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Logan

Microscopic structure of kidneys.
Causes of Desq. Nephr.
Diagnosis, from Urine . Dropsy, under-water . separating of albumen p. 28
Prognosis, from outward
Symptoms. 2 Urine - Basham on proportionate by Christ p. 37
Treatment. Diuretics. "Saunders quotes D. Christison" 41

only Acute Desquamative Nephritis
why call the subject "Bright's Disease"?

THESIS

on

BRIGHT'S DISEASE

in its Acute form

or

Acute Desquamative Nephritis.

by

Frederick Lockwood Logan.

1861

Bright's disease in its Acute form, or 'Acute Desquamative Nephritis,' as it has been happily termed by Dr. G. Johnson, is not unfrequently met with in Practice.

Since its discovery by the distinguished Dr. Bright, many most able observers have devoted much time and attention, to the investigation of the many interesting phenomena presented, in its course. Numerous questions however still remain sub-judice; their elucidation I do not attempt, but most of the well ascertained facts, I have seen amply confirmed, in the few cases of this disease, that have come under my notice.

*Monthly Journal of Medical Science. May. 1842.

I propose in this essay to give, first, a Sketch of the Anatomy and Physiology of the kidneys, the organs more immediately involved in this disease.

These organs destined for the important function of Secreting the Urine, lie, one on Each side of the Lumbar Vertebrae, in the region of the body termed the Loins, their shape is quite Characteristic, and so well known as to require no description; the rounded convex border is turned away from the Vertebrae, the concave border, or Hilum, looks towards the Column, and at this point, the Vessels and Duct have their entrance and exit. Externally, the kidneys are of a brownish red colour, and have a glistening aspect, arising from the Capsule of Areolar tissue, that closely invests them, and which, by means of fibrous processes Extending from its inner surface, is connected with the delicate Matrix, formed of a transparent granular substance, in which the tubes are embedded. To Professor Goodsir we are indebted for first describing this Matrix* and though —

though some observers still doubt its existence, yet I think we may with confidence rely, on the assertion of such an able investigator as Mr Goodsir.

Upon making a longitudinal section, along the convex margin of the Kidney, we see, with the unaided eye, that it is distinctly divided, into two portions, an external somewhat pale part, termed the Cortical substance, and an internal part of a redder hue, the Medullary or Pyramidal portion. If we carefully scrutinize the former, or Cortical portion, small dark red spots may be observed scattered irregularly through it, these are the Malpighian tufts. The Medullary portion is divided into, from twelve to fifteen Pyramids or Cones, having their bases in contact with the Cortical substance, their apices opening into the Pelvis or Commencement of the Ureter, by about Eight cup-shaped depressions, (two of the apices occasionally opening into one depression) which are called Calices or Infundibula.

Microscopical Structure.

The Kidney is essentially tubular in its structure. The Medullary portion has a striated appearance —

appearance, the tubes lying parallel to each other running from apex to base. We shall trace one of these tubes, by the aid of the Microscope, from the apex of a cone throughout its course; and first, we find it opening by a mouth, about 1-200th of an inch in diameter, into a calyx, it then begins to divide and subdivide di= =chotomously into branches, which run in a more or less parallel direction to the base of a cone, and thus at the base, the number of tubes is much greater than at the apex, but they are diminished in diameter to about 1-600th of an inch, notwithstanding this diminution of the diameter however, the total capacity of the original tube is much less, than that of the branches at the base.

As soon as a tube reaches the cortical substance it begins to assume a tortuous course, twisting and turning upon itself, and entertwining with other tubes, so that it is impossible to trace one throughout its entire extent to its termination; it is now however well ascertained, that they terminate, or at least the majority of them, by forming a capsule for a Malpighian tuft, although it has been also shown —

that a Malpighian capsule may be formed, on the walls of a tube, before, as well as at, its termination

The tubes, like all secreting structures, consist of a basement membrane lined by epithelium. In the pyramidal portion, the epithelium is of the squamous or tessalated variety, being protective rather than secretive. These tubes seem to serve merely as ducts, along which the Urine passes to the Pelvis of the Kidney.
In the tubes of the Cortical substance, the epithelium is of the spheroidal or glandular description, in structure consisting of a cell having a distinct nucleus, these cells occupy about a third of the total diameter of the tube, and secrete the solids of the Urine

Vascular System:

The Renal artery, a branch of the Ab-dominal Aorta, lies between the Vein and Ureter as it enters the Hilum of the Kidney. It divides into from five to seven branches, before Entering the substance of that organ, these then divide and subdivide and pass down between the tubes of —

of the pyramids forming large oblong meshes by their anastomoses with each other, till they reach the bases of the cones. They there form a number of anastomotic arches, and from these branches are given off to the cortical substance, which, before becoming capillaries, enter, with few exceptions, into the formation of the Malpighian tufts.

The structure of these tufts is peculiar, they are oblong or rounded in shape, and have a diameter of 1-120th of an inch, but are often as small as 1-200th of an inch. They consist of an Afferent and Efferent vessel, lying in contact with each other, at the mouth of the capsule, formed, as before described, at the the termination of the convoluted tubes. The Afferent vessel enters the capsule, and breaks up into a number of small branches, which spread out and form the External layer, as it were, of the tuft, these gradually coalesce towards the centre of the Malpighian body, and at last, by their junction, form a single Efferent vessel, which passes out of the capsule in close approximation to the Afferent vessel. The Efferent vessel then immediately breaks up into capillaries, which ramify

ramify on the Exterior of the Convoluted tubes. This arrangement of the Malpighian vascular system, has been compared to that of the portal system of the Liver, and has been called the portal system of the kidneys.

The Veins on the Exterior of the gland, have a radiated or star-like arrangement, and are therefore termed 'Stellate'. By their anastomoses they Enclose polygonal spaces, which give the kidney the appearance of being divided into a number of lobules. The Veins pass vertically into the Cortical substance, and unite with its Veins, and in their passage to the hilum, they collect also the venous blood of the pyramids, and finally unite to form the large Emulgent vein which joins the ascending Cava.

The Epithelium lining the convoluted tubes, has only been traced upwards over a third of the Malpighian Capsule, in the Mammalian kidney, so that we have this Malpighian tuft of vessels, hanging, as it were, in a bag formed of a simple hyaloid or basement membrane. This arrangement is admirably adapted to act as a filter through which the water of the

* Todd & Bowman's Physiological Anatomy.

* Medical Times & Gazette No. 538. p. 371.

the blood passes from the vessels into the capsule, and thence down the tubes, such would seem to be the teleological purpose of this peculiar vascular arrangement. The fluid in its passage through the tubes, carries along with it the solids, secreted by the spheroidal cells of the convoluted tubes, and passes along the streight tubes to the pelvis, and from thence is conveyed by the Ureters to the Bladder.

Such is the mode in which the Urine is formed and Excreted, according to the opinion of Mr Bowmen*, and most Physiologists agree with him, but Dr Goodfellow* advances another hypothesis, which however he does with hesitation, as he professes to have made no great researches in physiology, but he thinks that his theory explains, in a more satisfactory manner, certain causes of renal disease, and he supports it by the Experiments and observations of several most able Continental physiologists: his opinion is, that the whole constituents of the serum of the blood, pass out through the vessels of the Malpighian tuft, but that certain of them, as the Albumen &c, are absorbed by the cells of the Cortical portion and again Enter the blood, this —

this statement he founds principally on the osmotic properties of Albumen; but I think it is too mechanical, and takes no account of the vital properties of the cells. It is an opinion entirely at variance with Mr Bowman's, but he supports it by such good authorities, and such plausible reasoning, that I do not feel myself called upon decidedly to negative it, and have not space here to enter on the discussion of the reasons for and against it.

The Urine

This fluid is a complex and important Excretion, in so far as, by it, all the nitrogenous elements resulting from the waste of the tissues, find their exit out of the body, as also a large but variable proportion of Water, and certain saline ingredients.

