HARVEIAN LECTURES

ON THE

PROGNOSIS AND TREATMENT OF CHRONIC DISEASES OF THE CHEST IN RELATION TO MODERN PATHOLOGY.

Delivered at the Harveian Society of London.

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LECTURE III.

MR. PRESIDENT AND GENTLEMEN,—In reviewing the subject of the treatment of chronic lung-disease, I do not propose to do more than regard it in its relation to modern pathological views. It is not my intention to take up the subject generally, but to limit our inquiries to those improvements which recent knowledge has developed, and which are founded on the strict relation of symptoms to structural alterations.

All our views of treatment should be founded on the basis of a knowledge of the structural conditions of disease, and, if possible, on the causes which have led up to them. When we treat symptoms only, we are treating events sometimes of the most short-lived character; and it is only when they indicate the workings of deeper-seated causes, that they rise into prominence and demand a remedy. If a patient be near destruction from a high temperature—as is, indeed, the case occasionally—we are called on to reduce the temperature by cold baths or quinine, or some of the other means at our command; but, if the elevation of temperature be merely an indication of inflammation or irritation and congestion of a vital organ, we shall not effectually relieve our patient till we have diminished the congestion, when, as we know from experience, the temperature will surely fall.

In considering the question of treating affections in which structural alterations have taken place, and are likely to extend, we would naturally consider the constitutional or general symptoms, and the local, or those strictly referable to the affected part or organ. Now, from whatever cause or “constitution” the chronic affections in the lung which we have been considering have arisen at first, it is pretty evident that the larger part of the symptoms, and certainly the most pressing, as exhausting the patient, are due to the local irritation of the lung. During the active degeneration of morbid products, and the ulcerative processes accompanying, the patient wastes rapidly, and has high temperature and sweatings. On the cessation of such processes by exhaustion of the material (say in the rapid softening of a mass of caseous pneumonia), the fever and waste stop, and there is a pause in the disease, till a fresh infection, or the breaking up of another such mass, renews the febrile action.

The extent and degree of lung-irritation seems, therefore, the measure of the fever. If we could remove the morbid portion of lung, and heal it up, as we can remove a diseased joint, recovery would be pretty certain. In the former lectures, I have endeavoured to make this plain, showing the correspondence between local conditions and constitutional disturbance. Those earliest structural alterations which, as we know, consist in a shedding of the epithelial cells of the alveoli, in the migration of lymphoid and blood-cells from the vessels, and in the small-celled infiltrations of the walls of the alveoli and of the inter-alveolar cellular structures, are indicated in the system by high temperature, sweatings, and rapid waste of tissue, with great vital exhaustion. The disintegration and ulcerative changes of masses of caseous matter are again accompanied by an access of the same febrile symptoms. Again, the formation of cavity, when it is completed, and the whole of the morbid mass is cleared out, is often followed by a cessation of fever and a regain of weight by the patient. Secondary infections or deposits in other, it may be distant, parts of the lung, or of the opposite lung, are again evidenced in a constitutional disturbance, mainly febrile, and eminently depressing to vital power. The influence of exhausting discharges from cavities, or from an extensive ulcerated surface of lung, is shown by like phenomena.

When we consider the normal structure of the lung, and its functions, it is not wonderful that even a slight local cause should be followed at once by such violent symptoms. A cellular structure of

almost gossamer fineness, with a double circulation momentarily renewed, in which chemical and vital changes are always proceeding; the presence of air as an essential element, as well as of two kinds of blood; movements due to an inherent elasticity of tissue, acted on from without by a series of muscles adapted to expand and contract the chest in its various measurements; a smooth serous external lining, exposed to incessant friction; a ciliated epithelial inner membrane, ever preserving the secreting surface clean—such are the leading structural characters of the lung. When we add that it is a double organ, and that a mechanical expansion and superactivity of one side is ever ready to compensate any destruction of breathing-space in the other, we can realise its important vital relations.

