RHABDOMYOSARCOMA OF THE DIAPHRAGM

Report of a Case

E. J. RYAN, M. D.

The following case is presented because of the rarity of tumors primarily in the diaphragm, particularly those originating in voluntary muscle. Peery and Smith[1] reviewed the literature and reported a case in March of this year. Theirs was apparently the tenth case on record of a tumor primarily in the diaphragm, the sixth case of a malignant tumor, and the second case of such a tumor arising in voluntary muscle.

CASE REPORT

A woman, 51 years of age, came to the Clinic in December, 1936, complaining of pain in the neck, fever, and abdominal distress. Two months previously she had had tonsillitis with peritonsillar abscess formation, and chills and fever. This was accompanied by sharp pain in the lower right posterior chest which was not influenced by respiration. Pain also developed in the posterior cervical area. It was constant at first, but was noted later only with a moderate rise in temperature which occurred each afternoon from the date of onset.

The gastro-intestinal symptoms consisted essentially of anorexia for two months, fairly constant nausea without vomiting, and intermittent abdominal distention for two weeks. She had lost seven pounds in weight.

Two ribs on the right side had been fractured a year previously, and a rib resection for empyema had been performed on the left side 18 years before.

Her mother and one aunt had died from carcinoma.

Physical examination on admission revealed weight, 144½ pounds, temperature 99.6° F., pulse 108 beats per minute, and blood pressure 155/78. No diaphragmatic descent with inspiration could be demonstrated on the right, although percussion note and breath sounds were normal. However, there was a definite coarse friction rub over the right posterior inferior chest.

A voided specimen of urine was negative except for 10-12 white cells per high power field. Examination of the blood showed 3,990,000 red cells with 65 per cent hemoglobin. There were 10,150 white cells with 84 per cent polymorphonuclears, 10 per cent eosinophils, 5 per cent lymphocytes, and 1 per cent monocytes. Blood urea and blood sugar were normal. Blood Wassermann and Kahn tests gave negative reactions.

Roentgen examination of the chest showed old fractured ribs in the lower right thorax, old resection of the eighth rib on the left side, and fibrosis in the left hilum.

The original examiner concluded that pus had collected above or below the right diaphragm, but exploratory thoracentesis was negative. Symptomatic therapy, rest, and high vitamin and caloric intake were prescribed and the patient was discharged.

Returning one month later, she complained of almost continuous nausea, anorexia, loss of weight, increasing weakness, and daily elevation of temperature. Physical findings were essentially the same as on her previous admission.

Examination of the urine showed 2+ albumin and an occasional cast. Blood count showed 4,170,000 red cells with 61 per cent hemoglobin, and 19,500 white cells with 69 per cent polymorphonuclears, 5 per cent eosinophils, 2 per cent

basophils, 15 per cent lymphocytes, and 9 per cent monocytes. Genito-urinary investigation, including intravenous urography, was negative. Roentgen examination of the chest showed a high right diaphragm with some lesion above or below it. Complete roentgen study of the gastro-intestinal tract was negative, except for a small irregularity in the pyloric region on the greater curvature, believed to be due to a band. Exploratory thoracentesis performed at this time was negative. Blood culture was negative.

In view of these findings, it was the consensus of opinion that a malignant process was present, and deep roentgen therapy to the retroperitoneal glands was suggested.

An exploratory laparotomy was performed on February 8, 1937. At operation, an excessive amount of free, serous fluid and numerous, small, fine adhesions were noted throughout the abdominal cavity and over the dome of the liver.

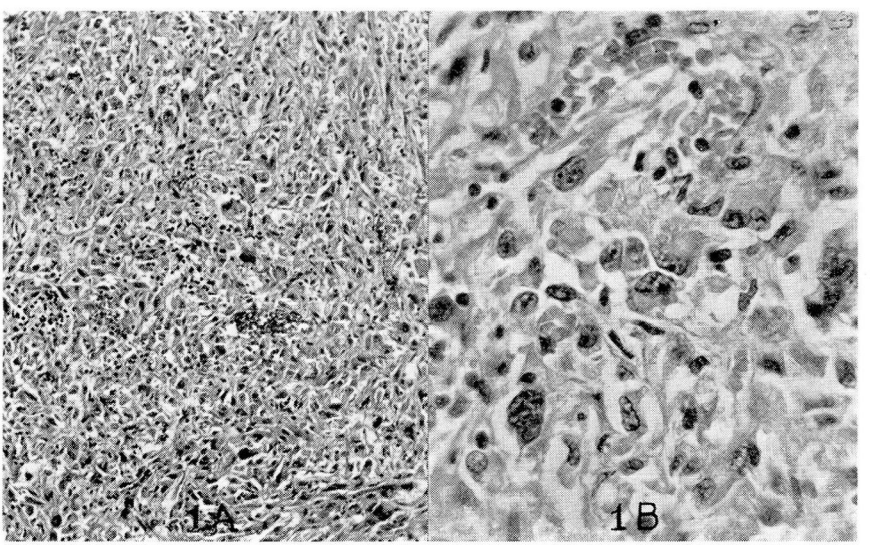

FIGURE 1: A.: Photomicrograph from pleural node. (x 150)
B.: Photomicrograph from pleural node. (x 600)

The gallbladder and appendix were removed, and pathologic examination revealed them to be chronically inflamed. Culture of the peritoneal fluid showed B. coli, B. alkaligenes fecalis, and nonhemolytic streptococcus.

The postoperative course was unsatisfactory. Parenteral fluids and frequent blood transfusions were necessary. The urinary output remained low and finally ceased. Urinary albumin varied from 2+ to 4+, edema appeared, the urea mounted and, on February 15, two days before her death, it was 198 mg. per 100 cc.

Necropsy showed a large tumor originating in the diaphragm and involving the liver, right pleura, and right lung by direct extension. The only distant metastases were in the peribronchial lymph nodes. The only other significant observations were diffuse acute pneumonia of the right lower lobe, generalized fibrinopurulent peritonitis, thrombosis of both renal veins, and degenerative changes in the tubular epithelium, with amyloid degeneration in many glomeruli. Micro-

scopic examination of the growth (Fig. 1) showed it to be composed of cells of variable size, shape, staining intensity, and nuclear content, with many gigantic tumor cells and multinucleated cells. In general, however, the cells were elongated, contained a large amount of pink-staining cytoplasm and oblong nuclei, and no recognizable longitudinal or cross striations.

It was the opinion of Dr. Allen Graham of the Department of Pathology, that the tumor represented a rhabdomyosarcoma, an opinion with which Dr. James Ewing concurred.

Reference

1. Peery, T. and Smith, W.: Rhabdomyosarcoma of the diaphragm, Am. J. Cancer, 35:416-421, (March) 1939.