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Severe and often intractable pain in the lumbosacral regions radiating into the legs is one of

as a study of twenty-four patients with varying degrees of myocardial infarction, thirteen of whom had metastatic to the lungs, and fourteen metastatic to the bones. I have indicated the stages of the disease at which each patient was recognized, the type of metabolic abnormality in each case, and the significant symptoms and their severity.

in 104 cases; in the other, severe angina was present in the pelves. The frequent, distressing symptoms in the majority of cases of the group is especially notable, and indicates the probability of overloading secondary growth except through roentgenographic examination made as a routine. Three patients in whom primary metastasis has been discovered without angina are fitting. The remainder died in from some

month to eleven months after the primary resection were detected. In only three cases (treatment was abandoned in a fourth case because of reaction) was any attempt made to arrest the development of the pulmonary growth by irradiation, and in these cases, through accidental omission, there has not been an apparently worse trace of such treatment by later scores. The geographic or clinical study. When there is evidence of rapid dissemination of the carcinoma with general cachexia, the standard is a search

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In Table 3 is presented a summary of clinical data in regard to the fourteen cases in which metastasis to bone took place. Pain seems to be an invariable symptom of this form of metastasis, but with concomitant adnexal infiltration, the causative factor underlying the pain may be in doubt. Malignant deposits in the lower ex-

destruction of the right ilium occurred ten years after hysterectomy for the primary disease, with no evidence of local recurrence. Palliation has resulted from radiotherapy in some instances, although there are often complicating factors to consider in explanation of the relief of pain. In the few cases considered which we can form an opinion, the relief of pain has seemed to be less dramatic and prolonged than that experienced in the treatment of metastasis to bone from carcinoma of the breast.

to distant re-

2. Palmarostyng neviastosis often is not accompanied by disturbing symptoms, so that only by frequent roentgenographic examination is it detected in the early stages.

3. The presence of metastasis in bones often is overlooked because of complicating circumstances which may account for pain. Metastasis to the extracranial or skull often is mistakenly attributed to inflammatory destructive lesions.

4. Some relief of pain may be secured by effective irradiation of metastatic growths in bones from carcinomas of the uterus. This response appears less definite and less prolonged than that obtained in secondary growths from carcinomas of the breast.

5. There are not sufficient clinical data to warrant an opinion as to the radioresensitivity of pulmonary metastasis from certain carcinomas. From the standpoint of greater precision in the application of radiotherapy a fair trial of such treatment in well selected cases should be made.

PULMONARY ASBESTOSIS: REPORT OF A
CASE*

RAUF G. MEER, M.D.
Fond du Lac, Wisconsin

Interest in the history of the lung, produced by a combination of factors, has been aroused in the last six years, and several reports of great interest in this medical literature of Great Britain. As a result, an occasional editorial or incidental mention has been written in this country about the condition. Apparently this is the first case reported from the United States. *Myxomatosis* is almost or has been inactive in many sections of this country. Unbelievable inactivity in many sections of the numerous warblers has occurred, and may have been directly or indirectly responsible for death without the real cause being recognized. This case is reported in the disease and surgery were widespread among the warblers and songbirds. It was an ally with which American physicians will have to deal.

End of Case

A man, aged fifty-eight years, came to The (First) May Day Clinic, in extremely advanced cardiac disease. He was taken to the hospital immediately after the attack, and the attending physician, Dr. H. H. Stewart, who was called in to see him, was unable to do anything for him. He was taken to the hospital immediately after the attack, and the attending physician, Dr. H. H. Stewart, who was called in to see him, was unable to do anything for him. He was taken to the hospital immediately after the attack, and the attending physician, Dr. H. H. Stewart, who was called in to see him, was unable to do anything for him.

Asiatic and edema of dependent portions were present. The lungs were normal. The heart was normal, and the liver was large and tender. Examination of the oesophagus disclosed edema of the retinal arteries of the hypertensive type, with two small hemorrhages in the retina. Roentgenographic examination of the thorax gave evidence of an enlarged heart, and of passive congestion of the lungs. This patient, however, was taken in the hospital and was not subjected to the same tests as the others. The following factors for further analysis of the condition of the lungs. Electroencephalographic examination gave evidence of complex theta block.