Further, that rest which we demand and obtain in treatment of other parts, when injured or disordered, can never be obtained for the lung; for it is the seat of incessant movements.

It is also to be remembered that, owing to its excessive vascularity, the lung-structure offers peculiar facilities for the conveyance of septic matters; while secretions and hæmorrhagic results are readily forwarded from one part to the other.

From all these considerations, and from the fact that structural morbid changes have been more studied of late years and better understood, it has resulted that the improvements in our treatment of chronic lung-affections have tended latterly rather to the amelioration of local conditions, than to an employment of remedies addressed to effect alterations in nutrition and secretion.

As I pointed out in a former lecture, it has also come to us as a result of modern doctrines: the infiltrations of lung-tissue, if taken as due to tubercle, which is only the textural exhibition of a previously depraved condition of the whole system, have a general rather than a local significance, and demand blood-remedies and nutritives, or call for the search for a scientific antidote. But the doctrine which teaches that chronic lung-indurations and degenerations are in their nature inflammations, of which tubercle is only an occasional and secondary result, has a far different significance. Whether it be right or wrong in theory, it has taught us to assign more importance to remedies which reduce local alterations of structure, than to constitutional treatment, which can only reach the lung in a roundabout way through the blood. If, by checking an inflammatory catarrh, we can prevent a phthisis, the modern doctrine has done much for us; and at least it has directed our attention to the vast importance of treating lung-affections, as we treat the inflammations of other parts, by procuring as much physiological rest as is obtainable for them, and by obviating local congestion so as to prevent the extension of structural changes.

I cannot see that it matters much to us practical physicians whether the infiltration which blocks a portion of lung belong to the class of inflammation or of miliary tubercle; but it is of greatest import to us that a ratio exists always between the amount of lung-disease and the stage of its degeneration and the general disturbance of the system. When this local disease is quiescent—that is, not undergoing active softening—our patient is comparatively well, and recovers flesh; when a limited tract of lung is breaking up, he is very ill, with urgent feverish symptoms; and when an unlimited tract of lung is breaking up, a chain of deposits—say with only islands of healthy tissue intervening—all tending to run together and join in degenerative rapid changes, our patient is nigh to death.

Again, when fibroid changes have taken the place of the purely degenerative, when inflammatory and tubercular caseous masses have been swept away, and nought remains but a fibrous connective tissue developed throughout the ruins of the lung, and just holding together, our patient exists at a low ebb, but is no longer harassed by fever and wasting. In all this, we recognise a strict relation between local lesions and general symptoms; such relations as there are, for instance, between a suppurating joint and concomitant hectic, or in an ankylosed joint, when the mischief is done and the fever is at an end.

I do not want to insist on the truth of the whole of modern pathology applied to the lungs, but to take this corollary from it, that, with the doctrine of inflammation, men's eyes have been more open to the relation between the local disease and the general suffering than they were in the days when everything was believed to be “constitutional” or “general”, and the local disorder only a result or manifestation.

Truly there is such a thing as a constitution, or a cachexia; truly there are individuals whose innate proclivities are to unhealthy inflammation, productive of ill-vitalised results, and a proneness to degeneration, rather than to organisation. Were it otherwise, we should have no scrofula, no phthisis; and certainly it remains my creed that, before there is any primary local appreciable affection—anything which could originate an infection to be afterwards conveyed to the lung—there is a condition of health tending downwards rather than upwards: a state in which that vital power or possibility of sustaining and mastering

untoward conditions, of resisting depressing influences such as emanate from ill-drained soil, or arise self-born from the moral and social evils of life—grief and anxiety, and ill-requited toil, and the like—is so lowered that the nutritive sustaining processes of life which lie, as it were, next door to it, become depressed and altered, and ready to admit any low form of disease, or to manufacture unhealthy degenerative products out of the most ordinary inflammation. It is difficult to express what this is; but that it is an antecedent of organic disease, recognisable by every studious practical physician, is a fact admitting no gainsaying or controversy.

