On the frequent spontaneous cure of pulmonary consumption, and the indications furnished by pathology for its rational treatment / by John Hughes Bennett.

ON THE

FREQUENT SPONTANEOUS CURE

OF

PULMONARY CONSUMPTION,

AND THE

INDICATIONS FURNISHED BY PATHOLOGY FOR ITS RATIONAL TREATMENT.

By JOHN HUGHES BENNETT, M.D., F.R.S.E.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS;
LECTURER ON THE PRACTICE OF PHYSIC, AND ON CLINICAL MEDICINE;
PATHOLOGIST TO THE ROYAL INFIRMARY, &c. &c.

(Read to the Medico-Chirurgical Society of Edinburgh, March 5, 1845.)

(*From the Edin. Med. and Surg. Journal, No.* 163.)

ON THE FREQUENT SPONTANEOUS CURE OF PULMONARY CONSUMPTION, &c.

EVERY one who has been much accustomed to make *post mortem* examinations must occasionally have observed puckerings or contractions in the substance of the lungs, sometimes conjoined externally with dense white cicatrices, or internally with cretaceous or calcareous concretions. From the frequency with which these cicatrices and concretions are met with, it is certain that, if they indicate the previous existence of tubercle, this lesion heals spontaneously much more frequently than is generally supposed. Indeed, if this opinion respecting them be correct, then tubercular disease of the lung, instead of being almost invariably fatal, as it is considered by the public and the great majority of the profession, must not only heal spontaneously in a few cases, but this must be a very frequent occurrence. Such will appear from the following statement :—

Of 73 bodies which I have examined since last November, I have found puckerings or concretions in the lungs in 28.

Of these, puckerings existed with induration alone in 12, with cretaceous or calcareous concretions in 16.

They occurred in the right lung seven times, in the left lung twice, and in both lungs nineteen times.

In upwards of 500 bodies, which have been examined either by myself or under my direction since August 1843, these lesions have been found equally frequent, but from many of them having been confounded with pleuritic adhesions, or not otherwise particularly noticed, their relative frequency cannot be ascertained with exactness.

On referring to the observations of those who have conducted their inquiries on a sufficiently extensive scale, I find that M. Rogée,* in 100 bodies examined at the Salpetriére Hospital in Paris, discovered these lesions in 51, more than half. M. Boudet,* in a memoir presented to the Academie des Sciences, says, that of 135 bodies he has examined, he found them in 116, about four-fifths of the whole. The average age of these individuals is not stated, but it varied from fifteen to seventy-six years. In the Salpetriére we know that all the inmates are of advanced age.

* Archives Générales de Médecine, Vol. v. 1839. This admirable Memoir certainly deserves more attention than it hitherto seems to have met with.

† Comptes Rendus, Tome 6me, 1843.

In the 28 cases alluded to I have found pulmonary puckering and concretions in 3 individuals of the age of 18; in 6, between that age and 40; and in 19 after that epoch of life. There can be little doubt that they are most common in elderly individuals who have escaped the diseases incident to youth, and hence probably may be explained the large proportion met with in some of the Parisian hospitals.

It may be well, before proceeding further, to determine whether the lesions now alluded to are really proofs of cured tubercular deposits in the lung. This seems to be established by the following facts:—

1. A form of indurated and circumscribed tubercle is frequently met with, gritty to the feel, which, on being dried, closely resembles cretaceous concretions.

2. These concretions are found exactly in the same situation as tubercle. Thus they are most common in the apex, and in both lungs. They frequently occur in the bronchial, mesenteric, and other lymphatic glands, and in the psoæ muscles, or other textures which have been the seat of tubercular depositions, or scrofulous abscesses.

3. When a lung is the seat of tubercular infiltration throughout, whilst recent tubercle occupies the inferior portion, and older tubercle and perhaps caverns the superior, the cretaceous and calcareous concretions will be found at the apex.

4. A comparison of the opposite lungs will frequently show, that whilst on one side there is firm encysted tubercle, partly transformed into cretaceous matter, that on the other the transformation is perfect, and has occasionally even passed into a calcareous substance of stony hardness.

5. The puckerings found without these concretions exactly resemble those in which they exist. Moreover, whilst puckering with gray induration may be found at the apex of one lung, a puckering surrounding a concretion may be found in the apex of the other.