Healthy Urine is transparent, of a pale amber colour, peculiar distinctive odour, and acid reaction. Its average Specific Gravity is about 1.020, that of Water being 1.000. About 40 ounces are passed in the 24 hours by a healthy adult, this amount, which is that generally stated, is rather below the natural standard probably about 50 ounces is the normal amount, of course this quantity is liable to great variation, according ~

according to the amount of exercise taken, thus increasing the perspiration, the season of the year, less being passed in Summer than Winter, diet &c, all of which tend to vary the amount of fluid, excreted by the Kidneys. Upon standing for some time, and cooling, a slight mucous deposit is thrown down, to the bottom of the vessel, in which the Urine is contained.

The solid constituents of the Urine are, within the limits of health, subject to considerable fluctuation in amount, as well as the fluid; some observers stating, that 400 grains of solid matters are excreted daily, others rate it as high as 1000 grs. in the 24 hours. About half of this consists of Urea, a highly nitrogenised body, its Chemical Composition being $C_2 H_4 N_2 O_2$. Of Uric acid about 8 grs. are passed daily, it also contains Nitrogen, but not in such large proportion as Urea, its Chemical composition is $C_{10} H_4 N_4 O_6$.

The salts consist of the Sulphates, Phosphates, and Chlorides of Lime, Potash, Soda and Magnesia.

A number of other substances have been found in the Urine, which it is not necessary to enter into minutely here, e.g. Kreatin, Kreatinin, Hippuric Acid &c.

Having

Having thus briefly considered the structure and function of the Kidneys, and the composition of the normal Urine, we may now proceed to the more immediate subject of this Essay.

The plan I propose to follow, in treating of Acute Bright's disease, is this. I will first give a short sketch of its History, then go on to its Etiology, Diagnosis or Symptomatology, Prognosis, Treatment, and Pathology, each of these being taken up in the order mentioned.

The name, viz. Bright's disease, has often been objected to, and many others suggested to take its place; for the Acute form, Dr. G. Johnson's term of "Acute Desquamative Nephritis," is probably the best yet proposed, but it is better to retain the original name as applied to the class of diseases, if I may so express it, which has now been shown to have been included under the general Expression of Bright's disease. This name has been applied to this malady, in honour of that justly celebrated Physician Dr Bright, who first distinctly described it. His observations were published in 1824, in his —

his Medical Reports, and had extended over a period of two years. As has so frequently occurred with other discoveries, so we find with regard to this, that it has been asserted, that the disease had previously been described by other authors, and without doubt several Physicians, had made very near approaches to its detection. Thus, Dr. Blackall in 1811 established two forms of dropsy, one with, the other without, albuminous urine; and Drs Wells and Cruickshank had, about the same time, made observations, somewhat to the same effect; but undoubtedly, Dr. Bright was the first distinctly to point out the connexion, between Renal disease, Albuminous Urine, and Dropsy.

For some time after the publication of his Medical Reports, not much notice was taken in the profession generally, of this important disease, but in the years 1829-30-31, Drs Gregory and Christison of this city, made several most interesting Clinical investigations, in connexion with this affection, which were published in the Edin.r Medical and Surgical Journal. Professor Christison afterwards collected his observations together, and published them —

them as a seperate volume, in the year 1839. Since that period, many Medical Men, in this and other Countries, have made many valuable additions to our knowledge of this disease, among whom I may mention, Professor Bennett, Drs Johnson, Basham, and Gairdner, in this Country; Drs Rayer, Solon, Frerichs &c, on the Continent. In the hands of these, and other able investi-gators, and with the aid of our improved methods of research, particularly with that of the Microscope, much has been done to clear away the obscurities, and to remove the errors, in our knowledge of this disease, many points however require further investigation.

Etiology

In treating of the causes of Acute Bright's disease, it is difficult definitely to divide them into Predisposing, and Exciting, the usual division of this subject, as what may in one case appear evidently to belong to the former division, may in another as evidently rank in the latter.

1. Age. In very young, and very old people, this disease, though not unknown, rarely occurs. M. Solon's ⟶

* De l'albumenurie par le Dr. Martin Solon p. 31
* Edinr. Med. and Surgical Jour. 1833

M. Solon's first case, in his volume on Albumenuria,* occurred in a boy 17 months old, and Dr. Hamilton* records a case, in his account of the Epidemic Scarlet Fever, in Edin., during the Autumn of 1832, occurring in a boy three years old. Among children, we generally see this disease manifesting itself, as a sequela of Scarlet Fever; it attacks however adults chiefly, particularly those exposed to great alternations of temperature, the most frequent exciting cause, as we shall see, of Morbus Brightii

2. Sex. This has not much influence in giving rise to this disease, except in so far as, males being more exposed to the exciting causes than females, oftener fall victims to its ravages.

3. Climate. Bright's disease occurs more frequently in Northern, than Southern latitudes, and is specially met with in those Countries, where there are great and sudden alternations in temperature, and where cold and damp weather prevails, as may be so well seen in our own land.

4 Intemperance originates a predisposition to the acute disease, no doubt it may give rise to, or excite the Affection, but it is in a Chronic form that it does so.

Professor ——

Professor Christison states, that he is certainly within the mark, when he reckons, that three-fourths, or four-fifths of the whole of his cases, occurred among the Intemperate. Foreign observers seeing that this vice does not prevail, to such an Extent in the continent, as in this country, of course do not confirm this observation, by their Experience, at least in such a remarkable degree.

How Alcoholics act, in predisposing to an attack of bright's disease, may be thus Explained. They do not, it would appear act on the kidneys primarily, as irritants or otherwise, but would seem by their deteriorating Effect on the blood, and nervous system, to produce a habit of body, which renders the Drunkard peculiarly liable to be attacked, by this disease from a comparatively slight Exciting Cause.

That indulgence in Spirituous liquors deteriorates the blood, there can be no doubt, since it is found, that Arterial blood is much darker in an intemperate person than is natural, and this arises not from Excess of Carbonic acid Gas, but from the de-ficiency of Oxygen, this latter having been consumed or taken up by the hydrogen and Carbon of the Alcohol. That —

That Spirits exert a powerful action on the Nervous System, most people from personal Experience can attest, and we have all seen, how over in-dulgence in them, weakens and perverts the functions of the Brain, and Spinal Chord. But in addition, the digestive and other nutritive functions of the body are disordered, and impaired, by the habitual use, or rather abuse of Ardent Spirits, and thus the system is further weakened and depraved, and easily falls a victim to many dangerous diseases, and to few more frequently than Bright's disease of the kidneys.

5. Exposure to cold, and specially to cold and damp. Of all the Exciting Causes, this is the chief, all ob-servers are agreed upon this point. When the body is in a state of perspiration, this Exposure acts most injuriously. It was formerly supposed that it did so, by suddenly suppressing the cutaneous Excretion, and thus additional work was thrown on the kidneys, which were suddenly called upon, not only to Excrete the normal constituents of the urine, but likewise those of the cutaneous Excretion, suppressed as it thus was by cold. The kidneys thus stimulated to Excessive action

disease

disease ensued. In support of this idea we often see, after exposure to cold, a deposit of urates in the urine, thus showing an increase in the function of the kidney, but the effect (the disease) follows too speedily after the cause, to be thus wholly accounted for. The powerful effect of cold on the nervous system, so evidently shown by the 'Cutis anserinae', and shivering, which occur after it, would seem to account more satisfactorily, for its speedy and deleterious influence on the kidneys, and in addition, excessive perspiration is an abnormal, not a normal process, its suppression ought not therefore, to have such a rapidly deteriorating effect on the kidneys.

That the nervous system has a great influence on the urinary organs, and secretion, M. Claude Bernard has clearly proved, by his Experiments detailed in the Medical Times and Gazette.

