REMARKS on RENAL CIRRHOSIS,

as met with in a

South Wales Colliery Practice.

THESIS,

for the degree of Doctor of Medicine

by

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CONTENTS.

Introductory Remarks, pages, 1 - 5.

Illustrative Cases, 5 - 21.

Analysis of ditto, 21 - 28.

Prognosis, 28.

Treatment, 28. - 32.

Pathology, 32. - 37.
INTRODUCTORY REMARKS.

During the last seventeen years I have been engaged in general practice in the South Wales coalfield and during that time, have often been struck with the large number of cases presenting uraemic symptoms which have come under my personal observation. Most of these cases have given rise to but little difficulty in diagnosis, nevertheless many have been of an obscure nature and their symptoms of a "masked" or "latent" type. The comparative frequency of the latter class of cases has led me to the conclusion that the work, diet and habits of the typical Welsh Collier are important factors in predisposing him to the more insidious forms of renal disease to which I specially desire to draw attention.

The conditions under which the Collier works.

In the Steemcoal districts the Collier has to work for at least fifty-four hours per week underground, and is here exposed to extremes of heat and cold, and not infrequently to the effects of water dropping upon him from the roof of the mine and since he is generally working in a stooping posture it necessarily follows that his loins are exposed to the effects of moisture for considerable periods
of time.

In the more carefully conducted Colliers the underground roads are regularly sprayed with water with the object of diminishing the risk of explosions from coal dust.

The Collier, therefore, works hard in a moist and warm atmosphere, and on leaving his work, has often to wait for the "cage" (lift) at the bottom of the shaft where he is, of necessity, exposed to a strong blast of cold air, and on reaching the surface, the large majority of the men do not think of changing their clothes but simply loll about anywhere for hours.

There is I think, no doubt that these factors must be very detrimental to his general health, and in my opinion, the evil effects produced would be most liable to fall upon the kidneys, especially as these organs have to perform more than their usual amount of work, since the skin of the average collier is of comparatively little service in removing the waste products from the body.

In this connection, I may draw attention to the persistency with which coal dust sticks into the pores of the skin, and to the fact that the dust of the Welsh steam coal is much finer, harder and more penetrating than that of ordinary bituminous coal, and consequently, more detrimental to the skin in the performance of its ordinary functions.
Climate.

The rainfall in South Wales generally is a heavy one, and the number of rainy days very considerable, and the collier takes practically no notice of being wet through.

Personal Cleanliness.

In the matter of personal cleanliness, the collier as met with in South Wales, has peculiar opinions as to the value of hot and cold baths and after lounging about in his pit clothes, which are generally damp, he often takes a partial warm bath but scarcely ever wets his back as he firmly believes that by so doing he would weaken his back muscles.

About once in every two or three weeks he waives this objection and washes the whole of his body. In all my experience, I have met with only one collier who ventured to take a cold bath after finishing his day’s work.

Housing.

The housing of the Collier has, in my opinion, a detrimental effect on his health, the houses being usually badly built, damp, overcrowded and ill-drained, and the atmosphere often very foul. It is therefore, not surprising that anaemia is so common. Another very common symptom among colliers is constipation.
Diet.

As to diet, the collier as a rule is badly nourished though he spends a fair amount on food, the women being usually bad cooks and having no notion of making the best of what they buy. As to alcoholic drinks, the Welsh collier indulges pretty freely, but chiefly in beer. When one considers the conditions under which he works, his habits and the other factors mentioned, it is not a matter for surprise that he is especially liable to Kidney mischief and that this is often of a latent character and therefore that one is liable to overlook the cause of his illness.

In all cases of doubt, I always make it a practice to examine the urine and to enquire about the frequency of micturition, for by these means one may often get at the cause of the symptoms. I have lately had the opportunity of seeing several post mortem specimens of renal cirrhosis in which the symptoms during life have been vague and misleading and there is no doubt in my mind that insidious renal disease is far more frequent, at least in this district, than is generally supposed.