Let us consider now how these views of the localisation of disease and the interdependence of general symptoms and lung-irritation should influence our treatment; and, as cases present themselves in all stages, we will consider some of the most urgent symptoms and events of phthisis.

I will take hæmoptysis, congestions, secondary infections, chronic suppurative-cavities, and cavities tending to close or contract; also the septic symptoms of phthisis.

Of the two forms of hæmoptysis which I have described, the passive and the congestive, the latter alone needs much consideration. The passive, if moderate, and, from its character, unaccompanied by fever, need not be treated by more active remedies than rest and the astringents in common use. If profuse, it is a leakage from a broken pulmonary vessel, and generally from an aneurysmal dilatation, and in such case is likely to prove fatal, perhaps even before we arrive to witness it. In such case, if time be allowed, the object should be to promote the formation of clot, which is, indeed, the natural and only mode of stopping it. The patient is faint, pale, often almost pulseless; and it is not to be forgotten that such a condition favours coagulation. But a stimulant may be needed to save him from impending death; and, if he survive the first shock and collapse, turpentine would appear to be the most appropriate remedy. I do not see why perchloride of iron should not be used in the form of spray diluted, and the case treated as we do a hæmorrhage from a mucous surface; yet time may not be allowed for this, or indeed for any other treatment.

The congestive form of hæmoptysis is best treated by local depletion and derivative cupping. I have over and over again seen internal remedies fail until this one was practised. The condition which we have to consider and to counteract, if possible, is a congestion, of which the hæmorrhage is only a symptom. The patient has a hot hand, and is flushed; his temperature probably is at 104°, and he has tightness of chest and dyspnoea, often with pain in some part of the lung. There is every indication for depletion, and none at all for styptics. General blood-letting may even be advisable; and there are cases which will not yield till it is applied. Yet the popular feeling is against this; and here the cupping-glass and a few leeches will be found most available; and even dry cupping has an excellent result. It is remarkable that, when such congestions are accompanied, as they commonly are, by dulness of the percussion-note, this physical sign will disappear after local depletion—an event which I have often witnessed. I cannot consider here, nor, indeed, can I satisfactorily explain how the abstraction of blood from the surface can relieve an underlying congested organ. It may be simply a derivative action on the circulation; but I believe we can all testify to the value of such treatment in practice. Acting on these views, it will also be well to give gentle saline aperients, or small repeated doses of the sulphate of magnesia or of soda. I have also found excellent results from small doses of antimony. Regarding this form of hæmoptysis as a congestion, I cannot advise the early resort to styptics, which are indeed contraindicated in the first part of the attack. Let us fairly treat the congestion as if it were a localised pneumonia, as it really is, and only have recourse to styptics when the temperature has fallen, and the pulse is no longer sharp. Then, and not till then, is it well to use gallic acid, the injection of ergotine, and such remedies as act on the muscular fibre of vessels and cause their contraction. If the patient be in danger of sinking from the quantity of blood lost, we may of course, be impelled to use the most active astringents; but the great majority of these cases of congestive hæmoptysis do not cost the patient the loss of one pint of blood, and his temperature and pulse will remain high till the lung-afflux is relieved; and we often find that he is the better for the hæmorrhage, and is found to have gained a period, more or less prolonged, of quiescence from all active symptoms after the event.

Acting on the same pathological views, we find the use of ice persistently applied to the chest of the greatest assistance, relieving congestion, and promoting contraction of the vessels and the formation of clot.

There is no doubt that we may have local congestions of the lung without hæmoptysis—a small localised pneumonia, with the physical signs of dulness, bronchial breath and voice sounds, and a fine crepita-

tion. This is most common at the base of the lung on the same side as primarily affected, or in the opposite lung. With our present knowledge, we must regard them either as septic deposits of matters carried from the already diseased centre, or as fresh invasions of miliary tubercle. The latter are, as we know, often found in the immediate neighbourhood of masses of induration which have already undergone caseation and degenerative change.

