Observations on ischuria renalis / by John Abercrombie.

OBSERVATIONS

ON

ISCHURIA RENALIS.

BY JOHN ABERCROMBIE, M. D.

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BETWIXT the urinary secretion and various other functions of the body there exists a connection which presents some remarkable phenomena. The minute relation of these phenomena will probably ever elude our researches; but, in a practical point of view, they open a most interesting subject of investigation. The inquiry is twofold: (1.) The manner in which the secretion of urine is affected by disorders of other functions. (2.) The effects which morbid conditions of this secretion produce upon the system in general. In endeavouring to

contribute something to this important and interesting inquiry, I submit a few observations on the true Ischuria renalis, or suspension of the secretion of urine.

Morgagni is said to have been the first who distinguished Ischuria into four species: renalis, ureterica, vesicalis, and urethralis; the two latter being the common cases of retention from disease of the bladder or urethra, and the second retention in the pelvis of the kidneys from obstruction of the ureters. The first is an affection of a different nature; a morbid condition of the secreting organ itself, by which the secretion is completely suspended. It is a disease of so rare occurrence, that neither Morgagni nor Valsalva had ever an opportunity of examining the body of a patient who died of it, and very few examples of it are to be found in writers of more recent date. If the cases, therefore, which I mean to describe, shall be considered as genuine examples of this remarkable affection, they are probably worthy of being recorded; and the remarks which I shall offer in connection with them, I merely propose as a slight outline, to be corrected by future observation.

The disease seems, in general, to come on suddenly; and, at its commencement, there is usually some complaint of pain, which varies considerably both in its seat and its severity. It is sometimes referred to the region of both kidneys, sometimes to one side, and sometimes extends through the abdomen, like the pain of cholic. It is in some cases a dull uneasiness, rather than actual pain. There is frequently, but not always, vomiting; the pulse is in some cases frequent,—in others natural. The peculiar symptom is a sudden diminution of the secretion of urine, which soon amounts to a complete suspension of it. The affection is probably at first considered as retention; but the catheter being employed, the bladder is found to be empty. This leading symptom then continues; the others vary; there being in some cases continued pain, in others the pain ceasing. Vomiting may occur at various periods, and there is sometimes a peculiar feeling of extreme sickness and exhaustion, which at first is apt to convey the impression of sinking, but which is often found not to be of this nature, by being accompanied by a full firm pulse. With these, and some other varieties, the symptoms now go on for several days; after which, the patient generally begins to talk a little incoherently, and shews a tendency to stupor. This increases gradually to perfect coma, which in a few days more is fatal, death being sometimes preceded by convulsion; and, in some cases, convulsion has been suddenly fatal, with very little coma. The periods of the disease vary

considerably; but in general, I think, the occurrence of coma may be expected about the fourth or fifth day from the time when the secretion of urine became completely suspended.

On dissection, there is usually found effusion in the brain, though sometimes it is in small quantity. I have not observed it to have urinous qualities, as it has been said to exhibit in some cases; but this curious point remains to be investigated. The appearances in other organs vary considerably, and are frequently obscure and unsatisfactory. In some cases, there is reason to believe that the original disease was an inflammatory action in the kidneys themselves, or in one of them; but in others, no morbid appearance can be detected there. It seems probable that the disease may be excited by inflammation seated in the neighbourhood of the kidneys, as in the peritonæum, perhaps in the spleen or its covering, and sometimes in the liver. In a case by Schenckius, in which the disease supervened upon a blow on the loins, there was an abscess among the internal muscles; in one by Lælius a Fonte, the left kidney was found black; and, in several cases by Hildanus and Bonetus, there were extensive marks of inflammation in the kidneys and neighbouring parts. In Case I. of this paper, there was a remarkable appearance of inflammation and gangrene in the adipose substance behind the left kidney. In this case, also, the liver was distinctly affected, which is perhaps a circumstance worthy of some attention. Cases of jaundice have been observed which terminated unexpectedly by coma, while the jaundice was quite recent, and no symptom had been taken notice of which seemed to indicate danger. I do not know that these cases were allied to the disease which is the subject of these observations, but there are some grounds for supposing that they were, and the subject is worthy of particular investigation.—In a case by Scroeckius, fatal by coma in 17 days, the left kidney was found diminished to the size of a small egg, and of cartilaginous hardness, and the blood-vessels belonging to it were obliterated. Nothing is mentioned of the right kidney, except that it was much enlarged. The disease seems also to arise from calculi, or quantities of sand filling the pelvis of the kidney; and in Case IV. it arose from calculi obstructing both ureters. This case, indeed, may be considered as properly an example of ischuria ureterica; but the secretion must have been suspended at an early period, as appears from the small quantity of urine that was found in the pelvis of the kidneys; for in some other cases, in which the ureters were obstructed, the pelvis has been found enormously distended or ruptured. A remarkable circumstance in the history of the