In most of these cases there has been no history of alcohol, of scarlet fever, or other definitely recognised cause, and therefore I am strongly of the opinion that some of the above mentioned factors have probably acted as predisposing or even exciting
agents.
The importance of these cases from the point of view of diagnosis and, therefore, of prognosis and treatment cannot be over-estimated, as the diagnosis may be most difficult, the prognosis very uncertain and the treatment prescribed even dangerous, as I have known small doses of opium given for the relief of certain symptoms to be followed by alarming results.

To these points I shall draw attention later on, after first giving a brief record of a few cases which have come under my observation during the last few years.

CASES.

Case 1. D.B., collier aged fifty-seven years came under my observation November 2nd, 1890 complaining of cough, shortness of breath and vague muscular pains in his lower limbs with occasional slight frontal headache and constipation.

Family history was negative.

He had never suffered from any previous illness until two years ago, when his health commenced to fail. He had been and was a heavy drinker and an excessive smoker.
He had been able to continue his work underground up to the date of seeing me, when he became too ill to follow his employment.

An examination of his lungs revealed nothing abnormal except a mild degree of bronchitis.

The heart showed a slight hypertrophy of the left ventricle, but the cardiac sounds were normal.

The pulse was regular and incompressible. The radial and temporal arteries were much thickened, rolling under the finger like pieces of whipcord.

The tongue was flabby and covered with a dirty brown fur. There was no sickness. The abdominal organs were normal.

Micturition was not increased in frequency and the patient had no necessity to get up at night to pass water. The urine was pale, free from deposits, specific gravity 1.018, and contained no albumen. There were no retinal changes.

**Subsequent Course.**

The patient's strength gradually failed, the dyspnœa became more marked, but its increase was independent of any cardiac or pulmonary changes, as the heart and lungs remained in statu quo.

Within a few weeks frequency of micturition came on and the patient had to get up two or three times during the night to pass water.
The urine remained pale and its specific gravity fell to 1.013 while its quantity increased and it contained a distinct though variable trace of albumen. This man was under treatment for twelve months, remaining in much the same state until twitchings of the right side of the face and of the right arm appeared and continued for four hours, when sudden coma set in, which deepened rapidly and caused death in six hours. No post mortem examination could be obtained.

Points of interest.

(1). The marked dyspnoea and the mildness of the other symptoms.

(2). The negative condition of the urine at first.

(3). The Cardio-vascular changes which aroused suspicion.

(4). The subsequent course of the case which confirmed the diagnosis.

(5). The unilateral twitchings of the arm and face.

(6). The abrupt onset of the characteristic uraemic symptoms.

Case II. H.W. sixty-four years of age came under my observation early in March 1895, complaining of severe occipital head-
ache which came on every morning and lasted for several hours.
He also complained of severe attacks of shortness of breath.
The family history was good and the patient’s habits were temperate. He gave no history of any previous illness and was quite well until five years ago, when he began to complain of the onset of the above mentioned symptoms which became more pronounced until he was forced to give up his work.
On examination of the lungs nothing abnormal was found except a few rhonchi at both bases.
The apex beat of the heart was felt in the sixth intercostal space, one-fourth of an inch to the left of the nipple line, where a soft systolic murmur was heard, which could be traced almost to the angle of the scapula.
The pulse was regular and incompressible.
The arteries were thickened and tortuous. There were no digestive disorders. The tongue was clean.
On enquiry, there was nocturnal frequency of micturition and the patient said that he passed large quantities of urine, but had only been doing this for the last few months. The urine was pale, specific gravity 1010, free from deposits and casts and showed a slight trace of albumen.
Subsequent Course:–

The Patient had three attacks of epistaxis within the next two months, the third one being so severe that it necessitated the plugging of the posterior nares.

He was under treatment for eighteen months, the symptoms remaining much the same, except that the urine contained more albumen, which increased to one-tenth when coma gradually set in, the patient dying in two days from its onset.

Points of interest.

(1). The marked dyspnoea which could not be accounted for by the comparatively slight pulmonary and cardiac changes.

(2) The duration – six and a half years – which emphasises the insidiousness of many of these cases.