During the patient's stay in the hospital, he received 100 mg of digoxin daily, and his serum digoxin level was 1.2 ng/ml. The patient became very irritable and manifested a particular fibrillation. There was ventous congestion in the neck. Venocentesis was performed twice, and saline, 1 l, was given intravenously over 200 min. The patient died by vein. The patient died two days after he entered the hospital. The clinical diagnosis was hypokalemic cardiac disease of the young's disease, manifested asymmetrically with congestive failure, of bradycardia, duration, and complete heart block.

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tered regions of thickening in the capsule. The cut surface was mottled yellow and red, and there was definite fatty change in the hepatic parenchyma.

The anatomic diagnosis that was given took account of the features just mentioned and included a notation of silicosis of the lungs. Microscopic examination of

hypertrophy and finally to dilatation of the right side of the heart. The systolic pressure of the blood was not greatly elevated when it was recorded, but the diastolic pressure was relatively too high. The heart weighed as much as many hearts in cases in which hypertension was the underlying lethal factor. The



Fig. 1. A large mass of asbestos, measuring more than 1 mm. in length, obtained from the lung by dissolving a portion of the tissue with fuming nitric acid. Evidence of degeneration in the presence of the coarse striations in the fibers. The darker portion of the fiber and a distinct yellowish brown color (x175).

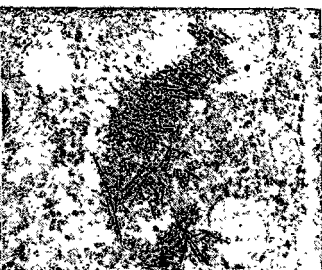


Fig. 2. A tangled mass of asbestos fibers in an unstained section of pulmonary tissue. From its distribution one would suspect that it had been dissolved by the microscopic juice. The scattered black dots are "asbestos bodies," indicating that a portion of the fibers, at least, had undergone change in the tissues (x175).

the essential tissues was made. Numerous phagocytic cells that contained quantities of blood pigment were noted in the alveoli of the lungs. Special stains for iron demonstrated its presence in these cells and also in the walls of blood vessels and alveoli. There appeared to be some increase in the amount of readily visible elastic tissue in the lung. Fibrosis was very marked.

COMMENT

During the first survey of the sections in this case there were observed certain peculiar, brownish, fibrous structures, apparently foreign bodies, in the tissue from the lung, usually embedded in connective tissue, and often engulfed by large giant cells. They did not take the ordinary stains, and none of them were shown to contain iron by the Prussian blue reaction. There was much discussion as to the nature of these bodies, without any conclusion being reached. The possibility was considered that they might be asbestos fibers, but at that time there was little basis for such a contention. There was no history of exposure to asbestos dust, and certain apparent differences were observed between the reactions of these fibers and those shown by commercially prepared asbestos. However, further study strengthened rather than weakened the impression that the bodies were asbestos fibers. Evidently the fibrosis of the lungs was in some way connected with the presence of these foreign bodies. The idea was further strengthened that the fibrosis of the lungs was responsible for progressive increase in resistance to the circulation through the organs, and may have led to

complete heart block was hardly to be explained on the basis of partial obstruction. There seemed to be no final answer to several questions connected with the case.

Shortly after the death of this patient, I corresponded with one of his business partners, and mentioned the fibrosis of the lungs. I also wrote that the fibers found looked more like bits of asbestos than anything I could think of, and asked if, fifteen years or more before his death, the patient could have been exposed for any considerable time to inhalation of inorganic dust such as asbestos, or any material that would give sharp, angular particles as well as longer, irregular fibers.

