiration" are some of the expressions used to describe the thoracic discomfort. Symptoms are vague and intermittent at first, but later become more pronounced and continuous. The thoracic pain is aggravated by coughing. The patient holds his chest as he coughs, in order to lessen the sensation of discomfort. Pain always signifies spread of the growth. In patients with a peripheral growth pain appears early, often simulating pleurisy.

The complication of bronchiogenic carcinoma is chiefly concerned with obstruction of the respiratory tract, caused either by intra-

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mural growth or stenosis from pressure without. Respiratory obstruction leads to atelectasis, pneumonitis, and abscess of the affected lobe. Hemoptysis occurs from erosion of blood vessels. Occurrence of infection leads to fever and toxemia. Cachexia, loss of weight, and anorexia are later symptoms. Horner's syndrome, brachial plexus disturbances, cordal and diaphragmatic paralysis are late complications.

There is a general agreement that bronchiogenic carcinoma originates from the basal cells of the epithelium of the bronchial mucous membrane. The epithelial cells of the tracheobronchial tract are undifferentiated. When carcinoma develops in the lung, the epithelial cells usually develop into one of the following: (1) squamous cell carcinoma, (2) adenocarcinoma, (3) oat cell carcinoma, (4) small cell carcinoma, or (5) transitional cell carcinoma. In 1945 Ikeda, at the University of Minnesota, described an alveolar carcinoma which differed from most pulmonary carcinoma in that it originated in the alveoli rather than in bronchial mucous membrane. It occurred with equal frequency in both sexes.

Bronchial carcinoma shows a definite predilection for the right bronchus, probably because of the more direct course and wider diameter of the right bronchus, with greater chances for exposure to various irritants.

Fully 75 per cent of bronchiogenic carcinoma originates in the main stem and primary bronchi. Thus, in three out of every four cases a bronchoscopist can visualize the growth, and remove a biopsy specimen for microscopic diagnosis. If the stem bronchus is involved, he can definitely state how close the growth is situated to the bifurcation. Direct observation of the shape of the carina, presence or absence of distortion and fixation of the bronchi, and other pertinent features are all help-

ful in deciding the operability of the case.

For cellular study the bronchial secretion is directly aspirated through a bronchoscope. A presumptive diagnosis of carcinoma is made if the examining bronchoscope reveals purulent or bloody discharge from the involved segmental tube even though the growth may not be seen.

X-ray is one of the most reliable single means of diagnosis, although there is no pathognomonic roentgen sign of bronchiogenic carcinoma. The density of the expanded lung is less than any other soft tissue, lending itself most admirably to X-ray scrutiny. The size of the opaque shadow is no indication of the true dimension of the growth. Stenosis results in emphysema. Complete blocking causes atelectasis of the distal lung. In every suspected case of primary bronchiogenic carcinoma a roentgenographic study should include the spine, ribs, long bones, and complete gastro-intestinal series to make certain that no metastasis is present.

No case of carcinoma of the bronchus is permanently cured by any form of irradiation. Pneumonectomy is the only known measure of salvaging the otherwise doomed patient. However, the recorded cases of five-year cures are not numerous. Operative risk of pneumonectomy as performed in well-organized hospitals is no higher than that of any other major procedure for malignancy. Sepsis is controlled by judicious use of antibiotics and sulfa drugs.

An exploratory thoracotomy offers the only certain means of proving the presence or absence of the growth, when a preoperative diagnosis cannot be established. If we are to reduce the present mortality rate from this form of malignancy, there must be concerted efforts among all of us—general practitioners, internists, radiologists, bronchologists, and thoracic surgeons.