6. and lastly. The seat of cicatrices admit of the same exceptions, as the seat of tubercles. In one case I have found the puckering and cicatrix in the inferior lobe only, and have met with three cases, where the inferior lobe was throughout densely infiltrated with tubercle, whilst the superior was only slightly affected.

If further proof be required to convince us that these puckerings and concretions are really evidences of cured tubercle, it will be found in the circumstance, that since the days of Laennec, (by whom they were minutely described and figured,) no pathologist has called in question a fact which seems so well established.

Hitherto, however, these lesions have been considered as oc-

curring very seldom. Laennec records only six cases; Andral eight; and various writers have published isolated cases as worthy remark from their rarity. Dr Williams says, "It is not uncommon to find in the lungs of those who have long laboured under symptoms of pulmonary consumption, some of the cavities with a lining more or less perfect, and, at the apex of the lung especially, there may be *now and then* found a cavity contracted almost to obliteration; and *sometimes* a mere cicatrix, perhaps enclosing a little friable caseous matter."* Such is the general belief.

On the other hand, the observations of Rogée and Boudet in Paris, confirmed as they are by my own in the Royal Infirmary of this city, will probably serve to establish that this spontaneous cure of tubercle has occurred in the proportion of from one-third to one-half of all the individuals who die after the age of forty.

Although this result may with some excite surprise as being quite contrary to a prevailing opinion, it is easy to show that neither the chemical or structural composition of tubercle, or the nature of the action which accompanies its deposition, are in any way opposed to the facts revealed by morbid anatomy.

Without entering minutely into the consideration of these subjects, it may be said that the chemistry of tubercle is still very imperfect, and that it only differs from lymph, in its early stage, by being more albuminous, and in its latter stages by possessing a larger amount of earthy salts.

As regards the structure of tubercle, it is certainly not malignant. Gulliver and Vogel, indeed, have described it, under certain circumstances, to be composed of nucleated cells. On the other hand, notwithstanding I have carefully examined tubercle in numerous cases, in all its forms, I have never been able to discover such a formation. On this point, the observations of Lebert more nearly agree with my own, which have always shown me that tubercle was composed of numerous granules, and of corpuscles of an irregular shape, difficult, perhaps, to be described, but in the aggregate readily recognized by an experienced eye.

Then, with regard to the action which accompanies the deposition of tubercle, two opinions have been contended for. By some it is maintained to be a constitutional disease, and to be produced independent of inflammation. Others assert that it is an inflammatory product. Great names are to be found in the ranks of both parties. In the one are Bayle, Laennec, Chomel, and Louis; in the other are Broussais, Bouilaud, Cruveilhier, and Andral. In this country the inflammatory origin of tubercle has been most ably contended for by Dr Alison, whilst it has been opposed by Dr Carswell and Sir James Clark.

A moment's consideration will show that the whole discussion depends upon what is meant by inflammation. If by that term

* Diseases of the Chest, 4th ed. p. 192.

be understood pain, heat, redness, and swelling or the presence of lymph or pus, then certainly tubercle is not inflammatory. If, on the other hand, we consider that the essential phenomenon of inflammation is an increased exudation of the blood-plasma, then tubercle must be regarded as an inflammatory product. Such it appears to us is the only view that will reconcile the known facts connected with this inquiry.

What, then, it may be asked, constitutes the difference between the products of ordinary inflammation and tubercle? It is, as may be demonstrated, the comparative inorganizable power of the latter. In tubercle we have granules and imperfect cells, in the products of healthy inflammation we have granules and perfect cells. Both these morbid products are formed by the exudation of blood-plasma. If it undergo transformations into perfect organisms, it constitutes what pathologists have in some cases called the results of inflammation, in others, different kinds of tumours. If these transformations are arrested or rendered imperfect, it forms what has been called tubercle or scrofulous deposits. The tubercular exudation, however, when broken down and rendered molecular, is capable of being absorbed, in the same manner as the product of healthy inflammation. This often occurs. But as the rapidity of the molecular disintegration of exudation is dependent upon its power of growth, so this change must take place in tubercle more or less slowly, according to its organizable powers. The essential distinction, then, between the products of inflammation and tubercle must be sought for in a difference of composition, (chemical and vital,) in the blood-plasma of which they are each composed. Hitherto chemistry has not taught us in what this difference consists, but has pointed out the probability of its being composed of some form of proteine less capable of passing into organization than fibrin. The deficiency of organization itself is easily demonstrated by the microscope, and may often be seen in textures where lymph and tubercle gradually pass into each other.*