(3). The attacks of epistaxis which may probably have had an important influence in warding off the coma, at least for a time.

Case III. T.R. collier aged 76 years came under my observation in January 1899, complaining of headache, diarrhoea and shortness of breath. Up to the time of the present illness he had always
enjoyed good health.

He was a man of very abstemious habits being in fact a miser.

On examination the lungs were normal. The apex beat of the heart was felt in the sixth intercostal space just outside the nipple line. The heart sounds were normal. The pulse was slightly irregular and the arteries thickened and rigid. There were no abdominal symptoms except the diarrhoea.

Micturition was not increased in frequency. The urine was moderate in quantity, pale, its specific gravity 1010, and showed a slight trace of albumen which was very variable and on some days entirely absent.

Subsequent Course:

Within three months, symptoms of dilatation of the left ventricle and failure of the mitral valve made their appearance, viz: a mitral regurgitant murmur, more marked dyspnœa and oedema of the lower limbs. The diarrhoea, which formerly had been very troublesome at times, became gradually more marked and persistent and was occasionally accompanied by vomiting.

The urine remained the same except that the albumen was constant in its appearance.

The patient was under treatment for eighteen months
until abrupt coma supervened without convulsions, leading to death in twenty hours.

Points of Interest:-

(1). The man’s age.
(2). His miserly habits.
(3). The diarrhoea.
(4). The cardiac aspects of the case.
(5). The slight urinary changes.

Case IV. D.D. Tinplate worker, aged forty-seven years came under observation October 8th. 1896 for sudden severe vomiting and occipital headache. His previous health up to eighteen months ago had been good, but then he began to complain of indigestion and shortness of breath, which symptoms, however, were of so mild a character that the patient did not deem it necessary to consult any medical man. He was of temperate habits. On examination the lungs were normal. The heart’s impulse was heaving in character and situated in the sixth intercostal space \( \frac{1}{2} \) of an inch to the left of the nipple line. The first sound was dull and booming and the second was accentuated at the base of the heart. The pulse was regu-
lar, full and somewhat incompressible. The tongue was coated with a dirty brown fur and the breath was very foul with a strong ammonical odour.

There was nothing special about the vomited matters. The bowels were constipated, but nothing abnormal was detected in the abdominal organs that might account for the severe vomiting. The urine was pale, specific gravity 1012 and contained a trace of albumen but no casts.

Subsequent Course:

The severe and incessant vomiting resisted all treatment and the headache persisted till convulsions set in on the 7th. day. He had twelve seizures within three hours, with only slight intervals of a few minutes during which he was partially conscious, he finally became comatose and died within twelve hours.

Points of Interest:

(1). The very abrupt onset of symptoms.
(2). The rapid coma.
(3). The ammoniacal odour of the breath.
(4). The severity of the convulsions.

Case V. R.M. collier aged 60 years came under
13.

Observation, September 15th, 1899, when I was informed that he had had a "fit".

He had always been in good health except that he was ill with enteric fever fifteen years ago, and he was of strictly temperate habits.

His wife informed me that she had noticed lately failure of his memory and that he got up about four times during the night to pass water, but otherwise he appeared in his usual health. He went to work that morning and was brought home in what was said to be a "fit".

On seeing me, he gave a sign of recognition, but was unable to speak.

The right arm was paralysed, but there was no paresis of the face or legs and there was no lateral deviation of the tongue.

The pupils were equal but much dilated.

The temperature was 101°.5 F.

The tongue was very foul and coated with a creamy yellow fur and the breath had a strong ammoniacal odour. The bowels were constipated, but there was no vomiting.

Examination of the lungs negative.

The apex beat of the heart was felt in the sixth intercostal space $\frac{3}{4}$ of an inch outside the nipple line.

The pulse was 90, regular, full and incompressible.

The radial and temporal arteries were tortuous.
The urine was acid, specific gravity 1020, amber coloured, showed no deposits and contained \( \frac{1}{10} \) albumen. No casts were found.

