

On the co-existence of granular disease of the kidneys with pulmonary consumption ; and on the influence of the strumous diathesis in predisposing to renal disease / by Thomas Bevil Peacock, M.D.

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L^r J. H. Bennett (17)
with
J. W. Peacock's kind regards

ON THE
CO-EXISTENCE OF GRANULAR DISEASE OF THE KIDNEYS
WITH PULMONARY CONSUMPTION;

AND ON
THE INFLUENCE OF THE STRUMOUS DIATHESIS IN
PREDISPOSING TO RENAL DISEASE.

BY
THOMAS BEVIL PEACOCK, M.D.,
PHYSICIAN TO THE ROYAL GENERAL DISPENSARY, ALDERSGATE STREET, LONDON.

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GRANULAR DISEASE OF THE KIDNEYS,

&c.

DR BRIGHT, in the notes to his Tabular Statement of the morbid appearances in 100 cases of Granular Disease of the Kidneys, occurring in connection with albuminous urine,¹ has remarked, that "the instances in which phthisis, or any form of scrofulous disease, has been connected with the renal affection, have been decidedly rare, so that in only four cases has recent phthisis developed itself; and what is somewhat remarkable, in more than double that number the disease seems to have made a certain inroad upon the upper lobes of the lungs, and then to have become quiescent, or to have entirely subsided, from which we should perhaps be inclined to infer, that, so far from the diseases being associated, the condition of body, in this form of renal disease, is unfavourable to the existence of phthisis, or certainly that it is not peculiarly apt to occur in scrofulous constitutions." These views have not been confirmed by the experience of other observers. Dr Christison² says, "I have very little hesitation in putting down the scrofulous diathesis among the predisposing causes of granular disorganization of the kidneys. In repeated instances I have been led by the supervention of œdema during phthisis, to examine the qualities of the urine, and, although the result has not been invariable, still, in a great proportion of cases of the kind, the secretion has been found to possess the properties essential to the renal disease. In repeated instances the diagnosis during life has been confirmed by inspection of the body after death. On diverse occasions, too, the kidneys have been discovered on dissection in an advanced state of granular disorganization, when the condition had not been attended to during life, and when, nevertheless, from the state of the urine in the bladder, there could be no question that the pathognomonic characters of the disease might have been detected, had not the attention been withdrawn from them by some urgent symptoms."

¹ Guy's Hospital Reports, vol. i. 1836, p. 381.

² On Granular Degeneration, pp. 112, 113.

Rayer,¹ in alluding to the remarks of Dr Bright above quoted, expresses the concurrence of his experience and views with those of Dr Christison; and states, that he has in repeated instances found the urine become albuminous during the progress of phthisis, with or without the supervention of dropsical symptoms, and has detected, after death, the characteristic renal disorganization. Martin-Solon—though he found the lungs tuberculous in four out of ten dissections of persons who died of granular disease of the kidneys—regards the two affections as only accidentally co-existent.² Dr Osborne, on the other hand, states, that of 36 cases of renal disease with albuminous urine, which had fallen under his notice, four originated in scrofula; and in one of the only two dissections of cases of renal affection producing dropsy, which he relates, the lungs were in an advanced state of tuberculous disease.

These quotations are sufficient to show the difference of sentiment which exists among writers on the Granular Disease of the Kidneys, as to the co-existence of strumous diseases with that affection, and the influence which the scrofulous constitution exerts in its production. The data given in the following paper were collected for my own satisfaction, but, as the question to which they refer is both interesting and important, it is conceived that they may be worthy of publication. The points which I shall endeavour to illustrate, are,—*First*, The frequency of the occurrence of tuberculous affections of the lungs, in conjunction with decided granular disease of the kidneys;—*Secondly*, The relative frequency and importance of the different visceral complications in that affection;—*Thirdly*, The relation as to priority between the granular affection of the kidneys, and the tuberculous disease of the lungs;—and, *Lastly*, The frequency of the granular disorganization as a secondary affection in phthisis, and the influence which it exerts on the progress of the pulmonary disease.