I do not know how we can distinguish these two congestions of the pneumonic kind from those of miliary tubercle, except that the latter have commonly a more general signification—that is, are likely to be accompanied by other secondary lesions in distant parts, as the meninges of the brain, or the intestines. They have also a higher temperature, and more extreme daily transitions, and can be generally recognised by the aspect of the patient, and his extreme suffering. The pleura does not escape in these congestions, and, in its dry condition, adds acute pain to the general distress. For this symptom, we find the use of a blister of very small size dressed with morphia the best remedy. In such a condition as this, the physician will, of course, omit the use of iron and oil, and active tonics. I have found opium, in small repeated doses, with half a grain of camphor, every two or three hours, relieve the *malaise* and misery of the sufferer most effectually. For the prevention of such cases, it will be necessary to go back a step in the disease, and examine whether we can prevent the formation of such secretions, often the product of cavities, which are then carried as infectants to other parts of the lung. This implies a consideration of the treatment of cavities, and a prevention of the accumulation of morbid matters in their interior, by securing a ready exit for their contents. This subject has recently received much attention, both in this country and in America; and we are indebted to my colleagues Drs. Powell and Williams especially for a thoughtful endeavour to treat chronic cavities of the lung on scientific surgical principles.

There are several varieties of cavity, as I have pointed out. 1. The single, well limited, and defined apex-cavity, with a pretty free opening into a bronchial tube, by which it is emptied generally night and morning, on change of posture, or as secretion accumulates. This form is a chronic tolerated condition; and, if the patient's general health be fair, and the secondary disorders absent, and especially if digestion be unimpaired, it may last for years, even on into advanced life. I am now acquainted with a member of our profession who has such a cavity in the apex of the right lung, which was diagnosed by myself and Dr. C. J. B. Williams twenty-five years ago. He is now over seventy, and engaged in practice.

2. Cavities with a less free opening into a bronchus, and situated near the middle or base of the lung, possess different characters and liabilities from the first variety. Their secretion is apt to accumulate from gravitation, having to find its way upwards into a bronchus; and the lung, indurated in tissue, with thickened pleura, and bound down by adhesions, cannot contract on the contents; so that the cavity is never entirely emptied, and foetor ensues. This is a grave mechanical difficulty, where the secretions must be projected upwards. Apex-cavities are drained by a bronchial tube; but these are never fully drained. As a consequence, the septic contents are carried to other parts of the lung, or to the intestines, causing ulceration and diarrhoea, or to the larynx, causing ulceration.

In phthisis, a large proportion of the expectoration is the product of bronchial irritation, and the bronchial membrane in the neighbourhood of such cavities is irritated by the constant passage of foul retained, it may be foetid, secretions, and is found red and injected, often stripped of its epithelium and ulcerated—effects caused by the acrid and septic quality of such matters passing over it.

To apply sound surgical principles to such a condition is most natural; and there is every reason to hope for excellent results from tapping and free drainage. Accordingly, we find that Dr. Cayley, in 1878, tapped two cases of basic abscess of the lung at the Middlesex Hospital. They appear to have been of the gangrenous form, and survived the operation only a few days. More recently, Dr. Smith of Halifax, and Dr. Douglas Powell, have operated, the latter on several cases, one of which survived for five months. Dr. Williams has also had several cases, and one complicated with empyema, which I often saw in consultation. In this instance, the empyema opened, by three communicating cavities, through the lung, and was itself so localised by adhesions as to give to Mr. Erichsen, who operated, and to myself, the idea that the lung itself had been tapped. The patient was greatly relieved, lost his fever; and the foetor of expectoration, which had been intolerable, entirely ceased from the day of the operation. He survived nine months. A *post mortem* examination showed the above-described conditions, and the opposite lung was sound, excepting a small caseous mass at the apex. In Dr. Powell's case, in five months, the foetor ceased, and the secretion diminished from twenty ounces to two!

