REMARKS ON THE NON-TUBERCULAR AND NON-CARDIAC HÆMOPTYSES OF ELDERLY PERSONS.

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MANY years ago, when examining the evidences of the arrestment of phthisis and endeavouring to determine the conditions in which it occurred, I was struck with the large number of cases of hæmoptysis occurring in elderly persons who were at the time, and remained afterwards, free from signs either 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 to the patients or to 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 50 and 60 years of age, was admitted for an attack of 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 parts of both lungs, but nothing was found to suggest the existence of tubercular disease. The heart and blood vessels were sound, there was only moderate fever, the patient was not seriously ill, and, beyond the osteo-arthritis, some gastro-enteric catarrh, and a few scattered patches of eczema, there was nothing to attract special attention to the case. 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 strict 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 patient died.

The *post-mortem* examination 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-coloured, and coated with a muco-purulent secretion. The anterior parts of both lungs were pale, dry, and emphysematous; and curious isolated patches of emphysema, surrounded by hæmorrhagic extravasations, were noticed in the back and lower part 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 the fatal hæmorrhage.

A more 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 neighbourhood 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 causal 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 venous 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 the 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 a terminal branch of the pulmonary or of the bronchial artery; that in consequence of this there had been brought about a more or less complete obstruction of the supply of blood throughout 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 vessels being thus impaired the formation of thrombi or recurrent conditions of pressure had brought about the hæmorrhage, which ended in death.

And 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 the question; each was distinct in itself and the one which was the most regarded was of the least importance. The small question was: "What were the visible characters of the structural alterations in the blood vessels?" The large and crucial question was: "What was the nature of those primitive dynamic changes which preceded and determined the structural changes, and which alone gave them form and meaning?" In them, and not in the vascular changes, lay the importance of this case.

The structural changes discovered in the affected blood vessels were limited to nuclear proliferation in the middle coat and an amorphous and hyaline infiltration of it and of the intima. When I endeavoured to determine the significance of these changes, and for this purpose studied the life history of the case; when I saw that the patient had been for years an arthritic; that he had suffered on occasions from many of the constitutional manifestations of this diathesis; and that the structural changes in the pulmonary blood vessels were akin in character to those which are found in the diseased articulations, I permitted myself to conclude that the malady was of an arthritic nature, and that I had seen and dealt with a case of what might be called without serious scientific impropriety "arthritic hæmoptysis."

About fifteen years ago, in conjunction with Dr. Wall, I had the opportunity of closely studying throughout its course another case of fatal hæmoptysis, which in all essential points resembled the case which I have just related. The patient was a stout, fair, florid, healthy-looking man of about 50 years of age. He consulted me for a troublesome bronchial catarrh, and told me that he was "rheumatic," and that of late he had been getting fat, short-breathed, eczematous, and indolent. The digestive organs were in fair order; the urine was habitually about 1012, but free from albumen and casts; the heart and systemic vessels were free from obvious change, and there were no signs of objective disease in the nervous system.

In the lungs there were evidences of general bronchial catarrh, of congestion at both bases, and of emphysema along their anterior margins.

The finger-joints were rimmed or nodulated; a few minute subcutaneous nodules were found in both arms; and eczematous patches existed in various parts of the body and limbs. The treatment consisted of diet and exercise, of occupation and early hours, of alkalies and alterative aperients.

The patient became much better, and I saw nothing more of him till twelve months afterwards, when I was summoned to visit him in consultation with Dr. Wall. From him I learned that the patient had relapsed into a careless mode of life; that he had recently caught a severe cold, and that the day before he had been seized with a moderate hæmoptysis, which recurred every three or four hours.

Such an examination of the patient as was at the time justifiable brought little to light. There existed a catarrhal state of the digestive organs; the urine was still low in density, limpid, and free from albumen; there was no cardiac murmur, and the pulse, of fair volume and strength, was about 80; the cervical veins were a little full; and the patient complained of cough, of frequent frothy sanguinolent expectoration, and of considerable

oppression of chest. Over the upper portions of both lungs were heard medium-sized, moist mucous *râles*; over both posterior bases coarse crepitations and increased resonances.