Subsequent Course:

The paralysis of the arm disappeared within four days and was replaced by violent irregular jerkings and at the same time both sides of the face commenced to twitch, but the reflexes were normal, and the patient became maniacal. He micturated and defaecated in bed or persisted in performing these functions anywhere about the room although he evidently knew quite well when it was necessary to perform these actions.

He was excessively restless and excited and most unmanageable in his behaviour especially at night. During the next seven days the twitchings of the face and arms increased and also the restlessness. The urine was ample in quantity and showed only a slight trace of albumen daily, and its specific gravity fell to 1010 and its colour became paler.

Three days afterwards the excitement and twitchings gradually ceased and the patient fell into a comatose state which was fatal within three days, and he died on October 2nd after an illness of seventeen days.

Points of Interest:
(1). The slightness of the premonitory symptoms, and the abrupt commencement of the serious ones.

(2). The localised paralysis with aphasia.

(3). The mental excitement.

Case VI. M.L. Female aged 53, married, came under observation in December 1900 complaining of general weakness and shortness of breath with persistent vomiting but was still able to perform her usual household duties.

Her previous health had been good until five months ago when she first complained of the above symptoms.

The vomiting commenced quite suddenly and was very persistent and occurred several times a day; there was also a more or less continuous occipital headache.

The arteries were thickened.

The heart's apex beat was felt in the sixth interspace \( \frac{1}{2} \) inch outside the left nipple line.

The urine was clear, specific gravity 1012 containing a trace of albumen and a few hyaline casts.

In about three weeks twitchings of both sides of the face set in and in a few
days afterwards there was paralysis of the right arm and leg and of the left side of the face and aphasia. She became comatose on January 1st, and died within two days.

Points of Interest:—
The crossed paralysis is a striking feature in this case.

Case VII. E. D. female aged 56, came under observation September 1900 complaining of weakness, severe retching and of nausea and vomiting on any attempt to eat. Her previous health had been very good until six months ago, when she first commenced to feel weak and languid and loss of appetite and nausea gradually set in and increased until she could keep nothing down. Her habits were strictly temperate. Examination of the lungs showed dulness at left base and some ounces of fluid were removed without, however, any relief to her symptoms. The bowels were very constipated; there was no abdominal pain or tenderness and no headache. The pulse was small and rather incompressible, and the heart apparently healthy.
The urine was pale, of low specific gravity and contained a faint but variable trace of albumen but no casts.

In three week's time, without any change of symptoms, headache came on and the patient gradually became comatose with an intermittent pulse and died within a few hours with a temperature of 106°F.

Points of Interest:-

(1). The persistent vomiting and nausea.

(2). The difficulty of diagnosis at its commencement.

Case VIII. R.D. Workman, aged 57 years came under observation September 1901 complaining of feeling weak and out of sorts with loss of energy and depression of spirits. He had always been a hardworking temperate man and in the same employ for nearly forty years.

He was quite well until a few months ago, when he first began to feel weak and greatly troubled with sleeplessness. He was a very stout man and naturally energetic and had absolutely no worry being in a comparatively good position and so was greatly distressed at what he thought to be his own laziness.
His appetite was good; he had not lost flesh and had no headache.

An examination was entirely negative.

The urine, on careful and repeated testing was found to contain occasionally a variable trace of albumen; its specific gravity was 1009; it was pale in color and large in quantity though he did not complain of any increased frequency of micturition; no casts were found.

The urea was markedly diminished in amount.

**Subsequent Course:**

The patient is still alive and in much the same condition.

**Points of Interest:**

(1). The loss of energy and "sleeplessness".

(2). The importance of a complete examination of the urine in such vague cases when the symptoms, apart from that, are so entirely negative in character.

(3). The possible danger of prescribing opium for "sleeplessness" which was such a marked and distressing symptom in this case.

**Case IX.** A. B. female aged 24 came under observation in December 1901 for convulsions. She was three months pregnant and
had previously been apparently quite well. She was a great spirit drinker and of rather dissolute habits.

The convulsions came on quite suddenly without any previous symptoms and were of an epileptic character. When seen she was in a comatose condition.