6. Scarlet Fever is both a predisposing and Exciting cause of Acute Renal disease. When belonging to the first class, the attack comes on during the process of desquamation, about the end of the 2nd week of the fever, generally after some imprudent exposure to cold, or some error in diet. It has been observed →

* Monthly Journal 1852
British and Foreign Medico Review 1853.

* Parkes on the Urine p. 263

observed to occur more frequently after a mild, than after a severe attack, probably from the convalescence being less guarded in the one case than in the other.

Exposure to cold acts powerfully on the skin, in Scarlatina, deprived as it is, in a manner, of its usual dense covering, and appears to check the elimination of the materies morbi, which caused that Fever, going on by that outlet. The kidneys also seem to be undergoing a process of desquamation, and are accordingly very easily affected injuriously by any imprudence on the part of the patient.

That the Kidneys are undergoing a desquamative process, as well as the skin, after Scarlet Fever Dr. J. W. Begbie* and others, have proved, since they have found, that in the majority, if not in all cases of Scarlatina, during the time that desquamation of the cuticle is going on, the urine is albuminous, and contains epithelium in the deposit, in a more or less marked degree, and for a varying number of days, from 4 to 10 being the limits. This state of the urine most commonly occurs, after the 6th day, and during the process of desquamation.*

A.S.

As long as the urine is passed in normal amount, no other symptom of renal disease appears, but if from any cause, the function of the kidney became embarrassed, the urine then becames diminished in quantity, dropsy speedily ensued, and blood and fibrinous casts, with epithelium, and Exudation Corpuscles, appeared in the urine.

The occurrence of Albumenuria after Scarlet Fever, would seem to vary in different Epidemics of that disease. M. Lobon found it in 22 out of 23 cases in one epidemic.

That the Scarlatina poison may excite disease in the kidney, has been clearly shown by the recorded cases of patients, who had all the premonitory and general symptoms of a severe attack of Scarlatina, but in whom the rash did not appear, or was scanty and ill defined, and whose kidneys have become the seat of disorder, before the period of desquamation had been reached. (Dr. Bellie mentions a case in which bloody urine occurred on the second day of the fever.) In these instances the materies morbi giving rise to Scarlatina, would seem to seek its exit from the body Entirely by the kidneys, and not by the skin at all, or at least only in a very small degree.

*. Diseases of the Kidney p. 46

degree, and thus causes derangement and disease of these organs.

7. Erysipelas and other Exanthemata, have been occasionally found to give rise to Bright's disease, probably in the same manner as Scarlatina. In its acute stage, Becquerel found albumenuria in two out of five cases; Dr. W. Begbie in 4 out of 6; at the desquamative stage albumen was detected for several days in the urine. This temporary albumenuria and Erysipelas, often originate from the same causes viz. Intemperance, and Dyspepsia, so that thus we may frequently account for their concurrence.

8. Cholera The Cholera poison is a frequent cause of acute Bright's disease, as shown by Dr G. Johnson.* The kidneys are affected very early in the attack, and thus render the case a very dangerous one, yet if the patient survive "the fearful struggle" the kidneys speedily regain their normal state.

In the Edinb. Hospital for Cholera Patients during an Epidemic of that fatal disease, Dr. W. Begbie found albumenuria in 60 p.c. of the patients, during the stage of reaction. There was also Extreme deficiency of Urea or even its entire absence, and the presence of bile ⟶

*Medical Times and Gazette No. 534 p. 318

bile or rather biliary colouring matter in the urine.

J. M. Solon and others have recorded cases, in which the drinking of a large quantity of cold water, when the body was in a state of excessive perspiration, was the apparent cause of an attack of this disease. Dr. Goodfellow* thus admirably sums up the causes of Bright's disease in all its forms.

"Any substance, state, or condition, which is calculated
"to impair the nutrition and secretion of the organ,
"retard the circulation of the blood in its vessels, or
"irritate directly, or by reflex action, its nerves and
"tissues, may be regarded as exciting or engendering
"causes; and any condition of the body, natural or
"acquired, which renders it more than usually im-
"-pressible to the influence of certain morbific agencies,
"will of necessity predispose to the disease, and
"makes those substances, states, or conditions efficient
"causes.

Diagnosis or Symptomatology

The Acute form is ushered in with all the symptoms of Fever, in fact, it is often termed Febrile, or Inflammatory Dropsy. The Patient after exposure to some Exciting cause, may show certain premonitory symptoms, he experiences a 'grooving' sensation, 'Malaise' as the French call it, becomes languid, and listless, and disinclined for the slightest exertion bodily, or mental. If the Patient be a child, the premonitory symptoms declare themselves, by his becoming restless, and fretful; and in all cases Anorexia exists, and Nausea and vomiting may occur also.

These symptoms having lasted for a short time, never exceeding a few hours (or it may be without any premonitory symptoms whatever, cases being occasionally met with in which none can be detected,) marked rigors occur, and these are followed by intense febrile reaction, the patients pulse quickens, and is felt to be full, hard, and incompressible, his skin becomes hot and dry, there is usually headache, and great thirst; his tongue is furred, and parched; bowels generally constipated; dyspnœa may also be present; and more or less pain or uneasiness is experienced in the loins, Especially if pressure be made in that region. These are the general symptoms of c—

of a Febrile state of the system, but that which directs our attention specially to the kidneys, as the cause, or origin of these effects, is the state of the Urine. This Excretion is scanty in amount, in some cases it is even entirely suppressed, high coloured, often of a bloody hue, and muddy, there is generally pain in making water, and frequent desire to do so.

When we carefully Examine the urine, it will be found of the normal acid reaction, the Specific Gravity high; from 1·025 to 1·030, and upon cooling a dense deposit will be thrown down, in which, when Examined under the Microscope, we find amorphous urates, occasionally crystals of Uric Acid, and casts of the renal tubes, with epithelial scales, free, and entangled in the casts, spheroidal, tessalated, and other forms, from the different parts of the Urinary passages.

To Examine the Chemical Constitution of the urine, we take a little in a test tube, and Expose it to the flame of a spirit lamp, it is at first Cleared, the urates being soluble by heat, but soon a haze appears, as the heat increases, and at last a dense cloud is formed, this is Albumen, which is Coagulated at a temperature of 160 degrees, so that this cloud is formed c

formed long before the point of ebullition is reached, but a further test is necessary to determine positively, that this is albumen, as when the Urine contains an Excess of earthy phosphates, a Cloud is produced by heat, a few drops of strong Nitric Acid are therefore added, this merely causes the albuminous cloud to assume a darker hue, from its action on the colouring matter of the Urine, but it immediately dissolves the Cloud caused by an excess of earthy phosphates, neither is Nitric Acid alone however, a conclusive test of the presence of Albumen, as in Urine containing an Excess of Urates dissolved in it, a precipitate is caused by this acid, but this is speedily cleared away by heat, which would only serve to intensify an albuminous precipitate.

In testing for Albumen therefore, both heat and Nitric acid must be used, to determine with certainty, the presence in, or absence of that substance from the Urine.

The Amount of Albumen varys considerably in different cases, and in the same case at different times. At the beginning of an attack it is usually found in large quantity, and may even render the Urine Solid when heated, so that the tube may be inverted

* Christison on Disease of the Kidneys

* Parkes on the Urine p. 348
* Medical Times and Gazette № 524 p. 101

* Parkes op. cit. p 344.

inverted without any escaping. The best method to obtain this solid mass, is to place the tube containing the Urine in a vessel full of boiling water, and allow it to remain for some time, the Albumen is thus coagulated without the fluid being agitated, and forms a firmer coagulum, than when heat and Nitric acid are used.

The actual quantity by weight of Albumen is less, than one would imagine from the appearance of the precipitate. Dr Christison* has shown that ten parts of albumen in a thousand parts of Urine, will render it of a thin uniform pulp, the highest amount he found, was 27 parts in 1000 of Urine. Frerichs* gives the variation at from 77 to 386 grs. passed in the 24 hours. Goodfellow* at from 22.64 to 0.1 parts in 1000 parts of Urine.