The patient was treated in the usual manner by absolute rest, careful feeding, ice to the chest, aperients, and the strongest astringents in large doses at short intervals. But nothing proved of the smallest avail, and on the fifth day the patient became suddenly exhausted and died.

A carefully conducted necropsy revealed the usual appearances of bronchitis, emphysema, pulmonary congestion, and scattered small hæmorrhagic extravasations. And here, again, as in the case first related, were found in significant conjunction the emphysematous patches, the diseased blood vessels, and the extravasated blood. Except that the kidneys were rather small and hard nothing of moment was found elsewhere. Plainly enough, the source of the fatal hæmorrhage lay in the diseased blood vessels; probably enough, the disease was of an arthritic nature; and pardonably enough one might venture to say again, here is another case of arthritic hæmoptysis.

Since 1875 I have seen in persons over 50 some twenty cases of hæmoptysis of the kind which I have now described; and, as in the ordinary annals of medical literature I have been unable to find any clear account of such a variety of pulmonary hæmorrhage, and as the treatment pursued in ordinary forms of hæmoptysis is not successful in this form, I have thought it right, in the hope of further knowledge, to bring the subject to the notice of the profession.

It is not my intention, upon this occasion, to enter into any systematic account of this variety of pulmonary hæmorrhage, this arthritic hæmoptysis, as I have ventured to call it. But, as the cases related have led me to discontinue the ordinary method of treatment by astringents, and to try another method which seems to be more rational and, hitherto at least, has proved more successful, I propose to relate two other illustrative cases seen in consultation with other practitioners.

Some seven years ago Sir William Jenner, Dr. Wilson Fox, and I, were summoned together to consult about a patient suffering from an incoercible hæmoptysis. She was a Jewish lady, over 60 years of age, very stout, very "rheumatic," and always ailing. She had nodular finger-joints, frequently recurring bronchitic asthma, and occasional outbreaks of either eczema or of urticaria. Ten days before our visit, when suffering from an ordinary catarrh without accompanying fever, the patient began to cough up blood, and had continued to do so in small quantities at intervals of three or four hours ever since.

The patient had a somewhat large heart, but there was no murmur, and there was no evidence of systemic arterial disease. Within the previous two days the pulse had become quick and frequent, and the temperature had risen to close upon a hundred. In the lungs there were signs of generalised bronchial catarrh, of emphysema, and of basic congestion. The patient complained of frequent cough, of great oppression of chest, and of growing difficulty in expectorating. She had furthermore a loaded tongue, thirst, loss of appetite, a swollen liver, and all the signs of a gastro-enteric catarrh.

The patient had been carefully treated by absolute rest, fluid food, ice to the chest, and in succession by lead, gallic acid, and the hypodermic injection of ergotin.

After full discussion it was agreed that another method of treatment should be tried. The patient was ordered to have a light and rather dry diet; to be sparing in the use of liquids; to discontinue the ice; to have a calomel pill at night, followed by a saline cathartic on the succeeding morning; and to take an alkaline mixture with ammonia between meals twice in the day. Within thirty-six hours the bleeding ceased, and the patient made a speedy and complete recovery.

About a year and a half ago the patient consulted me at my house for subacute rheumatic arthritis. She told me that since I saw her first she had had one attack of bleeding, and that it was quickly cured by her calomel and salines.