As there is nothing, then, in the nature of tubercle itself which opposes the anatomical evidences previously described, the fact of the frequent spontaneous cure of tubercle may be admitted. On looking over the works of our greatest authorities on this subject, I find that the occasional curability of the disease is admitted by all. Laennec, Andral, Cruveilhier, Kingston, Pressat, Rogée, Boudet, and many others, have published cases where all the functional symptoms and physical signs of the disease, even in its most advanced stage, were present, and yet where the individual survived many years, ultimately died of some other disorder, and

* A series of preparations was exhibited to the Society, where, in various textures, lymph so closely resembled tubercle as not to be distinguished from it.

on dissection, puckerings and concretions have been found in the lungs. Rokitanski observes that pulmonary phthisis is without doubt curable, (*heilbar.*)*

Rogée tells us that Broussais himself, during the early part of his life, complained several times of feeling something at the apex of the right lung, which induced him to think that tubercles existed in that situation. When examined after death, there was found at the summit of the right lung, a strong adhesion with the costal pleura. Here also the lung was puckered, and on incision a small cretaceous mass, surrounded with dense and black parenchyma, was observed.

Boudet, in the memoir already referred to, says that in one year he met with fourteen cases where softening of tubercular matter in a cavern was evident, all traces of which subsequently disappeared. Rogée refers to many others. Dr Stokes says that in a few cases even after excavation has formed he has seen a recovery. For a confirmation of this point, indeed, I may safely refer to the experience of old practitioners, many of whom have described to me several cases where all the symptoms of phthisis were present, which ultimately recovered. So deeply rooted, however, has been the opinion of the necessarily fatal nature of this disease, that, not being guided by auscultation, and simply *because* they recovered, it was concluded that the disease was *not* phthisis; that is, they have rather distrusted their own diagnosis than ventured to oppose a dogma of universal belief.

The treatment of pulmonary consumption has for the most part been conducted on strictly empirical principles. One vaunted remedy has succeeded another; they have all been tried and found unsuccessful. The pathology of the disease readily explains this circumstance, as no one remedy can be useful in a disorder that, from its commencement to its termination, presents such different characters and indications. These characters and indications are only to be ascertained by a practised auscultator, and the signs which guide his practice are totally inapplicable to others who cannot distinguish them. Now, as empirical means for accomplishing a cure have notoriously failed, perhaps a study of the method in which nature operates may be more successful. The facts which have been brought forward certainly hold out every encouragement for prosecuting a rational treatment based on its general pathology. Rokitanski observes,* "Researches into the circumstances under which a natural cure takes place, is the only method by which we may expect to arrive at a rational mode of treatment, as it must be directed not against the pulmonary ulcerations, but against the general tuberculosis."—Hence a

* Handbuch der Path. Anat. Band. iii. s. 148.

knowledge of the progressive march of tubercular depositions towards a cure is of permanent importance, and would seem, from the observations I have made, to take place in the following manner.

At first tubercle is deposited in a fluid state from the capillaries in the same manner as lymph. The miliary and infiltrated forms, whether gray or yellow, after a time soften,—a process which may commence at any part of the mass and gradually affect the whole. We generally find that the parenchyma of the lung or the pleura in the immediate neighbourhood of such deposition is more or less inflamed, indurated, and thickened. The pleura especially is almost always affected, and in such cases reaches a thickness and density unknown in other diseases. The parenchyma is also rendered dense, and produces a thick indurated capsule all round the tubercular deposit, which is frequently of semicartilaginous hardness, and so firm as to retain its form even when the softened tubercle has been evacuated by expectoration through the bronchi. This gives rise to the dry blowing sounds often heard over such cavities. If the destruction of the organ be not carried to such an extent as to cause death, and if the further depositions of fresh tubercle can be checked, the cavern gradually contracts, its walls unite or close upon tubercle which has undergone transformations to be immediately described, and a cicatrix is formed.

Cicatrices present different appearances, according as the cavity from which they are formed was superficial or deep seated. In the first case it will generally be observed that the pleuræ are more or less adherent and thickened, and this frequently forms an external boundary to the tubercular cavity. As the matters which it contains are expectorated or transformed, the lymph gradually contracts, draws the lung closely to the thoracic walls, from which it cannot be separated without great violence. More frequently, however, the cavity is deeper, and the adhesion very slight, or does not exist. In this case, when the walls of the cavern contract, the pleural surface of the lung is drawn inwards, and in this way the irregular puckerings visible on the surface are produced.