Besides containing this abnormal ingredient, the normal constituents of the Urine are altered in amount, the Urea which in health varies from 11 to 32 parts in 1000 parts of Urine, is reduced from 7½ to 3 parts. Parkes* gives a case recorded by Thosler, in which the patient died from uraemic poisoning, and in his Urine the Urea was reduced to 55.5 grs. in the 24 hours, few casts ~

few casts were found in the Urine, the mechanical impediment caused by the accumulation of the fibrinous material, in the tubes of the kidney, and not Excreted as casts, seemed to prevent the Elimination of the Urea.

The Uric acid varies in healthy Urine, from 0.391 to 0.098 parts in 1000 of Urine, in disease its variation is from 0.6 to 0.2, such is the result given by Dr Goodfellow. It will be remarked that there is not such a decided reduction in its amount comparatively as in that of the urea, in fact Dr. Parkes states that it is increased, but I apprehend, that the mechanical obstruction that causes a decrease in the Elimination of Urea, would offer as great an impediment to the escape of the Uric Acid. In those cases however, where the Exudation passes freely out as casts, from the tubes of the kidney, Uric acid is Excreted in increased amount, as Evidenced by our finding occasionally crystals of that substance in the deposit.

The fixed salts are lessened also in the urine of a patient, suffering from Acute Morbus Brightii.

The Water varies from 938 to 989 parts in 1000.

M. Solon having observed the abnormal appearance in the Urine of albumen, and at the same time ⟶

*Medical Times and Gazette N° 592 p. 228.

time the diminution in amount of the urea, sup-
-posed the former might be vicarious of the latter, the
albumen of the blood not being changed into urea, as
he imagined the kidneys had the power of doing, but
escaping as albumen into the urine. Professor
Christison has shown however, by careful Experiments,
that urea is found in excess in the blood, in proportion
as it is diminished in the urine, and we now know
that urea is formed in the blood as a result of the
waste of the tissues, and as Dr. Garrod has shown is
a normal constituent, in very small proportion, of
that fluid, so that the Albumen and Urea have no
relation whatever to each other.

We would naturally Expect to find the fibrine
of the blood in the urine, as well as the Albumen, and
so we do, but in very small proportion, in the form
of casts (at least they are usually termed fibrinous
casts,) and flakes of fibrine; what I mean is, that we
rarely see a spontaneous coagulation take place in
the urine, a property so characteristic of blood
fibrine. It has been shown by M. Simon*, that while
the renal artery contains a notable quantity of
fibrine, the vein contains none but an increased
proportion —

proportion of Albumen, so that the fibrine of the blood, in passing through the kidney, would appear to be changed into albumen, this may in some measure account for the comparatively small quantity of fibrine, found in the urine, though as in all inflammations, there is an actual increase in its amount in the Blood.

Dropsy is an Early symptom of this disease: It is Classed by Professor Christison among the Secondary Affections, and so in fact it is, that is to say it is a consequence of the renal disease, which must be established, before anasarca appears, but in considering the Acute form, it appears to me better to class it among the symptoms, because it is one of the first things to attract the notice of the patient, or his friends, and when a Medical Man meets with a case of Anasarca, his attention is at once directed to the Heart, the Liver, or the Kidneys, as the real seat of disease, of which the dropsy is a sign, and as such he regards it.

The oedema is generally first noticed in the face, beginning with a puffiness of the lower Eyelids, it soon after appears in the lower Extremities, particularly

particularly about the ankles, it then gradually extends up the limbs. The scrotum becomes swollen, often to an enormous extent, and the effusion of serum may be so great, as to distend the cellular tissue of the whole body. Effusion may also, indeed frequently does, take place into some one or other of the serous sacs, the pleurae being most commonly thus affected. The Lungs, by percussion and auscultation, may be determined to be oedematous.

The Anasarca is always greatest, in cases where there is any great disturbance to the circulation, either caused by the intensity of the Fever, or by Com-plications, or by Concurrent affection of the Heart &c.

It has been noticed, that in renal dropsy, the parts pit less under pressure than in the Cardiac form, probably from the serum containing more albumen, in the former than in the latter case, and thus it forms a more solid effusion; though Dr Watson ascribes the firmness, to the rapidity with which the Effusion takes place, and does not consider it a speciality of Renal dropsy.

Coincident with the development of the dropsy, the appearance of the patient becomes most characteristic —

characteristic. The surface of the body, and es=
=pecially the face, assumes a pale, waxen, leucophleg=
=matic hue; it has often been described as a "pasty"
look, and so indeed it is, when once seen it's quickly
recognised again, and we may even diagnose the
disease from this alone, so characteristic is it, to a
practised eye. It is caused, as we shall hereafter
see, by the rapid diminution in number, of the
coloured corpuscles of the blood.

As a consequence of effusion of serum
into the Pleurae and Lungs, dyspnoea is a frequent
and most distressing symptom, causing great
discomfort to the patient, and often rendering it
impossible for him to lie down in bed.

Obstinate Diarrhoea and vomiting often
occur in the course of the disease, and are most
difficult to restrain.

Of all the symptoms, the most serious are
those connected with the Brain, they often appear
at a very early period of the attack, beginning with
drowsiness, which if unchecked may go on to con-
-vulsion, and finally lead to death by coma

Prognosis.

Our Prognosis in all cases of disease, should not only relate to, whether there will be a favourable or unfavourable termination, but, as the Father of Medicine has himself said in his book on 'Prognostics', we should in it consider, and endeavour to foretel, all the events that are likely to occur in the course of the disease, by so doing, we not only establish our own reputation, but gain the confidence, and esteem of our patient, a great point in the treatment of all diseases.

I therefore propose to consider the course of this disease under this head, and the symptoms that may themselves manifest, according as it tends to a favourable or unfavourable termination.

There are three possible terminations, to an acute attack of Bright's disease.

1st Recovery may take place.

2nd It may pass into a Chronic form of the disease.

3rd Death may occur.

We will discuss these in the order mentioned with the various symptoms that precede and forebode their occurrence.

1st Recovery. As in all acute inflammatory diseases so in this we notice a tendency to a spontaneous favourable termination, ⊃

termination, after having run a definite course, and in an uncomplicated case, we may reasonably hope that the patient may be successfully aided through this dreadful malady, and such has been the result of the few cases, that have come under my notice in the Hospital. When this fortunate event happens, the febrile symptoms having reached their acme, begin to decline, but the first undoubtedly favourable sign, is a copious diuresis, with the urine beginning gradually to assume a more healthy appearance, its colour becoming more natural, the specific gravity diminishing, being about 1.020 or even less, from the large quantity of water which the urine contains.

The urea and other solid constituents return to their normal amount, and when we examine the urine for albumen, we find it gradually diminishing though any error in diet, or imprudent exposure to cold, may cause its temporary reappearance.

Coincident with this abundant flow of urine, the dropsy declines, and the other symptoms disappear so that in a short time the patient becomes convalescent.

2nd. When passing into a Chronic form the febrile state declines, but the Anasarca remains, and the leuco phlegmatic

leucophlegmatic appearance increases. The urine though increased in amount, is pale, often having a smoky hue, and of low Specific Gravity, 1·010 to 1·015. Albumen is still present in it in undiminished amount, and Casts and epithelium are found in the deposit, when it is Examined under the Microscope.

3rd Death may be threatened in a variety of ways. Convulsions and Coma may come on at a very early period of the attack, and carry off the patient; or Coma may come on gradually, at a later period of the disease, preceded by deepening drowsiness and Stupor, and thus death ensues.

Inflammation of the pleurae and lungs very often supervenes, and that in an insidious and latent form, this of course renders the patient's state very precarious, and may indeed prove the cause of death.

Last of all Death may take place by way of Asthenia, the patient's strength being Exhausted, by the obstinate vomiting and diarrhoea which so frequently occur.