It is not to be entertained that we should tap apex-cavities with a free opening into a bronchus, and with diurnal moderate not foetid secretions, unless, indeed, we could, by such operations, take them out of the influence of the lung-movements, drain them, and heal them, as in other surgical cases. This is, no doubt, visionary; but it has been attempted in America, and may yet come to be safely and effectually done. But there is nothing visionary in draining a deep-seated cavity with foul secretions which are, from their septic influence, poisoning the patient by loading his blood with morbid material, wasting his body by hectic, and rendering his life miserable to himself and those around him, by the intolerable fœtor. I do not know that I have ever seen more distressing cases than some of these, and they loudly call for a remedy. My own belief is that, if the cases be properly selected, every year will add to our successes with this kind of disease.

The conditions favourable to surgical interference should, however, be carefully considered.

The signs of cavity should be undeniable, and they should all be present, and the existence of adhesions of the lung to the pleura should be susceptible of proof at the point at which it is proposed to operate. If you have dulness, marked gurgle, bronchial or cavernous cough, and voice-sounds close under the ear in some of the more dependent parts of the lung, the axilla, or the infrascapular region, and if the patient expectorate at intervals, and pretty copiously, a foetid secretion, we may be tolerably sure of the case, and, in my judgment, would be quite authorised in tapping. But if such physical conditions be ill-defined, or not present, as in a case I saw last week, although all the other conditions are present, I would not operate.

In acute gangrenous cases, or hæmorrhagic cases where the lung is in a loose, vascular, spongy state; where little fibroid change has taken place and adhesions of the pleura are not evident, the operation should not be performed; the trocar would enter not a defined cavity, but a broken up lung, and hæmorrhage would occur; or the contents of an ill-defined abscess might escape into the pleura. Such were probably some of the conditions which led to a want of success in the earlier cases subjected to this operation, but a judicious and careful selection will give us many successful results.

Another form of case, in which I have declined to operate, has been characterised by all the signs and symptoms of deep-seated foetid abscess, but the patient's health may be so good that one does not feel justified in submitting him to an operation, which has, no doubt, certain dangers. A girl, aged 25, in one of my wards, had the characteristic expectoration, copious and very foetid, but she possessed the appearance of perfect health. She was plump and rosy, had no fever, and gained many pounds in weight during a stay of four months in the hospital. The signs of deep-seated cavity were very evident in the middle and back part of the right lung.

I leave this part of the subject by remarking that tapping of basic cavities recommends itself as a means of correcting fœtor, diminishing copious suppurative processes, relieving the fever, and preventing secondary septic infection, and thus, in many instances, saving the patient from impending death, while in others (impossible to cure), it may add great prolongation to life, and remove some most intolerable discomforts.

[To be continued.]

EXTRACTION OF A PIECE OF IRON FROM THE EYE BY THE ELECTRO-MAGNET.—At a recent meeting of the Suffolk County Medical Society (*Boston Medical and Surgical Journal*) Dr. B. Joy Jeffries reported a case of removal of a piece of iron from the eye by the electro-magnet. He briefly spoke of two cases, previously reported, where simple magnet had been used, and four where the electro-magnet was employed. These were where the foreign body was in the aqueous or vitreous chamber, but not bedded in any tough tissue of the eye. No case of removal from the cornea had been hitherto reported. September 29th, 1880, a man came to the Massachusetts Charitable Eye and Ear Infirmary with a piece of iron deep in the cornea at the outer angle, projecting into the anterior chamber just behind the sclero-corneal juncture. There was a cut towards the middle of the cornea, through which the metal might have passed. There also was no distinct tract through the cornea over the foreign body. As the metal could not be approached on the outer side in the blood-bearing tissue, it was decided to cut down upon it on the corneal side, and attempt to keep it in place or from falling into the anterior chamber by the constant near presence of the strong electro-magnet of Dr. Bradford's apparatus. On the approach of the magnet the foreign body was seen to move, and by applying it against the cornea the metal was drawn to it and removed.

