

FILE NAME: Saranac 7th Symposium (SSY)

DATE: 1952

DOC#: SSY003

DOCUMENT DESCRIPTION: Text of Presentation by Dr. Sanders

RECEIVED F.H.H&S
DATE: JUL 3, 1979
M.E.M.

Received
July 5, 1979

Remarks by Panel member O.A. Sawley, M.D.

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Dr. Vorwald, Members and Guests of the Symposium:

As defined by Gardner¹, to me, "pneumoconiosis" is a general term to designate all types of dust retained in the lungs, with no implication of reaction to the dust or impairment of lung function. There appears to be pressure in some quarters to limit the term to those dust diseases which cause lung fibrosis and potential and real disability. To me, such limitation of the term is as unrealistic as to say that the world now is to be considered flat because it suits someone's convenience.

The reason given to limit the term is quite understandable in some states where the word "pneumoconiosis" is in the compensation law as an occupational disease. The mere diagnosis of pneumoconiosis in those states is sufficient in many cases to constitute liability. Too often there is no attempt to determine the type of dust involved or the extent of the resulting pathological change.

To me the soundest solution of the problem is to consider all of us as having pneumoconiosis because we all are retaining particulate matter in our lungs every day. If we all agree that that is true, then the term has no place in occupational disease laws. Also, the dictionary and textbook definitions must be revised and the "fibrosis" implication removed. There now is much evidence which has been accumulating in the past decade that there are numerous inactive dusts which cause no fibrosis at all.

First of all, let us look at one of Gough's colored gross lung sections showing a moderate amount of coal dust retention, which is

comparable in appearance to most city dwellers' lungs. Note the deposition of the pigment around the blood vessels giving a nodular appearance on cross section of the lung. Were the coal dust radiopaque, the X-ray pattern also would be nodular and the X-ray diagnosis then would be "pneumoconiosis due to carbon dust." But because anthracotic pigmentation in moderate degrees is not visualized by X-ray, such a chest film is read as "healthy lungs," as are most of our chest films. That is precisely why most of the trouble with the term has arisen. Most physicians think of it as a radiological term, whereas it actually means only "dust in the lungs," whether it can be visualized by X-ray or not.

A number of inactive or inert dusts now are recognized which are readily seen radiologically when retained in sufficient amount. First² were the welders' siderosis cases due to retention in the lungs of iron oxide particles. The X-ray pattern is discretely nodular and closely resembles nodular silicosis by X-ray, yet post-mortem studies have shown no evidence of fibrosis. As far as we have been able to determine in the past fifteen years, iron oxide is a truly inert or inactive dust. Grinders and flame cutters of steel may have similar iron oxide exposures of sufficient degree to be visualized by X-ray as nodulation.^{3,4}

The term "siderosis" for such iron pigmentation is a perfectly proper one, but as with pneumoconiosis there must be no implication of fibrosis in the term. Zenker⁵ defined siderosis as a "fibrosis of the lungs due to iron," which is quite understandable because the iron miners' lungs studied by Zenker in 1867 were fibrotic. He incorrectly attributed the fibrosis to the iron rather than to the quartz dust which all the miners had breathed along with the iron. They actually were cases of siderosilicosis.

Additional examples of inert or inactive dusts are tin oxide and barium oxide, which when retained in sufficient degree result in dense sharply defined nodulation by X-ray. Yet in spite of such extreme deposition of particulate material, all studies of such cases have shown a complete absence of fibrosis or impaired lung function. Function studies by ^{cutler, Fallon and Wilson} Stocklen⁶ of two tin cases were entirely normal. Bartak⁷ in Czechoslovakia and Dundon and Hughes⁸ in this country have shown the absence of fibrosis in detailed post-mortem studies of two cases with tin deposits. The term "stannosis" is perfectly proper for tin pigmentation provided there is no implication of fibrosis in the term. Several barium oxide or baritosis cases have been reported by Pendergrass⁹ in which there were heavy deposits of barium dust in the lungs without symptoms. One of these has come to post-mortem study,¹⁰ which clearly showed the barium deposits, but unfortunately there was an associated anthracosilicosis due to this person's earlier work in anthracite mines.

This brings us to the term "benign pneumoconiosis," first used by Pendergrass¹¹ in 1945, which seems so unpopular in many quarters. My only objection to it is that the benign designation implies that all other pneumoconioses are malignant, which is not true. Some fibrotic pneumoconioses are quite benign, especially when minimal in degree. The term "inert pneumoconioses" probably is preferable. Nevertheless, "benign" most likely will stick because it serves the very useful purpose of setting apart those pneumoconioses which are known not to cause fibrosis or impaired lung function and not to predispose to tuberculosis.

As for the compound terms, I favor the retention of "sidero-silicosis" if both history and X-ray pattern suggest that there has

DATE: JUL 31 1979
M.E.M

been sufficient free silica exposure along with the iron to cause silicosis and the root lymph nodes seen definitely enlarged on the chest film. As you know, siderosis alone does not cause enlargement of the root shadows, which makes this an important point in differential diagnosis. "Anthracosilicosis" should be retained only for those cases in which there is a clear-cut history of free silica exposure along with the coal dust and the chest film shows clear-cut evidence of a nodular pattern resembling silicosis. In the absence of significant silica exposure in a coal miner with pin-point or micro-nodulation and emphysema, the term "pneumoconiosis of coal workers" seems the best devised so far. I cannot agree, however, that that diagnosis is proper if the only X-ray evidence of pathological change is emphysema. More about this will be heard from Drs. Fletcher and Hugh-Jones.

In conclusion, I believe very strongly that there are sufficient sound reasons to retain the present generic definitions of pneumoconiosis and the more specific terms of silicosis, siderosis and the others as well. If the general word "pneumoconiosis" is causing so much trouble in medicolegal circles, let's take it out of our occupational disease laws. It should never have been there in the first place. There those pneumoconioses which are known to cause disability when in sufficient degree of development should be so clearly defined that there is no cause for quibbling over terms.

With continual education of medical students and the medical profession and with constant repetition of the statement that "pneumoconiosis is not synonymous with fibrosis," the misunderstandings of the past will gradually fade away. And never forget to add that "you and I--all of us--have a pneumoconiosis."

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By *and*
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Comment

DR. VORNWALD: As I interpret Dr. Sander's views, I believe he is in favor of retaining the word pneumoconiosis and using it in its generic sense, and of having it refer only to the inhalation of dust and not to symptomatology or to the character or extent of pathology within the lung. He agrees with