Sometimes no traces of tubercular matter are discovered either within or in the vicinity of these cicatrices. Under such circumstances they appear to be formed of dense fibrous tissue, and the parenchymatous substance in their vicinity is of a bluish-black colour, from increased pigmentary deposit and of peculiar induration and density, owing to chronic inflammation. More generally, however, the contraction and puckering will be found to have occurred around tubercle, which has undergone various transformations. Occasionally there are round masses of crude tubercle surrounded

by a cyst. They are of unusual density, still of a yellowish colour; but contain granules of earthy salts more or less numerous. Often they are white and friable, resembling chalky matter. In this state the soft portions have been apparently absorbed, and the whole consists, under the microscope, of irregular masses of earthy matter, mixed with numerous granules and crystals of cholesterine. At other times the whole has been converted into a solid calcareous mass, frequently round, at others having numerous prolongations and irregularities, which accurately fit the surface and bronchi with which they are in contact. These cretaceous and calcareous concretions may remain an indefinite time in the parenchymatous substance of the lungs, or they may be evacuated through the bronchi, and are then found among the sputa. The cyst which incloses them then forms a cellular or dense linear cicatrix.*

Such appears to be the mode in which tubercular ulcers heal. They occur in exactly the same manner as abscesses in other parenchymatous tissues, the result of simple inflammation; and that the process in both is identical, is proved by the frequency with which in the latter calcareous deposits also take place.

If, then, the further deposition of tubercle could be arrested, there seems no reason why cavities in the lungs should not heal with the same frequency as ulcerations or abscesses in other internal organs. This is only to be accomplished by overcoming the pathological conditions on which the deposition of tubercle depends. These are, *first*, a morbid state of the blood, the result of imperfect nutrition, *second*, local inflammation by means of which an unhealthy exudation is poured out, that assumes the form of tubercular or scrofulous matter.

I forbear entering upon the theoretical considerations which the nature of this imperfect nutrition naturally suggests. It is perhaps sufficient to say, that chemical, morphological, and physiological facts unite in pointing out that it is attributable, first, to an excess of oxygen in the system which combines rapidly with the tissues to produce waste, and to occasion acidity in the alimentary canal; and secondly, to an excess of nitrogenized or albuminous and a deficiency of carbonized or oleaginous matters in the chyle, blood, and tissues generally; the liver, the great emunctory of fatty and carbonized matter, excepted.

I need not more especially allude to the fact, that all the local symptoms and physical signs are identical with those of inflammation, they only differ with respect to their more frequent situation in the apex, instead of at the base of the lung.

* A series of preparations was exhibited, showing all these different forms of cicatrices and the various transformations which tubercle undergoes. Also portions of calcareous matter expectorated with the sputa.

The indications for treatment, therefore, are 1*st*, to overcome the dyspepsia and acidity in the alimentary canal; 2*d*, to furnish the material necessary for the formation of a healthy chyme; and 3*d*, to combat the local inflammation.

The principal difficulty in the treatment will be found to consist in removing, at the same time, general imperfect nutrition and debility, together with a local inflammation and the irritability dependent on it.* The dyspeptic symptoms frequently continue throughout the disease, they often become uncontrollable, and the extreme irritability of the mucous membranes is evinced by vomiting, diarrhœa, bronchorrhœa, and laryngitis.

These symptoms with the dyspepsia are frequently to be alleviated by naphtha, when all ordinary means have failed. The boasted good effects of this remedy are I think attributable to its great power of allaying the irritability of the stomach, and thus enabling the patient to take nourishment.†

The imperfect nutrition will be best overcome by an easily digestible and nutritious diet; milk; substances abounding in oleaginous rather than albuminous principles, and an equable warm climate, whereby, in conjunction with the diet, the excess of oxygen in the system may be diminished. In following this second indication, I can now, after four years' employment of it in private as well as in dispensary and hospital practice, strongly recommend cod-liver oil as a most valuable remedy.‡

The local inflammation must be combated by topical blood-letting in the first stages, as leeches and cupping. (Dr Graves as strongly recommended mercury, to cause absorption of the exudation.) In the latter stages, by counter-irritation, especially stimulating embrocations, tartar-emetic ointment, blisters, and the moxa.

It were easy to dilate upon the mode of employing these differ-

* This point has been ably treated by Dr Evans of Dublin.—Lectures on Pulmonary Phthisis.