We may now, I think, best consider in detail, the microscopic characters of the urine, during the course of this disease, in the careful study of which, great advances have been made by several well known observers

*Beale, British Medical Journal

observers leading, not only to greater accuracy in Diagnosis and Prognosis, but also serving as guides to a proper Treatment of the disease.

We have before mentioned that fibrinous casts of the tubes are found in the urine, it is by carefully watching, from day to day, the appearance these present, as well as the characters of the epithelial debris that accompanies them that, we gain an accurate knowledge of the nature and course of the disease, the patient labours under.

Renal casts have been divided into three classes, according to their size*

I Those of a medium size 1-700th of an inch in diameter, under this head we have five subdivisions.

1. Epithelial casts.
2. Pale and slightly granular casts, with or without a little epithelium or epithelial debris.
3. Granular casts, consisting entirely of disintegrated epithelium
4. Casts containing pus or blood.
5. Casts containing oil.

II Those having a diameter of 1-500th of an inch.

1. Large transparent waxy casts.
2. Large and darkly granular casts.

III. →

III Those having a diameter of 1-1000th of an inch Small waxy Casts.

All of these different forms of casts, may be met with, in the urine of a patient suffering from Acute Desquamative Nephritis, but those belonging to the I class, are most characteristic of that disease, the others only appearing incidentally. Those to which Dr G. Johnson gave the name of Epithelial, are most abundant. He considered them to be solid cylindrical moulds of the tubes, in which were Entangled blood corpuscles, and epithelial cells. Among Continental observers however, the opinion seems to be gaining ground, that, though at the beginning of an attack, blood may be extravasated in sufficient quantity to fill the tubes, and coagulating, may be carried down by the Urine, and form 'Blood Casts', yet that these speedily disappear, and the epithelial casts which succeed them, they regard, as being analogous to the croupous Exudations seen on inflamed Mucous membranes, particularly on that of the bronchi, during an attack of Acute Bronchitis.

The Casts after being formed in the tubes, would

would appear to contract slightly, and they are thus easily carried by the urine, down into the pelvis, and from thence through the Ureter, into the bladder.

The other forms of casts, occasionally appear, E.g. the granular and oily. In forming our prognosis it is most important to note these, as, if they occur permanently, and in increasing numbers, they indicate a tendency, to the establishment of a serious form of Chronic disease, but when only seen now and then, and few in number, they need give no alarm.

A favourable termination is foreshadowed, by the desquamative process gradually ceasing, the casts and epithelium diminishing in number, and the urine returning gradually to its normal appearance, we may in such a case hope for, and foretel a favourable Event, but should the casts continue to increase in number, as well as the epithelial debris, our ~~our~~ prognosis then, must be an anxious one.

Dr. Basham attaches great importance, not only to the particular variety of casts found in the urine, but also to the forms of Epithelia that accompany them, by these latter he determines certain casts to be of favourable omen or otherwise.

The

He would anticipate a favourable termination, by the Epithelial casts becoming more and more transparent, or waxy in appearance, no inflammation corpuscles, or Gluge's corpuscles as they are sometimes called, being seen, normal, and not granular Epithelial scales being found, and few or no fat cells or oil globules occurring in the deposit.

A tendency to Chronic disease, would be shown, by fat cells and oil globules appearing entangled in the casts, these at the same time becoming more transparent, and by fatty casts being also found in the urine.

A fatal event must be dreaded, when the microscope reveals Epithelial casts, and degraded or atrophic Epithelial cells, filled with granules, numerous free nuclei, occasionally collected together in clusters or scattered about the field.

Such are briefly his views, and to a certain extent they have been confirmed in the few cases that have come under my notice, though I think he is too refined in his distinctions & drawings

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Treatment.

Two obvious indications for treatment guide us, at the commencement of an attack of Acute Morbus Brightii, these are, to endeavour to allay the fever, and to restore, and if possible increase, the secretion of urine, healthy in character, and thus we will most surely reduce the dropsy, the most prominent and distressing symptom, in fact the disease in the eyes of the patient.

We need hardly say, that confinement to bed is absolutely necessary, the patient usually decides this for himself, being unable to remain up, strict antiphlogistic regimen must be enforced. There is generally little inclination for food, and frequently it cannot be retained on account of the urgent vomiting, what diet is taken, must consist of the lightest particles of food, principally farinaceous. The bed room ought to be well ventilated, but the patient must be kept warm in bed, and protected from cold, but specially from draughts. Diluents may be freely drunk, and are generally much relished by the patient; e.g. Barley water, Cream of tartar water, or any other simple and refreshing beverage.

The skin

The skin is usually parched and dry, this would seem to call for the use of diaphoretics, and these remedies have been accordingly employed, and with marked benefit. Great reliance is placed in them by some physicians, too great I think by those who would trust in them alone in the treatment of this disease; as adjuvants no one can doubt their efficacy. As a diaphoretic, vinum antimoniale may be given, in doses of ℥ss., every two or three hours to an adult, ℥ss. would be a sufficient dose for a child, or Dover's powder may be given in small doses, carefully watching the effects of each dose, as opium is found to have a very powerful narcotic effect, in all blood diseases, and particularly in disease of the kidney.

To assist the action of diaphoretics, the warm bath may be used, but cautiously as it may cause syncope, particularly in children; the hot air bath is often a good substitute for the water bath, especially with adults, and can be much more easily and safely applied. The skin should be kept constantly clothed with flannel. These measures not only tend to restore the skin to its natural state, but are also well calculated to abate and subdue the fever.

When there is much pain and uneasiness in the loins,

loins, cupping over that region is often most beneficial. We seldom now-a-days encounter a case, requiring general blood letting, though not many years ago it was the regular practice in this disease, we should always in this affection be most reluctant to draw blood locally or generally, remembering how rapidly the patient becomes anaemic, but in a strong and comparatively healthy person, taking a little blood by cupping, often gives great relief to the lumbar pain, and assists the action of other remedies. When the patient is too weak to permit of the abstraction of blood, dry cupping, and hot fomentations over the loins, are the best means of removing or mitigating the pain in that region, and in addition these measures often evidently assist in restoring the urinary secretion.

Laxatives given so as to secure free watery evacuations should also be prescribed, among those most commonly employed are, the Sulphate of Magnesia, or Compound Jalap Powder ℈ss, with ℈j of the Bitarbrate of Potash, or ¼th of a grain of the Extract of Elaterium in the form of pill, given once or twice daily. But here also caution is necessary, for I have before stated that uncontrollable diarrhoea may be set up, in the

in the course of this disease, we must take care therefore that the purgative action of these remedies, does not go beyond our control.

Are Diuretics prejudicial or otherwise at the outset of this disease? I have put this in the form of a query (?) on account of the very opposite views and practice of physicians, with regard to their use. I find Dr Watson in his lectures stating his belief that they are injurious, whereas Dr Gairdner quotes Professor Christison's testimony in their support, and adds, "I am prepared to go further, (than Prof Christison) and to say, that where diuretics fail, it is only rarely that other remedies will do good." Whence arises this difference of opinion? The opponents of diuretics hold that they increase the congestion of the kidney, that this can be the case I doubt very much, when we recall Bernard's Experiment, who found that by irritating the renal plexus of nerves, congestion of the kidneys was produced, and as a consequence a diminished flow of urine ensued, so that congestion will not explain the action of diuretics, and cannot therefore be an objection to their use. Dr G. Johnson objects to their employment, because they increase the solids

*Principles and Practice of Medicine

materials which the kidneys, already overworked, have to eliminate. When we find however, Professor Bennett, Dr Gairdner, and others, giving diuretics at the very commencement of this disease, and obtaining most satisfactory results, they are evidently not prejudicial, and we must look for some Explanation of their beneficial action.

Professor Christison supposes that the irritation caused by diuretics in the kidneys, differs in kind, from that which gives rise to this disease, and that the one may be induced without increasing the other, this is certainly a very plausible Explanation, but it would be difficult satisfactorily to prove it.