In these inquiries I shall confine myself to the results obtained by dissection,—M. Rayer having shown—as I have myself seen—that the urine becomes more or less albuminous, in certain forms of secondary tuberculous deposition in the kidneys, or mucous membrane of the urinary passages; and hence, that in cases of phthisis, the diagnosis of granular disease of the kidneys from the state of the urine, is liable to fallacy. The data for the determination of these questions, I have drawn from the paper on Diseased Kidneys connected with albuminous urine, by Dr Gregory,³—the work of M. Rayer,—and from a considerable number of unpublished cases ex-

¹ Sur les Maladies des Reins, t. ii. p. 313.

² De l'Albuminurie, p. 238.

³ EDINBURGH MEDICAL AND SURGICAL JOURNAL, vol. xxxvi. 1831, p. 315. I have not included in my analysis the small number of cases reported by Dr Christison, as several are also published by Dr Gregory, and in others the condition of the lungs is not reported.

amined and recorded by myself, in the 7th and 8th volumes of the Register of Dissections of the Royal Infirmary of Edinburgh.

I. In Dr Gregory's paper, are detailed the particulars of 41 examinations of persons in whom decided granular disease was detected after death, and in the majority of whom it had also been diagnosed during life. Of these cases the condition of the lungs is reported in thirty-one, of which eight presented advanced tuberculous disease; and in a ninth case, a few tubercles were found at the apex of one lung. M. Rayer has published the dissections of 45 cases of granular disease, exclusive of those of diseased kidney connected with the dropsy consecutive to scarlet fever, and in all of these the state of the lungs is recorded. Of the 45 cases, 12 presented extensive tuberculous disease in the lungs, and in 5 others there existed fewer recent tubercles in the upper portions. In the Register of Dissections performed by myself at the Royal Infirmary of Edinburgh, in 1842 and 1843, I find recorded the results of examination in 42 cases of decided granular disease—in the larger proportion of which, the affection had been detected during life. In 40 of these cases the condition of the lungs is expressly given; and of these in 6 they were extensively affected with tuberculous deposition, and in 4 others there existed fewer recent crude tubercles.

Placing together these observations, which do not differ more widely than will always be the case in limited series of facts, it results, that of 117 cases of decided granular disease of the kidneys, extensive tuberculous affections of the lungs existed in 26, and a smaller number of tubercles of recent origin in 10 others; or, out of the 117 cases, 36, or nearly one-third (30·7 per cent.), contained more or less extensive and advanced tuberculous deposition in the lungs, a proportion much larger than that already quoted, as deduced by Dr Bright from his table: it must, however, be observed, that, as in 11 of the cases included in his table, the condition of the lungs is not reported, his statement refers to only 89 cases.

II. The relation, however, which exists between the renal and pulmonary affections will be rendered more apparent, by a comparison of the relative frequency of the tuberculous affections of the lungs, to the other diseases of those organs, and of the heart and liver, which occur in the bodies of persons who have died of renal disease.

The cases which I have before analyzed will furnish the data for this comparison.

Of the cases related by Dr Gregory, the condition of the heart is reported in 21, of which 7 only presented decided disease.

In the reports of M. Rayer, the condition of the heart is stated in 43 cases, and of these it was flaccid in 21, and 8 others displayed only some slight degree of enlargement with thickening or opacity of the pericardium or endocardium; so that the instances of decided disease amount to only 14, of which 2 displayed recent false mem-

branes on the pericardium, and 12, more or less extensive hypertrophy, with or without thickening and opacity, or actual disease of the valves. Of my own cases, the state of the heart is expressly reported in 38. It was found healthy in 17, and in 5 other cases the only abnormal condition was slight increase of size, with or without thickening and opacity of the valvular folds of the endocardium; of the remaining 16 cases, in 2 there existed recent pericarditis; in 9 hypertrophy and dilatation of one or both of the ventricles, with, in some cases, thickening and opacity, but no incompetency in the valves; and in one of these cases the organ had also undergone the fatty degeneration: In four cases there existed aggravated valvular disease, and in 1 true aneurism of the septum ventriculorum. Thus, of the 102 cases of granular disease, in which the state of the heart was examined and recorded, that organ was decidedly diseased in only 33, or including the cases of recent pericarditis, in 37, or 36·4 per cent.

The condition of the liver is reported by Dr Gregory in 29 cases, of which number it is stated to have been healthy in 12, and more or less extensively diseased in 17. Of the latter class, however, in several instances there seems to have been only trivial alterations of size or colour; and probably, in not more than 8 or 10 cases did there exist organic disease.