ABSTRACT OF LETTSOMIAN LECTURES ON PATHOLOGY AND MORBID ANATOMY OF DYSENTERY.

Delivered before the Medical Society of London.

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LECTURE II.

MR. PRESIDENT AND GENTLEMEN,—I propose in this lecture to describe the pathology, morbid anatomy, and treatment of dysentery, and to illustrate them by recent cases and specimens, taken chiefly from the Calcutta hospitals and from Netley.

I have already alluded to the general condition, and have anticipated in part what belongs to the pathology of a simple case of dysentery. There is nothing in the temperature that is typical, though in the acute attacks of vigorous persons, especially Europeans, there is a certain slight rise of temperature, as there would be in an acute congestive or inflammatory attack of another kind. But, as it frequently happens (in India, at all events) that the disease is accompanied by malarious fever, we may expect the thermometric variations that characterise that fever, whatever form it may take—quotidian, tertian, remittent, or irregular. The temperature, therefore, is not symptomatic of the dysentery, but of the fever which results from the same general cause. In complications, where the liver, spleen, or other viscera are affected—and especially if suppuration is occurring there—the phenomena of that process will be manifested by high evening temperature, morning falls, and sweating after rigors or chills, such as occur in suppuration from other causes. I have already remarked that the true pathological explanation of multiple abscess in the liver (such as that I shall place before you) refers it to pyæmia, and that it differs from that of the insidiously forming liver-abscess, when there is very little alteration in the temperature, which may be only a degree or two above normal. In cases of sloughing dysentery, especially when the sloughs are extensive, and in hæmorrhagic dysentery, when there has been much loss of blood, the temperature may fall below the normal standard.

In perforation, the temperature at first during the shock is sub-normal, but as peritonitis sets in it again rises. This is quite apart from the dysenteric process, and the rise of temperature cannot be regarded as typical of that disease.

The seat of localisation is chiefly in the large, but in scorbutic cases, and in others also, it may extend into the small intestine for several inches above the ileo-colic valve, and the whole intestine, including the jejunum, duodenum, and stomach also, may be involved in the catarrhal condition, whilst the viscera and serous membranes may suffer in the dysenteric process. The liver is especially disposed to suffer in tropical climates, and either ordinary or septicæmic abscess may occur. The spleen and pancreas may be enlarged, indurated, or softened, and become the seat of abscess. When dysentery is associated with periodic fever, the spleen is frequently enlarged; and in such cases there is apt to be splenic cachexia, and the disease is of the asthenic type. The lungs are occasionally involved, and the remarks that I have made in regard to the nature of the so-called abscesses in the liver apply to them.

The bronchial tubes may also share in the dysenteric inflammation, and their mucous membrane become the seat of puriform exudation in the finer tubes, with patches of lobular pneumonia dispersed here and there throughout the lung.

There are other complications—the erysipelatous, scorbutic, and typhoid—and one sees the close analogy of the disease with typhoid and diphtheria, and that, as the seat of the localisation in typhoid is the ileum, in dysentery it is in the large intestines. Does not the tendency of the disease to pass the ileo-colic valve, perhaps, throw some light on the pathology of the so-called typhoid in India, which by some is referred to climatic causes rather than to a specific faecal origin? If climatic conditions can cause disease in the gland-structures of the large intestine, it needs no effort of imagination to suppose a similar process may occur in those of the small intestine, or that the disease may pass the ileo-colic valve and appear in the ileum. It is not difficult, either, to imagine that the stress of the morbid agency may fall primarily on the glands of the ileum, and so give rise to the enteric lesions which so closely resemble those of the enteric fever of our own latitudes. I do not assert that it is so, but I would suggest that those who regard the