We find that <u>in health</u>, the Bitartrate of Potash, the diuretic most commonly used, decreases the amount of solids in the urine, while the water is increased generally, and this increase moreover appears to be more pronounced in disease. May it not be? that this increase in the fluid, may tend to clear out the tubes, choked up with Exudation and desquamated epithelium, which is such an evident hindrance to Excretion, Professor Bennett* also suggests, that the Malpighian tufts of those tubes which are ⟶

which are serious, may act with greatly increased vigour under the influence of diuretics, and thus a large quantity of fluid may escape from the body; and in addition I cannot but think, that the effect which Potash salts have, in causing alkalinity of the urine, must have a beneficial effect, in reducing the irritation in the kidneys.

Half drachm doses of bitartrate of Potash in Infusion of Scoparium, may be safely given then, with the view of exciting a diuretic action; but here as elsewhere, I think that "in medias tutissimis" is the best position to hold, and I would certainly not give diuretics to a patient, in whom there was a scanty secretion of dark coloured bloody urine & great febrile disturbance, but I would seek to direct the excretion of fluids, by other outlets from the body.

Having overcome the acute symptoms, the patient's appearance at once indicates a tonic plan of treatment as necessary, some one or other of the preparations of Iron are the best to give. Tinctura of the muriate is strongly recommended by some. I have seen the persesquinitrate used with manifest

manifest advantage, in doses of gtt. XXX, thrice daily, the patient not only regaining health and strength, but the amount of albumen in the urine was evidently rapidly diminished by its use. It acts as a capillary styptic, and thus may assist in restoring the vessels of the kidney to their normal tone, thus preventing the transudation of serum.

Nourishing but non-stimulating diet must be given, and all the hygienic means used to restore the body to the natural standard of healthy.

Prophylactic measures must ever after be put in force to prevent a recurrence of the disease, it being very easily lighted up again, in the same individual, by a very slight cause. Flannel should always be worn next the skin, and great attention paid to secure a healthy state of the various excretions and secretions of the body, and, above all, the patient should avoid as much as in him lies, exposure to any of the exciting causes of this disease, specially cold and damp, this unfortunately is not always possible in the class of persons that are most liable to be attacked by this disease.

In

In some cases the dropsy of the cellular tissue increases to such an extent, as by its pressure, to cause inflammation and sloughing of part of the integument, and through this opening a large quantity of fluid escapes, and thus the dropsy is relieved, this occurs most frequently in the lower extremities. This natural process, if I may so term it, is occasionally imitated with advantage by the physician. Puncturing the lower extremities with the point of a lancet, has been recommended by some, but the best and safest method is to make an oblique incision, of from two to three inches in length, above the inner malleoli, down into the cellular tissue, and thus to afford a free exit to the fluid accumulation. It is found that Erysipelas is less liable to supervene, and is more manageable if it do, when an incision is made, than when punctures are had recourse to.

There are several complications, or secondary affections as they are sometimes called, which may occur in the course of this malady, many of these I have already mentioned, in the preceding pages of this paper, I merely take notice

* Edin. Medical and Surgical Journal Vol. ~~XXXIX~~

take notice of them here, to say a word with regard to their treatment.

Inflammation of mucous and serous membranes is a frequent occurrence. Pleurisy, and Peritonitis have been observed to occur, Dr. Bright met with the former frequently, this not so common in this City. Catarrh is one of the most common secondary affections, often accompanied by pulmonary Emphysema, Pneumonia also occurs, though rarely, Dr. Hamilton however frequently met with it.* Many other complications have been met with.

It is most important to keep these facts in Mind, as they often, particularly the inflammatory affections, come on in an insidious and latent form, and may have reached an advanced stage, before any indication of their Existence appears, unless they are looked for, and all the means for their diagnosis, which are at our command, employed.

As to their treatment, each of course must have special remedies directed against it, but occurring as they do in a Constitution already debilitated.

debilitated by serious disease, they are at all times difficult to subdue, and frequently, from the state of the patient, the best and most effectual treatment for their removal cannot be employed.

The Cerebral symptoms, so fatal if allowed to gain ground, must be met by the most Energetic treatment at their very outset. When any tendency to drowsiness appears, brisk purgatives must be given as Elaterium, or Croton oil, and Enemata of Turpentine and castor oil. The urine is in general scanty, when these symptoms occur, we therefore Endeavour, by Cupping over the loins and diuretics. to restore its flow

Frerichs recommends Acetic Acid, to be administered internally, and also to sponge the body with it. This treatment is founded on his theory of the causation of these Cerebral symptoms, by the formation of Carbonate of Ammonia, the Acetic acid he says decomposes this salt, and forms the Acetate of Ammonia, which is secreted by the kidneys. Though some may doubt the soundness of the reasoning given, this treatment has been found most efficacious, in removing these grave symptoms.

* Christison on diseas of the Kidnies p. 61

* Parkes on the Urine p. 348

Pathology.

In treating of this division of my subject, I donot intend to confine myself merely to the Morbid Anatomy, but will consider the probable causes of several of the phenomena presented during the course of this disease.

The State of the blood first demands our attention, as by its abnormal condition many of the symptoms are produced. Professor Christison* has made several careful analysis of the blood in this disease. In the Acute, or Early stage, with which we have alone to do, he found the Specific Gravity of the serum much diminished, Normally it varies from 1.029 to 1.031, in this disease it varies from 1.022 to 1.019; the solid constituents were reduced in amount, from 100 or 102 parts in 1000, to from 65 to 61 in 1000, this reduction, he says, probably affected equally the albuminous, and saline Con= =stituents. That this can be the case I am in= =clined to doubt, as we find that the saline Con= =stituents of the urine are decreased.* This would necessitate their retention and consequent increase in amount in the blood.

As

As in all Inflammatory diseases, the amount of Fibrine is increased, in healthy blood it varies from 2·5 to 5·2 parts in 1000, it becomes increased in this disease to from 3·0 to 8·0 parts in 1000.

The proportion of Haematosin is not at first much affected, but speedily becomes so. Its average proportion in Males is about 1336 parts in 10,000, it may become reduced, particularly in Chronic cases, to 935 parts in 10,000. I am not aware of any exact analysis of its amount in Acute cases, but that it becomes rapidly decreased, the patients appearance testifies to.

Urea is found in increased amount in the blood, its excretion by the kidneys being diminished, though its amount often bears no relation to its diminution in the Urine, as it is frequently excreted by other emunctories, the skin, bowels, &c.

Cholesterine and other fatty matters are also retained in the blood, and assist in the deterioration of that important Vital fluid.

Various Reasons have been given, to account for the production of Anatarca, in this disease. The blood is poisoned, as we have just seen,

seen by the retained urinary Excretion, and the mal=
=assimilation and digestion so usually present tend
still more to deteriorate it. It has been shown that
this poisoned blood, causes a retardation of the cir=
=culation in the capillaries, so that an increased
'vis a tergo' is required, to propel the blood through
the vessels, this determines an increased pressure
on their walls, and forces the more fluid portion
of the blood through their coats, which accumulat=
=ing in the cellular tissue of the body, Constitutes
dropsy. It is also highly probable, that the
poisoned blood affects the nerves of the vessels, and
causes a relaxation of their walls, diminishing
their tonicity, this also delays the flow of blood,
and favours the Effusion of Serum.

The rapid decrease in number of the
Coloured Corpuscles of the blood, which gives such
a Characteristic Anaemic appearance to the patient,
is more difficult to account for, than the occurrence
of dropsy; no doubt all the functions of the body
are more or less disordered, and the normal
formation of blood cannot therefore goon, still
this leucophlegmatic, pasty, look comes on so
rapidly,

*Christison op. cit. p. 94.

rapidly, and belongs so peculiarly to this disease, as scarcely to be satisfactorily accounted for by this alone.