In 40 of M. Rayer's cases, the state of the liver is described. In 13 it was healthy; in 7 others it was only more or less engorged, giving rise to slight alterations of size or colour; and in two cases the peritoneal surface was covered by recent lymph, though the texture of the organ was healthy. It thus appears, that not more than 18 cases presented important changes. In 7 of these, there existed marked increase of density in the organ, with or without alteration of size and colour; in 3, there was great enlargement; in 3, cirrhosis; in 3, the organ was fatty; and in 1 it contained tubercle. In one case, the nature of the disease is not stated.

In the cases taken from the Register of Dissections at the Edinburgh Infirmary, the condition of the liver is reported in 30. In 11 it is stated to have been found healthy; in 10 others the only alterations were dependent on the degree of engorgement from external causes, combined in 3 cases with thickening, opacity, or adhesions of the peritoneal coat; and in an 11th case, while the substance of the organ was healthy, the serous covering had been implicated in general peritonitis; so that the viscus was organically diseased in only 8 cases, of which 5 were instances of adipose degeneration, with greater or less enlargement; in 2 the organ contained tubercles, and in one there existed early cirrhosis.

The liver was, therefore, organically diseased in 36 of the 99 cases examined, or in 36·3 per cent.

The lungs were examined and reported in 31 of Dr Gregory's cases, of which 22 displayed different forms of disease, and 8 were decidedly, and one slightly, affected with tuberculous deposition.

M. Rayer found both lungs entirely healthy in only 4 cases, out of the 45 which he has reported. In 8 others, however, the only change was more or less decided congestion, dependant on the mode of death or compression from pleuritic effusions, so that the cases of actual disease amount to only 33, and of these the lungs were inflamed and hepatized in 7 cases; the mucous membrane of the bronchi was injected, and the tubes contained much secretion in 9; there existed extensive tuberculous disease in 12, and a few recent tubercles in 5 others.

Lastly, of the 41 of my own cases in which the condition of the lungs is recorded, they were found entirely healthy in 2, and in 10 others presented only compression from pleuritic effusions, or slight degrees of congestion, œdema, or emphysema; and in one the tubes and cells contained blood, from the bursting of an aneurism. There remain, therefore, only 29 cases of decided disease; in 10 of which there existed pneumonic consolidation; in 9, injection of the mucous membrane of the bronchi, and much muco-purulent fluid in the tubes, with considerable congestion or œdema; and in 6, extensive, and in 4 others slighter, tuberculous disease.

Therefore, of 117 cases in which the lungs were examined, 84 presented different forms of disease, or 71·8 per cent., and 36, or 30·7 per cent. more or less extensive tuberculous disease.

It thus appears that

			Per cent.
The heart was examined in	102 cases, and found diseased in	37, or	36·4
The liver	" 99	"	36, or 36·6
The lungs	" 117	"	84, or 71·8
		Phthisical in	36, or 30·7

Or otherwise, that the diseases of the heart and liver were of equal frequency, and occurred in about one-third of the cases; while the lungs were affected in different ways in two-thirds of the cases, and were tuberculous in nearly one-half of these, or in scarcely a less proportion than the whole of the several affections of the heart and liver. This very large proportion afforded by the tuberculous diseases of the lungs, in so considerable a number of cases, can, I conceive, scarcely be regarded as accidental, and renders the conclusion almost necessary, that the causes predisposing to the renal and pulmonary affections are closely allied.

III. It might, indeed, be supposed, that the tuberculous deposition in the lungs is secondary to the renal disorder, being superinduced by the consequent depravation of the constitution, as we find to be frequently the case in chronic visceral diseases. There seems, however, every reason to believe, that tuberculous affections of the lungs are very rarely secondary to the granular disorganization of the kidney. Dr Christison states, that he has not met with a single instance in which this appeared to have happened; and M. Rayer, while he states that such cases occasionally occur, yet admits their extreme rarity. On referring to the notes of nine of my own obser-

vations, in which phthisical and granular disease co-existed, and in which the condition of the kidneys and lungs is fully described, I find that in one case the affection of the kidney was unequivocally primary and predominant;—the kidneys were externally of a pale yellow colour and irregular shape, and internally they presented an extensive small granular deposit in the cortical portion, and between the tubuli, entirely replacing the natural striated texture; while the lungs only contained a small number of grey tubercles in the upper lobes. In a second instance, in which the patient was cut off by an attack of acute pericarditis, the kidneys were found in an advanced state of disease; their cortical portions being infiltrated with a whitish coloured deposit, interspersed with small yellowish tubercular bodies, while the disease of the lungs was in an early stage—those organs containing only a moderate deposit of yellow and grey tubercles, chiefly in the upper lobes.