The convulsions persisted for eight hours until death, the patient in fact being in a condition of "status epilepticus".

The uterus was cleared out at once but with no good effect.

Post Mortem examination showed all the organs healthy except some hypertrophy of the left ventricle, but both kidneys were highly cirrhotic - they were small and the capsule stripped with great difficulty, the cortex was narrowed and the renal substance exceedingly tough.

Points of Interest:–

(1). The latency of the symptoms until the woman became three months pregnant.

(2). The rapid and sudden onset of the "status epilepticus".

Case X. This is a case which I did not see during life but the organs of which I have had the opportunity of seeing and which I men-
tion here as one of interest in its bearing on the question of uræmia.

P.W. male, aged 58 years, publican, 5 ft. 7 in: in height and weighing fifteen stones.
The patient was quite healthy, till December 7th, 1898 when he complained of loss of flesh (two stones) thirst and the passing of an excessive quantity of urine.

On examination, the urine was found to contain a considerable quantity of sugar.

He was treated for this condition until July 1900 when the sugar had disappeared and the patient had regained his usual health.

On January 3rd, 1901 he came under observation again for pain in the right loin and haematuria.

The blood in the urine increased with the pain until April the 5th. when without any change in the symptoms, suppression of urine set in and was complete, not a drop being found in the bladder on using a catheter.

The pain continued but no other symptom was present except that of asthenia, there being absolutely no uræmic symptoms of any kind. He died suddenly on the third day, of total suppression.

Post Mortem:

The ureter of the right kidney was found to be blocked by a large stone weighing one hundred and nine grains, which had ap-
parently been present for some time. The ureter of the left kidney was also blocked by a stone weighing four grains.

Points of Interest:

(1). The total suppression of urine.

(2). The sudden supervention of suppression, without any alteration in the symptoms complained of.

(3). The total absence of ordinary uraemic symptoms.

Analysis of the above Cases.

The following important clinical points are shown by these records.

(a). Age. This ranged from twenty-four to seventy-six years. Omitting Case 9, in which pregnancy existed, I find that the average age of the cases cited by me is fifty-eight years.

(b). Possible Causes.

(1). Alcohol. Omitting Case 10, which is not a case of cirrhosis of the kidneys but is quoted in reference to the pathology of uraemia, I find that Case 1 indulged heavily in beer but not in whiskey or any spirits.

Case 2 was strictly temperate.

Case 3 was strictly temperate (miser).

Case 4 was almost a total abstainer.
Case 5 was strictly temperate.
Case 6 was a drinker of spirits.
Case 7 was strictly temperate.
Case 8 was temperate.
Case 9 was decidedly intemperate (spirits).

Therefore out of these nine cases only two were spirit drinkers and the majority were strictly temperate. I may say that in my experience among colliers suffering from cirrhosis of the kidneys I have been quite unable to convince myself that alcohol acted as a predisposing cause.

(2). Scarlet fever. There was no evidence of the influence of this in any of my cases.

(3). Food. Some of these patients had very poor food and in none of the cases could I find evidence of over-indulgence in eating, though I should like to lay stress on the point that the colliers as a class are heavy meat eaters and that the meat is generally improperly cooked. As their wages are very good compared to other classes of working-men (the average exceeding 10/- per diem), the collier is able to afford plenty of meat.

(4). Habits and environments. In my opening remarks (pp. I-V) I have already referred to these and I have a strong conviction that the conditions under which he works are efficient predisposing and even exciting causes
of cirrhosis of the kidneys.

The difficulties of diagnosis,
(1). As to the urine.
Too much dependence cannot be placed upon this;
In Cases 1 and 3 the urine at first was frequently negative in character and normal in amount,
Casts are frequently absent.
The history of the above cases shows the necessity of repeated examination of the urine as to its specific gravity, quantity and presence of albumen.
The absence of albumen does not by any means negative renal cirrhosis, for albuminuria is a very variable symptom; it may be absent for days together and when present, the amount may be but a mere trace, unless some tubal complication supervenes, and again albuminuria may not appear until the heart begins to fail when it is due simply to the cardiac complication. When however marked changes in the urine are present the diagnosis is comparatively easy. If suspicious of renal cirrhosis particular inquiries should be made as to the frequency of micturition especially at night, for nocturnal frequency is a symptom which often attracts the notice of the patient.
It is most important to measure the amount of daily excretion and its specific gravity, but it is to be borne in mind that alteration of these may
occur from complications such as cardiac disease and parenchymatous nephritis.