The cause of the Convulsions and Coma, the most fatal of the complications, has been much disputed. The head symptoms, were long supposed to be due, to the accumulation of Urea in the blood, and were therefore said to be the result of Uraemic poisoning, thus only could they be accounted for, when upon post-mortem examination, no lesion could be found in the brain, that could have given rise to them. Against this opinion however, it was argued that cases occurred, in which there was great, almost total suppression of Urine,* and the blood consequently loaded with Urea, and yet the patient remained conscious to the last, no Coma or Convulsions occurring.

Frerichs has taken up the consideration of these contradictory occurrences and thinks that he has shown, that urea is not in itself poisonous, nor does it affect the Brain, but that when converted into Carbonate of Ammonia, as from its Chemical composition

*American Journal of Medical Science Jan.y 1861

composition, it very easily is, it then acts as a poison. His Experiments have been repeated by others, but not with the same results.

Dr Hammond of Philadelphia, has proved them to be incorrect, and has shown by numerous elaborate and Extended Experiments, that urea as formerly supposed, is the cause of the cerebral symptoms, and that unless it is excreted by the kidneys, or vicariously by some other Emunctory, it will act as a poison on the brain.

His conclusions are the following.*

"I That injection of Urea in limited Quantity, into the blood
"of animals, produces a certain amount of disturbance in the
"nervous system, similar in its symptoms to the first stages of
"Uraemia, but that this condition disappears, if the kidneys are
"capable of so depurating the blood, as to eliminate the toxic
"substance.

"II That Urea when introduced into the circulation, in
"larger quantity, than can in a limited period be excreted
"by the kidneys, induces death by uraemia.

"III That by ligatures of the renal arteries, or removal
"of the kidneys, the elements of the urine being retained in
"the blood, render this fluid unsuitable to the requirements of
"the organism,

"organism, and consequently induce a state of system, not essentially
"distinguishable from the uraemic intoxication of Bright's disease,
"or that caused by the direct introduction of urea into the blood.
"As, however, was pointed out by Bernard & Barreswil, so
"long as the urea, or the products of its metamorphosis, are
"discharged by the stomach or intestines, uraemia does not
"take place, but that when these channels become closed, con-
"-vulsions and coma are produced and death soon follows.

"II That the introduction of urea, or urine, into the cir-
"-culation of the animal, the kidneys of which have been al-
"-lated, shortens the life of such an animal, as Frerichs and others
"have already shown.

"III That there is reason to believe, that the urine as a whole,
"is more poisonous than a simple solution of urea, for in those cases
"in which urine was injected into the blood, the amount of urea
"thus introduced, was much smaller than that previously thrown
"in, in a pure state, and yet symptoms of as great intensity
"followed.

"IV That urea, or the elements of the urine as a whole,
"induce such a condition of the nervous system, as strongly to
"predispose to congestion and inflammation of the viscera,
"especially the lungs, pericardium, and spleen.

"V That urea when directly injected into the blood, or

"suffered

"suffered to accumulate in that fluid, by extirpation of the kidneys,
"deranges in some manner the process of sanguification, so
"as to disturb the normal relation of proportion, existing
"between the white and red corpuscles, and either to hasten
"the decomposition of these latter, or to interfere with the due
"removal from the blood, of such as are broken down and effete.

"VIII That there is no reason to suppose, that, under
"the circumstances specified, urea undergoes conversion into
"Carbonate of Ammonia, but that on the contrary, there is suf=
"=ficient evidence to warrant the conclusion, that no such
"process ensues. The fact, that in the foregoing Experiments, a
"larger amount of urea was generally found, in the blood
"taken from the body after death, than in that abstracted
"during life, is of itself conclusive against any such hypothesis.

These conclusions are fully warranted by his Experiments, and I think that urea in excess in the blood, will account for the majority of cases, in which head symptoms appear, and in the few cases that may seem to militate against this hypothesis, other circumstances may prevent the action of the urea, such as idiosyncrasy, or the gradual accustoming of the system to the poison, just as we see occurring with other poisons.

Morbid Anatomy.

The Body, when examined after death, will be found to be pale, and anæmic, and the skin tense, from the distension of the cellular tissue with fluid. When opened, more or less serum will be found effused into the pleural sacs, the lungs oedematous, particularly at their dependent portions, and signs of inflammation may be visible in the Pleuræ or Peritoneum, occasionally effusion of serum, into the ventricles of the Brain may have taken place.

The Kidneys are the seat of the greatest and most marked lesion. Their appearance varies, according to the stage of the disease, at which death has occurred.

Two forms of Kidney are described.

1st That which is met with when death has occurred at an early period of the attack, this form is rarely seen. The kidney is enlarged, weighing from 8 to 12 ounces, and smooth, of a firm consistency, the capsule can be easily stript off, and beneath it the surface of the organs is injected, but irregularly so, some parts being

being of a darker hue than others.
When a longitudinal incision is made, the En=
=largement is found to be due to the distension
of the cortical substance, the medullary being
of normal size, a number of dark & Chymosed
spots will be noticed, scattered through this
external substance, these are the distended Mal=
=pighian tufts. The Cortical substance though
red in colour, contrasts remarkably, with the
dark livid appearance of the Medullary portion.
The bases of the cones appear as if compressed
by the encroaching cortical substance. The
Mucous membrane of the calices and pelvis,
will be found injected with blood.

2nd This variety of kidney is the one
most commonly met with, and is found when
the disease has lasted some time. It is
also enlarged, and Externally presents a
mottled or marbled aspect. the Capsule
comes easily off, and on section of the
kidney longitudinally, the cortical substance
will be found of a pale fawn colour, with
red spots scattered about, caused by the
distended

distended Malpighian tufts. The pyramids are of a reddish brown colour, and their striated appearance is not well marked.

When examined under the Microscope, the tubes, (in both forms) will be found filled with epithelium, and the fibrinous material that forms the casts. In the second form, the vessels of the pale part, are emptied of blood, probably from the pressure of the tubes, distended with Exudation, preventing its entrance. The vessels of the darker portions are full of blood, and can be easily injected artificially.

The vessels of the Malpighian tufts are filled with blood, and some of them having given way, blood has been thus Extravasated into certain of the tubes. The coats of these vessels often present a thickened appearance, as if, as Dr G. Johnson suggests, the serum which had transuded through them, had left a deposit of albumen in its passage. The Exudation generally exists between the tubes as well as in their interior.

These

These two forms of kidney, represent different stages of the inflammatory process. The first is found, when the inflammation is at its commencement, congestion and Extravasation of blood having taken place.
The second Exist, when the inflamation has advanced, and Exudation has occurred into the cortical tubes, and intertubular substance, the Colouring Matter of the blood has been absorbed, hence its pale colour.
The Exudation consists of inorganisable material, and may undergo fatty degeneration, Constituting the 'fatty kidney', a Chronic form of Bright's disease, or it may be absorbed, and the 'Contracted kidney' formed.

These two forms correspond to M. Rayer's 1st and 2nd Varieties, and are well depicted in his Atlas, the first form at pl. VI. fig. 1, and pl. X fig. 3; the second form at pl. VI. figs. 2, and 3, and pl. VII fig. 5.

Cases of Acute Bright's Disease

Four cases of this disease have come under my notice in the Hospital, and through the kindness of Dr. J. N. Bethia, I am enabled to give a few particulars with regard to these.