In two other cases, the renal was more advanced than the pulmonary disease; but in these the visceral affections were apparently secondary;—in one case, to caries of the tarsus, for which a partial amputation of the foot had been performed; and in the other, to a venereal taint in the constitution,—the osseous system being throughout extensively diseased.

In a fifth case, there existed advanced granular disorganization, the kidneys presenting a mottled surface, and, on section, being found to contain a copious granular deposit in the striated portion; while the lungs contained old and recent tuberculous disease, in the form of cretaceous masses in the upper lobes and bronchial glands, mixed with yellow and grey tubercle in the crude state; so that the respective dates of the pulmonary and renal affections are doubtful.

In the remaining four cases, the pulmonary disease was evidently primary. The disorganization was in all extensive, and the tubercle had softened, giving rise to caverns in one or both lungs. And lastly, in four other cases, not previously referred to, there existed renal disease in a recent stage, in conjunction with advanced tuberculous disease of the lungs.

It appears, therefore, that of thirteen cases out of fourteen—the whole of those in which more or less decided tuberculous disease of the lungs, and granular disorganization of the kidneys, co-existed—the priority of the affections was doubtful in one; in two, the disease of both viscera was secondary to other chronic affections; and in one, or perhaps two, the disease of the kidneys was the primary affection; while in eight cases, the lungs were obviously diseased, primarily and predominantly.

That the lungs should in the renal disease be less frequently the seat of secondary tuberculous affections than in most other chronic diseases, may probably be ascribed to the frequency with which those labouring under the affection are cut off by the supervention of acute inflammatory action in the several viscera or serous mem-

branes. It is not improbable that the different results obtained by Dr Bright from the cases which he has analysed, and those of other observers, confirmed by the facts I have brought forward, may be ascribed to his having included in his table only such cases as had presented predominant signs of renal disease during life, and in which the tubercular disorganization was consequently only secondary, and not the whole of the cases in which decided granular disease was found on examination after death. The importance, however, which he attaches to the occurrence in some of his cases of tubercles of old date, and in a quiescent state, in the upper lobes of the lungs, as evincing that the existence of granular disease is unfavourable to the progress of phthisis, is, I venture to suggest, founded on a misapprehension of the frequency of the occurrence of these bodies in the lungs of persons who die, from whatever cause, in the middle or after periods of life,—a frequency which the observations of MM. Rogée and Boudet in Paris, and of Dr J. H. Bennett in Edinburgh, show to be greater than would be anticipated by those whose attention has not been specially directed to the subject. The former¹ found cretaceous masses in the lungs in 51 out of 100 persons examined, and in 16 they were numerous, and of considerable size. M. Boudet,² in 116 persons between 15 and 76 years of age, met with tubercles in the lungs, altogether free from recent action, in 61; and Dr Bennett³ in 16 out of 73 examinations. It cannot, therefore, be matter of surprise, that these bodies—regarded by these writers, as well as previously by Drs Home and Carswell, as affording decisive evidence of the curability of phthisis—should have occurred in seven or eight cases of granular disease, out of the 89 reported by Dr Bright. The ages of only four of those in whom they were found are stated in his table; but all these are at periods of life at which the tuberculous bodies, more or less completely transformed into cretaceous matter, are of constant occurrence.

In addition to the evidence that the strumous diathesis powerfully predisposes to the development of the granular disease of the kidneys, founded on the much greater frequency of tuberculous disorganization of the lungs, than of any other single form of visceral affection in the bodies of those who exhibit decided renal disease, whether primary or secondary, still further proof of its influence is afforded, by other affections with which the renal disease is often combined. Thus I find of the cases where the lungs were free from tubercle, one patient laboured under strumous ulcers; a second, under chronic peritonitis, and the peritoneum was studded with small granular tuberculoid masses of lymph; in a third, there ex-

¹ C. Rogée, *Archives Générales de Médecine*, 3 série, t. v, p. 191.

² *Comptes Rendus*, t. xvi. 1843, p. 143.