disease is, that it seems in some cases to arise from a cause affecting one kidney, the other being quite healthy.

The causes of the disease, in its idiopathic form, are not well ascertained: it is frequently referred to cold, especially to cold applied when the body is much heated. I have reason to believe that it may supervene upon gonorrhœa, especially when the discharge has been suddenly checked by improper treatment.

The prognosis is in general unfavourable, and the fatal termination is usually by coma. This may be dreaded when the suspension of urine has continued four or five days; but in a case described by Dr Laing, in Vol. X. of this Journal, there was a complete suspension of the secretion for nine days, and yet the case terminated favourably; the urine, after that interval, beginning to flow, and soon returning to the healthy condition. On the other hand, in Case II. of this paper, coma appeared about the fifth day from the suspension of the secretion, and was fatal, though the urine was secreted in its full quantity for two days before death. In a case described by Dr Home * there were dropsical symptoms. This does not seem to be a common occurrence, though *a priori* we should expect it to be so. Some other cases, again, have been suddenly fatal by convulsion, without continued coma.

The most singular circumstance in the pathology of the disease, is its tendency to terminate by coma and effusion in the brain. The minute connection here will probably ever elude our researches, but in a practical view it is of great importance, and presents a most interesting subject of investigation. There have been various observations, or perhaps conjectures, in regard to the influence of the urinary secretion upon the functions of the brain, and the effect of diuretics in preventing or relieving certain affections of that organ. They were long ago supposed to prevent or diminish the effects of intoxicating liquors, and, by writers of eminence, they have been recommended in epilepsy and mania.† Whatever importance we may attach to this suggestion, I believe that the connection pointed at by these observations, is worthy of some attention in affections of the brain.

On the other hand, it is an important fact to be kept in mind in this inquiry, that cases have occurred, in which the secretion of urine was completely suspended for a considerable time, without being followed by any affection of the brain, and sometimes

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* Home's Clinical Experiments, p. 288.

† See Portal, Cours d'Anatomie Médicale, Tom. V.

without the occurrence of any urgent symptom. In some of these cases, copious perspirations occurred, or other vicarious discharges, but in others, no such discharges took place. Dr Parr mentions a case in which the secretion was suspended for six weeks, and there was no vicarious evacuation, except a copious perspiration for a day or two; medicine seemed to give no relief, and the secretion at last gradually returned. In the Biblioth. Med. for 1815, a case is related, in which the secretion was suspended for several months; it proved fatal by gradual exhaustion without any urgent symptoms. On dissection, the omentum was found soft as if decomposed; the kidneys were imbedded in masses of a fatty looking substance, which had the hardness of scirrhus; the kidneys themselves had a cartilaginous firmness; the pelvis of both was filled by calculi, the left contained four, and the right but one, which exactly filled it. M. Nysten has described several cases in which suppression of urine was succeeded by copious vomiting of a fluid, in which, he says, he detected urea, uric acid, and the other ingredients of urine.* Similar cases are related by Pechlin, Valisneri, and others, and in a young man mentioned in the Upsal Transactions, the saliva is said to have exhibited urinous properties for four days, while he was affected with suppression of urine.

Examples of the Disease.