More than eight months after this letter was written, a business associate called on me, and stated that he had ascertained that the deceased had, as a young man, worked in an asbestos mine in South America. Later still, another business associate wrote that while the patient had been in South America he had drilled asbestos bearing rock. The shot holes were cleaned by air. Presumably this was prior to 1893, when he left the tropics, or at least thirty-two years before his death.

The study of the lungs and heart was resumed, so far as material was available. This unfortunately was limited. A few small pieces of pulmonary tissue were subjected to the action of fuming nitric acid to oxidize all the organic matter, and to concentrate in the sediment any inorganic fibers or other particles that may have been embedded in the substance of the lung. The pulmonary tissue contained a surprisingly large amount

of fat which collected as fatty acid on the surface of the liquid. This was not a clear yellow, and a smear of it was made, with the idea that some of the fibers might have been caught in this material and thus prevented from settling to the bottom of the heavy fluid. The sediment collected from the bottom, after washing.

These asbestos fibers did not show more plainly by polarized light. The golden-brown color of the fibers was a distinguishing feature under the microscope.

Smaller fibers of asbestos, when lying separately, seemed to have undergone changes not observed in larger fragments. The butt end of one of these frag-

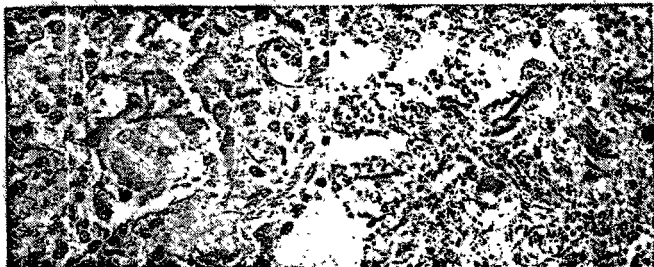


Fig. 3. A small bundle of asbestos lying in a giant cell. A dark, irregular envelope has developed on the butt end of the fiber; the frayed ends opposite have broken off as golden-brown oval bodies (x400).

Fig. 4. A group of asbestos fibers surrounded by giant cells. Their golden-brown color distinguished them from fibers of elastic tissue, which stained more of a blue color with hematoxylin and eosin. The asbestos fibers were frequently thicker and more irregular in outline, and remained unchanged in color with the ordinary aniline dyes (x100).

was found to contain a few fibers, together with some small particles of silica. Such drastic treatment as boiling in fuming nitric acid would destroy most materials, even the finest fibers of asbestos, but would probably not affect appreciably the larger ones.

In the section that collected on the surface of the solution of nitric acid were found several fragments that were certainly asbestos. The longest was more than 1 mm. in length (Fig. 1). This had the definite cross striations that are characteristic of altered asbestos fibers, as described by various observers.¹ When viewed under polarized light a portion of the mass was dark and there were brilliant streaks through it, thus duplicating the appearance given by a known sample of asbestos from commercial sources. A portion of the mass of asbestos had a yellowish-brown color of exactly the nature and shade presented by the control sample. The physical configuration also agreed with what one would expect of asbestos.

In Figure 2 are shown the asbestos fibers in a smear where they apparently had been spread through the tissues by the microtome knife. The section in which they were found had not been stained. A few golden-brown oval bodies were mixed with the fibers, suggesting that some alteration in their structure had taken place, but the condition of the main mass indicated that the center had been protected from this change in the tissues. Alteration apparently affected mostly the finer fibers, leaving the larger masses relatively unchanged for this long period of time. Search was made for the elastic tissue fibers about the blood vessels, and in the alveolar walls, but they could hardly be distinguished.

ments is shown in Figure 3. It had become enlarged and knobbed, and had a distinctly brownish color. There seemed to be an envelope of a lighter brownish color about a darker center; the latter was continuous with the fiber inside the giant cell. The frayed ends of the fiber gave place to the golden-brown oval bodies, whereas that portion within the giant cell was the least changed. The majority of asbestos fibers of small size lay in a confused mass of giant cells, which seemed to represent a foreign-body reaction. In Figure 4 is shown a scattered group of fibers, among which can be seen giant cells; the adjacent tissue of the lung has been undergoing interstitial fibrosis. The asbestos fibers were readily distinguished from elastic tissue fibers by their golden-brown color; the fibers of elastic tissue took a blue-brown stain with hematoxylin. The former were unchanged by ordinary aniline dyes, whereas the latter were readily tinted by various methods usually applied to such tissues.