† I have now given naphtha, first recommended by Dr J. Hastings, to several phthisical cases with great benefit. In three cases at present in my female ward in the infirmary, it immediately checked the vomiting after every other remedy had been found useless. One of these individuals had vomited after every meal, and whenever the cough was urgent, for a period of four months. This symptom ceased after two doses of the following mixture, and she is now improving under nutritious diet and cod liver oil.

℞. *Naphthæ medicinalis,* ♏ss.; *Tr. Card. c.* ℥i; *Aq. Camphoræ,* ℥v. *Mist. Capt.* ♏ss *ter die.*

‡ Large quantities of cod liver oil are now made in Edinburgh and Leith for medicinal purposes, and its consumption is very great. It is of considerable purity, nearly tasteless, and may be procured at all the respectable druggists in this city.

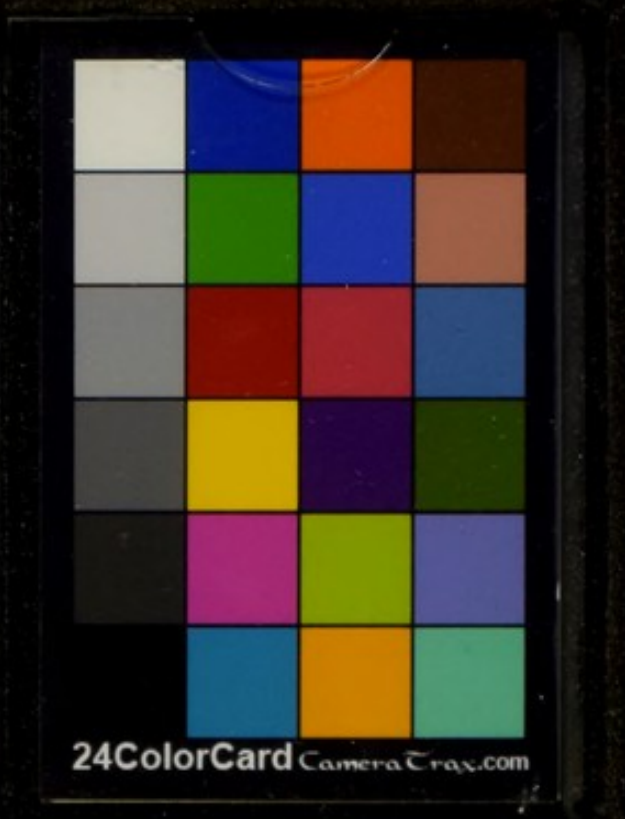
Since the publication of my Treatise on the Therapeutic Properties of this substance, its value in *Phthisis pulmonalis* and *Tinea favosa* therein spoken of, has been confirmed by Dr Peyreyra of Bordeaux. With his experience of its benefit and its general effects, mine entirely coincides. See a little brochure, "*Du Traitement de la Phthisie Pulmonaire, par 'Emile Lt. Peyreyra, Médecin Titulaire de l'Hopital de Bordeaux,*"—a work worthy the perusal of every practical physician.

ent remedies in order to carry out the indications enumerated. Some of course are more valuable than others, and all demand tact and experience, guided by a perfect knowledge of the physical changes which take place in the lungs. The different stages of the disease also will of course require the one or the other indication to be followed with greater activity. But I think experience will prove that whenever treatment has been beneficial in phthisis, it will be found to have occurred from its having, either by design or accident, been so directed as to meet the pathological conditions pointed out. One thing at least is certain that they can never be overcome by a blind adherence to one particular remedy.

I have had numerous opportunities of seeing individuals among the poor population still carrying on their work with large caverns in the lungs. Many of these I have seen improve on entering an hospital, or on the occurrence of circumstances which have bettered their condition. I have collected a few which, under the treatment recommended, have apparently undergone a complete cure. But as a few cases, in a matter of so much importance, are quite inadequate to establish the possibility of cure by therapeutic means, I shall not allude to them at present.

Whatever opinions may be held, however, with respect to the value of the indications and treatment proposed, it will perhaps be conceded that the facts now brought forward are sufficiently important to warrant renewed trials directed to the curative rather than the mere palliative treatment which is now so prevalent.

EDINBURGH: PRINTED BY STARK AND COMPANY,
OLD ASSEMBLY CLOSE.


24ColorCard CameraTrax.com