Another important point in doubtful cases is to estimate the daily excretion of urea. In doing this, "the daily" excretion of urea should be estimated, as the examination of a single specimen may be fallacious, as it may shew a diminished percentage, although the total daily quantity passed may be normal.

(2). As to the cardio-vascular changes.

These often lead to suspicion, even though no changes in the urine may be found, and indeed, Case 3 had a cardiac aspect. However, some of my cases shewed no cardio-vascular changes.

The cardio-vascular changes when present are of much diagnostic significance, but their absence does not by any means negative the existence of renal cirrhosis, for I have met with several cases in which the pulse has been quite compressible and the heart has shewn no changes, and yet, the kidneys have been distinctly cirrhotic. In some cases, as is well known, the cardiac hypertrophy is very excessive. It is difficult to say why in most of these cases the cardiac hypertrophy should be so marked, while
in some others, although the renal changes may be present, there are little or no cardio-vascular effects.

(3). As to the course of the case.
This may be very rapid, e.g. Case 4, or very insidious and prolonged, e.g. Case 2, which lasted six and a half years.
In some, the actual serious symptoms set in quite abruptly without apparent cause.
The variable course of these cases presents great difficulties in giving a prognosis and also in arriving at a conclusion in regard to the effects of certain lines of treatment.

(4). The vagueness and the latency of the symptoms.
In some cases these render the diagnosis a difficult matter until the rapid onset of characteristic symptoms clears up any doubt as to the nature of the case vide Case 7 p 16.

(5). Dyspnoea was very marked in cases 1 and 2.
This, in the absence of heart and lung affections, should arouse suspicion of kidney trouble.

(6). Nervous Symptoms.
In some of the cases the nervous symptoms
were coma of a sudden onset vide cases 1 and 3; in one case (No. 9) there were convulsions only; in another convulsions were followed by coma - case 4; in case 5 mania was a prominent symptom; insomnia was the only nervous symptom in Case 8; unilateral twitchings of the right arm and of the right side of the face were present in case 1. In case 5 there was localised palsy - the right arm being paralysed.

In case 6 there was crossed paralysis (right arm and leg and left side of the face) with asphasia - a symptom very difficult to explain, as it would in itself suggest a lesion in the upper part of the pons varolii, but in this particular case there was nothing else to support such a diagnosis and everything pointed to the symptom being due to the uraemia.

(7). The Digestive System.

In case No. 7 vomiting was very persistent and the case was of very vague character, there being for a time a suggestion of gastritis.

In case No. 3 the diarrhoea was persistent and troublesome. In cases 4 and 5, the ammoniacal odour of the breath drew my attention to the possibility of renal mischief being the cause of the symptoms.

The above short analysis shows the difficulties of diagnosis, the variability of the symptoms
and also how vague and misleading such cases often are.

The importance of a complete and frequently repeated examination of the urine in vague cases cannot be over-estimated, and in all the range of Medicine, there is, I believe, nothing in which so many mistakes are made as in the diagnosis of renal cirrhosis, and a correct diagnosis is most important from the point of view of prognosis and especially so, as I shall point out later, in reference to the administration of opiates.

When I see a man forty to seventy years of age, and especially one between fifty and sixty, complaining of loss of energy, possibly of dyspnœa and other vague symptoms which cannot be explained by examination of the heart, lungs etc., I now always think of the kidneys and the possibility of renal cirrhosis, and make a complete examination of the urine after enquiry as to the frequency of micturition and am not content with one examination, but repeat it, measure its quantity and specific gravity, and even when all these are found to be little altered, I always bear the possibility in mind, and I think that one cannot err by being on the safe side.