In certain areas the process was still more advanced and connective tissue of a more mature type was seen, sometimes in more or less circumscribed areas. Such a nodule of scar tissue is shown in Figure 5, but this is not entirely comparable to the so-called silicotic nodules found in cases of silicosis in which tuberculosis plays a part.

There seemed little doubt that many of the asbestos fibers had been almost completely removed from the tissues. The frequent association of partly absorbed fibers and the golden-brown oval bodies shown in Figure 6 leaves little doubt that the latter were derived from the former. They were often in the same giant cell,

initially were detected in the tissues and in the residues after oxidation with the acid, but not enough to explain the fibrosis which was present. Apparently since asbestos dust enters the lung it continues to injure the tissues as long as the person lives. In short, asbestosis is an incurable disease, and one from which the pa-



Fig. 6. Two different yields with nodules. The net on the left contains a lot of golden-brown albedos within it, and there is also one above and one below the net. The tell of the net is the interstitial, golden-brown nodules and a large amount of the net. The mass of these nodules, together with the golden-brown nodules, is the mass of the golden-brown nodules (albedo).

these may or may not die. Intercurrent disease has been found in other reported cases to be unusually frequent, especially tuberculosis and bronchopneumonia. Neither were present in this instance, and death occurred from hypertensive heart disease, with complicated heart failure. This complication has not been mentioned before in this connection.

There is no reason to believe that the hypertensive was directly connected with the pulmonary sarcosinosis, but the extreme dilatation of the right side of the heart is probably attributable to the fibrosis of the lungs. I have a conception of the lungs to be completely affected by a complicating factor, and may have operative for the fibrosis, possibly tuberculosis, African trypanosomiasis, and the heart failed, with the cardiac disease, and the lungs failed, with the possibility of an embolism. Interruption of the lung circulation was the cause, and the lung failed, with the possibility of an embolism. Interruption of the lung circulation was the cause, and the lung failed, with the possibility of an embolism.

A case of pulmonary sarcosinosis, found in the United States, and of at least previous years' duration, described. Pythion clinical and pathologic details are given. This report corresponds reasonably well with reports from Great Britain.

Source: *Annals of the New York Academy of Medicine*, 1914, 19: 100-101.

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2

The Post Office Examiners report that J. M. Higgins, his wife, Mrs. J. M. Higgins, and his daughter, Edith J. Higgins, all of Atlanta, Ga. have for some time been defrauding the public under the trade name of "Electrostatic Company" in the sale of so-called "Diathermy Plates." These plates were crudely cut from sheet aluminum and tin. They cost 25 cents a pair, they weighed 100 grams, and they were sold for \$1.00. The plates were sold in the name of the "Electrostatic Company," which was a fictitious name. The plates would cause burns, blisters, and high blood pressure, enlargements of the heart, kidney trouble, headache, and other ailments. The plates were sold by mail, and the Post Office Examiners reported a feud opened against the "Electrostatic Company" and J. M. Higgins. (*U.S. A. M. A., May 1, 1936, p. 1262*)

1

The use of thyroid in elderly should always be controlled by a previous stable medication level. If that is normal or subnormal, it is safe for a physician to use thyroid. The least practice is to start with small doses of desiccated thyroid (Thyrochron, U.S.P.) gradually increasing. The small dose would be approximately 0.05 Gm. (½ grain) twice a day. The physician must keep a sharp lookout for fast pulse, tremors or a other symptoms resulting from thyroid stimulation. A obese person should not expect resolution by thyroid unless his diet is restricted, and when dietary restriction is followed thyroid is not needed as frequently. (Goss, A. M., May 19, 1964, p. 1794).