I The first that I saw, occurred last session, in a boy about 12 years of age, the exact notes of his case I have mislaid, but the following are the chief facts. He had suffered from an attack of scarlet Fever, which had run its ordinary course, the rash however was never distinctly pronounced, but desquamation occurred at the usual time, and he had every prospect of a speedy restoration to health; however, one day, about the middle of the third week, he was noticed busy making his bed, standing in his night dress with his bare feet on the floor; he experienced rigors during the night, and the following day at visit, there was distinct puffiness of the lower eyelids, and oedema of the ankles, the urine, when examined, was found to be scanty in amount, smoky in colour, albuminous, & casts, epithelium, & blood corpuscles, were seen under the Microscope; he was cupped over the loins, purged, & diuretics given, there being ⟹

being no contraindications to forbid their use.
The Dropsy increased, the scrotum became considerably distended, and there were physical signs of oedema of the lungs, however, under the use of the remedies above mentioned, together with the warm bath, the anasarca diminished, the urine became increased in amount, and gradually assumed a healthy appearance, and all acute symptoms being removed, the Liquor ferri Jpersesquinitratis in doses of gtt. XXX ter in dies was given, under which the patient quickly regained health and strength, in fact, in no case have I seen it act more beneficially.
The Urine of this boy presented several interesting features during his illness, at the period of crisis of the fever, it gave an abundant precipitate of Urates upon the addition of a few drops of Nitric Acid, then we had the albumen, and last of all, for a few days, there was the abundant presence of Indican, manifested upon the addition of an excess of strong Sulphuric Acid.
The patient in a comparatively short time, was dismissed recovered from the Hospital.

Case II. William Ferguson, aet. 24, Porter, admitted Feb.y 13th 1861. About a fortnight ago, the patient noticed that his face was swollen, beginning with puffiness of the lower eyelids. He had felt quite well up to that time, and only gave up work 8 days previous to his admission. Of course from the nature of his Employment he was Exposed to all the vicissitudes of the weather A week previous to admission, he complained of headache, and on Saturday 8th, he for the first time Experienced difficulty of breathing. Patient has often noticed that other men perspire more than he, but states that his feet sweat so much, as to make his stockings quite wet. For some little time previous to his illness, he has noticed that on taking off his stockings at night, they were not so wet as usual. He has been an abstainer for 3 years past, before that he indulged freely in Spirituous liquors. At present he Experiences no pain, Even when firm pressure is made in the loins. There is anasarca, and signs of oedema pulmonum.

His urine is smoky in Appearance, and on resting an abundant cloud of mucus falls. It is intensely coagulable, scanty in amount. Specific Gravity 1·027 & under the Microscope Mucus, Epithelium, blood corpuscles

Corpuscles, and granular casts are seen in large number.

It was ordered to be dry cupped daily over the loins, to take ℥j of Compound Jalap powder at bedtime, ℥ss Potassæ Bitart. every 6th hour, and a tablespoonful of Liquor Ammoniæ Acetat. every 6th hour.

Feb. 14th. 14th To day the Patient was Examined more particularly. His feet and legs are oedematous. There is an Eruption of Psoriasis on the right leg. The Scrotum is very much distended, & there is Anasarca to a Considerable Extent, on Auscultation slight crepitant rale is heard, at the base of both lungs. Since Yesterday has had 4 liquid stools, and has passed 44 ounces of urine. He says he feels better.

Urine S.G. 1·028, intensely Coagulable, not so smoky in appearance. Microscopic Characters same as formerly

15th. Patient feels better, Swelling of face considerably diminished, surface of body Covered with moisture, particularly his feet, Scrotum less swollen. 3 liquid stools (To be cupped again over loins) 30 ounces of urine, S.G. 1·021, It is less smoky. Tube casts abundant, more transparent.

16th. Patient improving 42 ounces of urine, less smoky other Characters as formerly.

14th. Patient feels better. 45 ounces of Urine.

19th. Anasarca greatly lessened. Has perspired freely. Urine clear S.G. 1·026, Tube casts approaching the 'waxy' in appearance, not so numerous as formerly, Epithelium seen, but no blood corpuscles. Ordered a warm bath for feet, with Turpentine in it.

20th. Improving Urine clear, S.G. 1·026, 48 ounces passed. ordered, ℞ Elaterinae gr j.
Spr. aether. nitr. ℥j.
Liqr. A teaspoonful twice daily.

23rd. Patient much better. The dropsy has diminished, 80 ounces of Urine passed S.G. 1·016, clear & pale, Coagulability greatly lessened; has been freely purged.

28th. Since last note, ~~has passed~~ on intervening days has passed 100, 111, 120, 100 ounces of urine, to day passed 118 ounces, average S.G. 1·012 Coagulability very slight, no casts, dropsy gone.

March 1st. Since last date, amount of urine has been, 110, 102, 120 ounces ~~to~~ day 110 ounces a mere haze is now caused by heat and Nitric Acid, no casts &c

ordered ℞ Ext. cucis vomicae gr ½
Ext. aloes aquosi gr iii
Ext. Gentianae q. s. fiat pilula.
Liqr. One daily.

Since last date no note has been taken, but the man was put upon Iron, & quickly re= = gained flesh and strength. I watched this case particularly, to test the truth and accuracy of Dr. Basham's statements, and I certainly remarked, that at first the casts were very granular in appearance, and a large quantity of Epithelium was scattered about the field; but as the patient got well, the casts and epithelium diminished in number, the former became more transparent and 'waxy' in appearance, and the latter never presented a granular aspect. The variation in weight of this patient was interesting, his usual weight is 14 stone 7 lbs, (being above 6 ft. in height), when he became dropsical he was weighed, and was somewhere about 15 stone, when the dropsy left him & he was able to be up, he was weighed again, & was not much above 14 stone, & now March 25th he is within a pound of 15 stone.

Case. B. Hume, act. 7, Female, admitted Feby 24th 1861.

History

Her mother first noticed, that her lower Eye-lids were swollen, on Feb.y 15th. About this time she suffered from loss of appetite, and complained of feeling sick, she does not think that she has suffered from Sorethroat or Scarlatina. Nurse states, that she was told by the Mother, that the patient had shiverings some days before she noticed the swelling, and that her Grandmother died of dropsy.

There is at present anasarca, particularly of face and legs. No intense febrile symptoms, Skin dry, not particularly drowsy, Heart sounds healthy, no precordial or pleuritic friction. Crepitation is heard at base of right lung.

Urine scanty, S. G. 1·027, albuminous, granular tube casts, epithelium, and Blood corpuscles.

ordered ℈j of Pulv. jalapae Comp. at bed time and Ft. Mist. ferri ℥ minims thrice daily. Warm Bath occasionally.

March 1st.

Urine, smoky in appearance, reddish flocculent deposit, acid reaction, S. G. 1·020, slightly coagulable, granular casts, epithelium, and blood corpuscles.

3rd Urine, smoky, no deposit, acid reaction, S.G. 1.020, slightly coagulable. 24 ℥ in amount.

5th Urine smoky, no deposit, normal reaction, S.G. 1.012, decidedly coagulable, 30 ℥. Epithelium and granular casts.

6th Urine slightly coagulable, S.G. 1.015, 24 ℥.

11th During intervening days, Urine continued much the same as on 6th; the patient gradually improved, dropsy diminishing, and casts and epithelium decreasing in the Urine; today Dropsy almost gone, Urine is dark amber in colour, no albumen no casts and little epithelium, S.G. 1.014, 28 ℥ passed.

14th Since last note Urine continued same, passing about 30 ℥ daily, to day she is quite well, Urine in every respect normal, 33 ℥ passed. There is a slight swelling of the submaxillary gland.

It is to be regretted that the Mother of this patient, living at a distance from town, particular inquiry could not be made into the history of the case. This case is interesting and peculiar, in so far as, it is an instance of this disease, arising in the child idiopathically, and not as a sequela of Scarlet Fever, as in the great majority of case it is.

The last case I saw, occurred in an out patient, there are no accurate notes of it, but the urine presented many of the usual features of this disease, but not in an aggravated form. The usual treatment was employed, and he ultimately got well. There was one interesting feature with regard to his urine, that during his convalescence, it showed the presence of Indican in large amount, upon the addition of Sulphuric Acid. This also occurred it will be recollected in the case first recorded.

These cases are incomplete, in so far as all being recoveries, no dissections were obtained. This though a source of regret to the Pathologist, cannot but be a source of congratulation to the Physician, and is a most satisfactory result of treatment.

T. Lockwood Logan

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