Case I.—A man aged 39, in the night of 14th January 1817, was seized with vomiting and pain in the back, stretching round the abdomen; he made water frequently, but without pain. On the 15th, had pain and occasional vomiting, but was not confined to bed, and was not seen by any medical person; made water frequently.

16th. Was seen by a surgeon, who found him with an exhausted look; pulse feeble, and below the natural standard; frequent vomiting; bowels costive; passed no urine.

17th and 18th. Less appearance of exhaustion; pulse natural; bowels moved by purgatives; no urine; occasional vomiting and hiccup; pain abated. On the 18th, a degree of jaundice appeared.

19th. (I saw him for the first time.) Frequent vomiting and hiccup; jaundice; pulse 72, and of good strength; bowels open; an evident tendency to coma; no urine; the catheter passed easily, and brought off about ℥i. A full bleeding was employed, which he bore well, and the blood was very buffy. He was then treated by purgatives; blistering; various diuretics; turpentine by the mouth and by glyster, &c.

20th. No vomiting since the bleeding; incessant hiccup; pulse

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* Nysten, Recherches de Physiologie et de Chimie Pathologiques.

natural; no urine; appearance rather improved; and at night a small quantity of urine was brought off by the catheter.

21st. No vomiting; less hiccup; pulse natural; coma increased; bowels open; about ℥vi. of urine by the catheter.

22d. Pulse 84; hiccup and coma increased; ℥vi. of urine by the catheter; jaundice continued; died in the night.

Dissection.—The liver along the upper and outer part of the right lobe was very soft and broken down. The lower part of the right lobe of the lungs was very dark coloured and soft, and adhered to the diaphragm. The kidneys were a little redder in the colour than usual; the ureters and bladder were healthy. The principal seat of disease seemed to have been the adipose substance behind the left kidney; at this place there were extensive marks of inflammation, and a part was quite black.

In this remarkable case there seemed to have been inflammatory action affecting various organs, but it did not appear to have affected the kidneys. The disease in the adipose substance behind the kidney is a singular affection, which has been observed in other cases, though without the symptoms which occurred in this case. A lady aged 30, after violent exercise, and being much heated, sat for some time in a current of air. In the evening she had pain in the bowels and vomiting. Next day she took a purgative, and at night felt much relieved. In the night she had pain in the back, with much restlessness, anxiety, and coldness, sunk rapidly, and died next day. The urinary secretion had been natural. On dissection there were marks of inflammation in the pancreas, and on the colon where it lies over the left kidney. The whole of the adipose substance surrounding both kidneys was in a gangrenous state, exhibiting a large mass of black pulpy matter, and there were slight traces of inflammation in the internal structure of both kidneys.*

Case II.—A young man aged 19, (18th Nov. 1812,) had urgent vomiting; appearance of extreme exhaustion; pulse 84 and weak; some pain across the back; no other complaint of pain; abdomen soft and rather collapsed; no urine for three days; and bladder found empty by the catheter. Complaints began on the 15th with vomiting, frequent and copious diarrhœa and pain over the abdomen. The diarrhœa was removed by opium; the vomiting had continued, with his pulse from 80 to 90. Bowels freely moved by injection on the 17th; was treated by cordials; warm bath; opiates; diuretics; blistering, &c. his state of exhaustion admitting of no active remedies.

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* Trans. of the Coll. of Physicians of London, Vol. IV. p. 226.

19th. Pulse 86 and small; skin cold; constant vomiting; little pain; no urine; much hardened feces brought off by injection.

20th. Vomiting abated; less exhaustion; pulse 90; no urine; much oppression, with a tendency to coma.

21st. Pulse 72; appearance of exhaustion quite removed, but coma increasing; bowels open; urine brought off by the catheter at different times through the day, to the amount of about the natural quantity.

22d. Pulse 84, of good strength; coma much increased; lbiss. of urine by the catheter; died in the night after slight convulsion.

Dissection.—Slight effusion in the cranium; and increased vascularity of the brain; a portion of the ileum 6 or 8 inches in extent, at its lower extremity, was gangrenous. Both kidneys were of a brighter colour than usual, showing some marks of inflammation. On the surface of both there were several dark spots; and in the substance of the left there was a small quantity of purulent matter; other viscera healthy.