³ *Ed. Med. and Surg. Journal*, 1845, April.

isted circumscribed peritoneal and pleuritic abscesses, bounded by fibro-cartilaginous false membranes, and containing sero-purulent fluid mixed with caseous matter; in a fourth case, the sternum and ribs were carious, and had given rise to extensive abscesses, and other instances of the same kind might be quoted. In several of the cases also in which the lungs were pneumonic, the appearance of the consolidated portions was different from that of ordinary hepatization. They were unusually firm, exuded very little fluid on compression, were of a pale buff colour, very distinctly granular when torn, and presented a condition which might be regarded as intermediate between the pneumonic condensation and tuberculous infiltration.

In conclusion, we have seen that pulmonary consumption very frequently co-exists with the granular disorganization of the kidneys, and that, so far from being an accidental complication, supervening during the last stages of that affection, the pulmonary usually precedes the renal disease. We have also found that in cases where the lungs are healthy, there frequently exist other proofs of the tuberculous diathesis, and we can, therefore, scarcely withhold the conclusion, that this constitution very powerfully predisposes to the renal disorganization. The diseases dependant on the scrofulous constitution being most frequent during infancy and adolescence, it follows, that, at these periods, the renal and strumous affections should most generally coexist. This inference is confirmed, so far as relates to the coincidence of phthisis and renal disease, by the analysis of the cases before referred to. Of the 116 persons whose ages are given, 22 are stated to have been of 25 years of age and under, and of these 10, or nearly one-half (45.4 per 100), presented more or less extensive and advanced tuberculous disease of the lungs; while of the remaining 94, 25 only, or rather more than a fourth (26.5 per 100), were similarly affected. That the connection between the comparatively few cases of granular disease of the kidneys, occurring during early life, and the strumous diathesis, is so invariable as supposed by Dr Christison, may perhaps be more doubtful.

IV. The 10 cases of more or less advanced granular disease, in which the renal was evidently secondary to the pulmonary affection, occurred out of 59 cases of phthisis, in which the condition of the kidneys is expressly noted, being thus in the proportion of one sixth, or 116.7 per cent. Of 40 cases of consumption examined and recorded by my predecessor, Professor Reid, of which I possess abstracts, there were 6 in which disease of the kidneys was diagnosed during life, and found to exist after death; and in 4 other cases, in which the condition of the urine does not appear to have been investigated during life, the organs were found decidedly granular;—being thus one-fourth of those examined. In several of the cases examined, both by Dr Reid and myself, the condition of the kidneys was doubtful. Dr Home, in his *Statistical and Pathological Report*

gate glands in the intestines were tuberculous, and the mucous membrane more or less extensively ulcerated, and in one of these there was also recent peritonitis, though no perforation of the canal was detected.

In one case, there was extensive ramollissement of the central parts of the brain, connected with paralysis, first affecting the right side of the body, and subsequently both sides.

In one case, there was disease of the mitral valve, with hypertrophy, and dilatation of the heart.

In 6 cases, the serous sacs contained more or less fluid, and the cellular membrane was cedematous.

In 2 or 3 cases, the fatal event was ushered in by delirium and coma, and might be regarded as directly resulting from the imperfect performance of the functions of the kidneys.

We see, therefore, that the supervention of the renal disease during the progress of pulmonary consumption, both by the great liability which it induces to inflammation of the parenchymatous viscera and serous sacs, and also by the direct effect of the elements of the retained renal secretion, tends very materially to add to the severity, and hasten the progress of the pulmonary disease.

The proportion of cases of phthisis in which the renal complication occurs, appears, at first sight, to associate that change with the fatty degeneration of the liver, which, from M. Louis' statement, occurs in France in about one-fourth of the cases, or in 40 out of 120. That the latter affection can only be regarded as accidental, is, however, shown by its very much less frequent occurrence in this country:—thus, in the cases of phthisis examined by Dr Reid, of which I possess notes, the liver is reported to have been fatty in only 5 out of 35 cases, and in my own cases, in only 8 out of 63. Further investigations have also shown, that though, as observed by MM. Louis and Bizot, it is most frequently found in persons who have died of phthisis, and in females, it also occurs in those who have sunk from other chronic diseases, and in both sexes. The renal disease would indeed appear in this country to exert some influence over the fatty degeneration of the liver occurring in phthisis, as of the 8 cases in which that change had taken place, 5 were cases of renal complication, and in one of the remaining 3, the condition of the kidneys is not stated.