About six years ago I was summoned to meet Mr. MacLaren in consultation about the case of a solicitor who had been suffering from an obstinately recurring hæmoptysis of small amount. The patient was over sixty years of age, had been always delicate, and often suffered from incomplete attacks of what was considered to be rheumatic gout. He had rimmed finger-joints, patches of dry eczema, and occasional nervous headache. A few weeks before our consultation he had contracted a feverish bronchial catarrh, and was confined to the house. After a fortnight's cold he began

to have some oppression of chest, and to be short-breathed. This was followed by a small hæmoptysis, which gave relief; but the hæmoptysis recurred, and at our consultation there were no signs of its cessation. The patient had no fever, and only a slight hurry of circulation. There was a general bronchial catarrh; the fore parts of the lung were emphysematous; and there was some basic congestion, greater on the right side than the left; the tongue was furred; there was anorexia, with some thirst; the bowels were inadequately relieved; and the urine was pale, and of low density, but free from albumen. The patient was directed to rest and keep warm; to live upon a slight, semi-solid diet; to be sparing in the use of liquids; to be freely counter-irritated over the chest; to have a succession of small doses of calomel at bedtime, supplemented by saline aperients in the morning; and to take between meals, twice or thrice in the day, a mixture containing iodide of potassium, bicarbonate of potassium, and ammonia.

This treatment was not particularly agreeable to the patient, who had medical views of his own. Nevertheless it was adopted, and appeared so far successful that within four days of its adoption the hæmorrhage had ceased. I heard of this patient from a relative some months ago, and I was told that, although he led a too sedentary life, he was well and at work.

Many additional illustrations of this variety of hæmoptysis could be given; but as in each case there is a close resemblance to every other, and as in all the cases the interpretation of the pathological conditions accompanying the hæmorrhage and the treatment employed for its relief were substantially the same, it would be unpardonable to occupy the time of the Society with the reproduction of details which could prove neither interesting nor instructive to the Fellows.

I content myself with having brought to the notice of the Society this curious form of pulmonary hæmorrhage; and, believing that a critical discussion of the subject will lead to broader and juster views concerning it, I conclude with a statement of the propositions which I have framed out of the results of my own inquiries. These propositions are as follows:

1. That there occurs in elderly persons free from ordinary diseases of the heart and lungs a form of hæmoptysis arising out of minute structural alterations in the terminal blood-vessels of the lung.
2. That these vascular alterations occur in persons of the arthritic diathesis, resemble the vascular alterations found in osteo-arthritic articulations, and are themselves of an arthritic nature.
3. That although sometimes leading to a fatal issue, this variety of hæmoptysis usually subsides without the superintention of any coarse anatomical lesion of the heart or of the lungs.
4. That when present this variety of hæmorrhage is aggravated or maintained by the frequent administration of large doses of strong astringents, by the application of icebags to the chest, and by an unrestricted indulgence in liquids to allay the thirst which the astringents create.
5. That the treatment which appears at present to be the most successful in this variety of hæmoptysis consists in diet and quiet, in the restricted use of liquids, and the stilling of cough; in calomel and salines; in the use of alkalies with iodide of potassium; and in frequently renewed counter-irritation.

SPILSBY RURAL (Population, 25,816).—*Small-pox and Scarlet Fever Outbreaks: Good Results of Isolation.*—Dr. Francis J. Walker describes the year 1888 as one of considerable anxiety, both from the presence of small-pox in the district and the prevalence of scarlet fever. By dint of great exertions the outbreak of small-pox was kept within the bounds of the town of Alford, where the initial case occurred. A temporary hospital was put into requisition, disinfection freely resorted to, and, as an additional measure of precaution, re-vaccination was strongly recommended to the inhabitants, and was eagerly resorted to by them. The usual precautions were taken in all cases of scarlet fever. A rather serious outbreak of typhoid fever occurred in the town of Spilsby. Facts pointed to the milk supply as in some way connected with the origin and spread of the disease, but Dr. Walker failed to trace the exact source of contamination. Altogether, the year cannot be looked upon as a healthy one, although there was no increase in the actual number of deaths from preventable diseases. The total death-rate (16.6 per 1,000) was somewhat higher, while at the same time the birth-rate (25.19 per 1,000) was considerably lower than the average of the past fourteen years.