In this connection it is to be remembered that when a patient presents himself with certain symptoms pointing to cardiac disease, the
possibility of renal disease being the primary factor in the case must not be over-looked and a careful enquiry into the history may often arouse one's suspicion as to the true nature of the case.

**PROGNOSIS.**

The prognosis depends upon the following factors:

(1). The conditions of life, diet, etc.

(2). The condition of the urine, especially if scanty, indicating heart complications. The prognosis does not necessarily depend upon the amount of albumen, as these cases are frequently complicated with acute tubular nephritis.

(3). The prognosis depends upon the presence or absence of well marked uræmic manifestations, such as nervous symptoms.

(4). Finally, the prognosis will depend upon the degree and character of any heart complication, such as heart failure - dilatation and dropsy, etc. supervening.

**TREATMENT.**

Little can be done in cases with acute uræmic symptoms. It is a question if anything can be done earlier.

The disease itself has no tendency towards recovery, but on the other hand, its tendency is to get
gradually worse and for sudden serious symptoms of a uraemic nature to appear.

It is also to be remembered that parenchymatous nephritis is apt to supervene in the diseased organ. The principles of treatment are then, to minimise the work of the kidneys and treat complications:

(a). By attention to diet and so reducing the amount of excretory products.

(b). To promote excretion through other channels such as the skin and bowel.

(c). If possible, by certain means such as putting the patient under good hygienic conditions of work, to strengthen the system and aid in the complete oxidation of the food products.

(d). To protect the patient from all these influences which are known to be deleterious to the kidneys, such as cold and damp.

(e). Next the complications such as cardiac ones should be treated by lessening the arterial tension, or if the heart is failing, to strengthen that organ.

(f). As to the conditions of life, the patient should be a good deal in the open air and take gentle exercise.

Change of climate, when obtainable, to a
warm part is very desirable.
With the class of patients I have, these indications I find difficult to carry out, yet to a certain extent I succeed, and I enforce on the colliers, the importance of fresh air and of taking every precaution against cold and wet, about which matters, they are, as a rule, exceedingly careless.

(g) Diet.

The nitrogenous food should be reduced in amount, and in my experience the colliers are heavy eaters of nitrogenous food, especially the richer kinds, and they eat but little fish. Other kinds of food I do not forbid.

To make up for the withdrawal of the richer nitrogenous diets, I think that fish, oatmeal and rice are most suitable articles.

As the milk supply in my district is not a good one I find no advantage in keeping these patients on a milk diet as some recommend. Alcoholic drink should be entirely avoided in all its forms. The collier is a great beer drinker - a form of alcoholic beverage which is said to be the least hurtful in cirrhotic processes. This however, does
not accord with my personal experience, for I believe that beer, although containing a comparatively small quantity of alcohol, is decidedly hurtful to this class of patient. Water, I believe should be freely drunk. It is most important to promote the action of the skin, and therefore warmth to the surface is necessary, and the patient's underclothing should be wool, and the skin should be kept clean, another most difficult matter to be impressed upon the average collier. The bowels should be kept freely open, for which I find an occasional dose of the compound jalap powder very useful with frequent saline draughts.

(h). As to the medical treatment. There are, as far as I know, no drugs which have any influence on the cirrhotic condition of the kidney, although Iodide of Potassium has been given with the idea of checking further sclerosis, but I may say, that I have not felt convinced of any good results from its use. One common symptom which often requires treatment is that of anaemia; for which I usually prescribe some mild iron preparation, such as the citrate of iron and ammonia, and I think that it is an advantage to combine
with it small doses of Fowler's solution.

To relieve the arterial tension small doses of nitro-glycerine - Minim of the one per cent solution - are useful.
The cardiac failure is treated on the ordinary lines.
The uræmic convulsions I treat with hypodermic injections of pilocarpine and the application of hot packs with often marked temporary relief.

In some of the complications, such as the uræmic and cardiac ones, I find great difficulty in obtaining consent to perform venæsection, although I have a high opinion of the value of this treatment in many cases.

Some further remarks as to the dangers of opiates in these cases.

