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THE NON-TUBERCULAR AND NON-CARDIAC HÆMOPTYSIS OF ELDERLY PERSONS.

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Many years ago, when examining the evidence of the arrestment of phthisis and endeavoring to determine the conditions in which it occurred, I was struck with the large numbers of cases of hæmoptysis occurring in elderly persons who were at the time and remained afterwards free from signs of pulmonary tuberculosis or of structural disease of the heart. Being in those days completely influenced in my views of hæmoptysis by the teaching of Dr. Walshe, I ascribed every case of pulmonary hæmorrhage in which there was no heart disease or aneurysm, or malignant growth, to tubercular disease of the lung. Perhaps I carried to an extreme issue the opinions of this distinguished master; at any rate, I must confess that the consequences were not satisfactory for the patients or for me. At last, however, there occurred in the wards of the London Hospital a case of fatal hæmoptysis which not only made plain the error of my views, but revealed a cause, hitherto, I believe, unnoticed, of pulmonary hæmorrhage. The patient, a man between fifty and sixty years of age, was admitted for an attack for subacute bronchitis. He had been for many years the subject of a moderate progressive osteo-arthritis, and during the last four or five winters had suffered from severe bronchial catarrh. The attack from which the patient suffered on admission was of the ordinary character; there were signs of some congestion at the posterior bases and of emphysema of the front part of both lungs, but nothing was found to suggest the existence of tubercular disease. The heart and bloodvessels were sound, there was only moderate fever. The patient was placed upon a light diet and treated with alkalies, alterative aperients, and counter-irritants to the chest. About a fortnight after admission the patient began to cough up blood in small quantities at short intervals, and in spite of all that could be done according to the approved therapeutical teaching of the time —in spite of absolute rest, the strictest regulation of supplies, the application of ice to the chest, and the liberal use of various astringents —the bleeding persisted, and within a week the man died. The post-mortem revealed to the naked eye little that was unusual and nothing that was expected. The heart, the larger vessels, and the arterial valves were free from obvious structural change. The bronchial mucous membrane almost everywhere was swollen, congested, violet-colored, and coated with a muco-purulent secretion. The anterior parts of both lungs were pale, dry, and emphysematous, and curious patches of emphysema surrounded by hæmorrhagic extravasations were noticed in the back and lower parts of both lungs, which were loaded with blood. Nowhere could there be discovered the smallest evidence of tubercular disease, of any malignant growth, or of any sort of coarse structural change which could account for fatal hæmorrhage. A most minute examination carried out with the aid of the microscope brought plainly to light two important facts. The first was that the seat of the hæmorrhage was in the immediate neighborhood of the emphysematous patches, and the second was that the minute vessels, the terminal arteries for the most part, were in those localities always diseased. And finally, it appeared in the highest degree probable that there existed a direct casual relationship between the condition of the blood vessels, the emphysema, and the hæmorrhage. For wherever there was an emphysematous patch there was a diseased artery; wherever the artery was much diseased the capillaries and venus radicles were also affected; and generally, although not always, where the terminal artery was obstructed and degenerating there was adjacent hæmorrhage. Through the observation of these facts and their relations I was led to conclude that the order of events issuing in hæmorrhage arose and proceeded in the following way. I inferred that the initial visible movement in the malady had been some minute structural change in the terminal branch of the pulmonary or of the bronchial artery, and in consequence of this there had been brought about a more or less complete obstruction of the supply of blood through the territory involved; that following this there arose degeneration of the capillaries, and venous radicles determining a true atrophic emphysema, and that the integrity of the bloodvessels being thus impaired, the formation of thrombi or recurrent condition of pressure had brought about the hæmorrhage which ended in death.

Now arose the cardinal question presented by this case, and necessary to be answered if any fresh knowledge were to be derived from it: What was the intimate nature of the structural vascular changes to which I have adverted? There were two ways of replying to this question, each was distinct in itself, and the one which was most regarded was of the least importance. The small question was, What were the visible characters of the structural alterations in the bloodvessels? The large and crucial question was, What was the nature of the primitive dynamic changes, and which alone gave them form and meaning? In them and not in the vascular changes lay the importance of the case. The structural changes discovered in the affected bloodvessels were limited to nuclear proliferation in the middle coat, and an amorphous and hyaline infiltration of it and of the intima. When