I have already incidentally referred to this point, but I should like to draw further attention to it as I feel that it is one upon which too much stress cannot be laid.

In renal cirrhosis opiates have a most peculiar toxicity, and even small doses may cause the most alarming symptoms.

This point is of particular practical importance, as in many cases, chronic renal disease is a most insidious process and may not even be suspected.
I have known a hypodermic injection of ¼ grain of morphia given for pain and restlessness after operation to produce fatal results and in this case post mortem examination revealed marked cirrhosis of the kidneys.

In many cases, one is called upon to relieve certain symptoms where a hypodermic injection of morphia is indicated.

In the majority of those cases it can be given with safety but on the other hand, we can never be certain that we have not to deal with a case of insidious renal disease, consequently, one should be careful in giving, at first, a minimum quantity.

The explanation usually given of the danger of morphia in renal disease is that this drug is but slowly excreted by the urine, but this does not seem to me to satisfactorily explain its markedly poisonous qualities.

It is possible that the uraemic condition is one peculiarly susceptible to the toxic influence of this drug.

The Pathology of Renal Cirrhosis.

I have already referred to the possible causes of this condition.
The pathology of uraemia is a much discussed question and only one of the cases quoted by me seems to throw any light upon the matter. I refer to Case 10. This was a case of total suppression of urine from obstruction of both ureters by calculi. In this case there was total suppression of urine for eight days, when the patient died without ever having shown any distinct uraemic symptoms. Similar cases have been described by the late Sir W. Roberts and other observers vide Lancet vol: I 1868, pp. 653, 682.

A case is recorded by the late Sir James Paget in the Clinical Society's Transactions vol: II, 1869 p. 171. This patient lived for twenty-two days after the beginning of the suppression of urine. A calculus blocked one kidney and the other was greatly disorganised. From a clinical point of view, these cases of "obstructive" suppression of urine contrast very markedly with those of "non-obstructive" suppression, for, in the latter class of cases, although the suppression may be only partial uraemic symptoms are early manifested, are well marked and often have a fatal result in a short time. The question therefore arises, how can we reconcile these facts which at first sight are so puzzling?
with any of the hypotheses advanced as an explanation of the pathology of uraemia?

The generally accepted explanation of the uraemic state is, that it is due to the retention in the blood of certain products which are normally excreted in the urine. In fact, Bouchard, a French authority has stated as a result of numerous experiments that the urine of a healthy person has markedly toxic properties, while the urine in conditions of uraemia loses this toxicity, vide Allbutt's System of Medicine vol: IV, p 350.

If this theory be true, how can it explain the differences already referred to between the symptoms of "obstructive" and "non-obstructive" cases of suppression of urine, for in both these classes of cases there must of necessity be a retention in the system of those metabolic products which are normally excreted in the urine?

It is therefore necessary to seek some other explanation.

Several observers have pointed out the probability of the kidneys having a metabolic as well as a purely excretory function, vide Dr. Rose Bradford's Coulstonian Lectures (1898).

In "non-obstructive" suppression of urine there
is disease of the Kidneys themselves and this must of necessity interfere with their metabolic functions as well as their excretory ones, whereas, in cases of "obstructive" suppression the excretory function only is in abeyance.

In regard to the metabolic function of the Kidneys some interesting experiments have been carried out by Dr. Rose Bradford who has shown that after excision of large portions of both organs in dogs that larger quantities than normal of both urine and urea are excreted, and as he points out, this seems to show that one of the functions of the Kidneys in health is to inhibit abnormal nitrogenous metabolism.

In this connection, I may state that an interesting case has come under my notice in which one of the kidneys of a patient was removed for supposed malignant growth: it proved to be simply a cirrhotic kidney, and since his recovery from the operation, the patient has passed considerably larger quantities of urine than before.

It is therefore probable that the Kidneys are not to be looked upon simply as excretory organs. Whether they have a definite "internal secretion" is not as yet ascertained, but I think there can be no
doubt that they have certain metabolic functions which are of the greatest importance and a reference to which cannot be omitted in discussing the question of the pathology of uraemia.