Case III.—A lady, aged about 60, in April 1820, was affected with pain in the left side about the margin of the ribs, which was deep-seated, and was much increased by a full inspiration; pulse frequent; other functions little impaired. Was treated by an eminent practitioner with repeated bleeding, blistering, &c.; and with various remissions and aggravations, the complaint went on for five or six days, without showing any symptom calculated to excite alarm. On the 2d day, the pain and fever were much abated. On the 3d and 4th days, she had frequent bilious vomiting. On the 5th day, the pain returned, so as to require a repetition of the bleeding; the vomiting after this period occurring occasionally, though with less severity. From an early period of the disease the urine had been very scanty, and about the 5th day the secretion ceased. I saw her on the 7th day; she then complained of extreme oppression, and a feeling of exhaustion; the face was pale, and the eyes dull, but the pulse was about 84, and rather full; pain continued in the left side, affected by a full inspiration, but the breathing in other respects was natural; no cough; bowels open; no urine, and the bladder empty.

8th. No change; no urine; pulse natural; pain continued.

9th. Falling into coma; no urine.

10th. Coma increased; no urine; died at night. No dissection could be obtained.

A man, aged 35, mentioned by Dr Home, had cold shivering, cough, and scanty urine, afterwards dropsical symptoms, pain in the back, and right side, thirst, impaired appetite, and some vomiting. After three weeks, when he was received into the clinical ward, the vomiting and cough had ceased, and he was affected with headache, some anasarca, pain in the region of the kidneys, and suppression of urine; and the catheter being

used, no urine was discovered in the bladder. He became comatose, and died in 5 days, the anasarcous swellings having greatly diminished before his death;—the vomiting had returned, with diarrhœa. On dissection, the lower part of the right kidney was considerably inflamed, and there was inflammation of the pylorus, part of the duodenum, and a considerable part of the small intestine. There was effusion in the abdomen, the pleura, and the pericardium, and about ℥ij in the brain.*

These may be considered as examples of the true Ischuria Renalis. The following, though of a different nature, is nearly allied to it.

Case IV.—A gentleman, aged 70, in the night betwixt 21st and 22d February 1816, was seized with pain in his belly and sides, like colic pains, and found that he could pass no urine.

22d. Pains much abated; made no complaint of any uneasiness; pulse natural; no urine; bladder found empty.

23d. A good night; pulse natural; no urine.

24th. Was up and dressed, and walking about his house; pulse and appetite natural; complained of nothing except when closely questioned, some slight uneasiness in the back, scarcely amounting to pain; no urine; catheter repeatedly used and bladder found empty.

25th, 26th. Continued in the same state; was in his usual health, except that there was no urine.

27th. Began to show slight confusion of thought, and some hesitation of speech, and complained of giddiness; pulse rather frequent.

28th. Was confined to bed, but seemed relieved; pulse natural; no urine.

29th. Became comatose.

March 1st. Profound coma; bladder empty; died on the 2d. Repeated bleeding, purging, various diuretics, &c. had been employed. The blood showed a strong buffy coat.

Dissection.—The bladder contained no urine, but there were found in it three calculi, weighing each about ℥iiiss. The pelvis of both kidneys contained a small quantity of urine, and numerous small calculi, mixed with a quantity of sand. The ureter of the right side was completely obstructed about 3 inches below the kidney, by a rough dark-coloured calculus, about $\frac{5}{4}$ of an inch in length, and 1 inch in circumference. In the left kidney, besides the numerous small calculi already mentioned, there was a smooth white calculus, about $1\frac{1}{2}$ inch long, and $1\frac{6}{10}$ in circumference, and distinguished into two portions by a deep furrow which went nearly round it. Of these portions, the larger was contained in the pelvis of the kidney,

* Home's Clinical Experiments, p. 288.

and the smaller in the commencement of the ureter, where it was firmly grasped, so as completely to obstruct the passage of the urine into the ureter. There was considerable effusion in the ventricles of the brain ; other viscera sound.

This is properly to be considered as a case of ischuria ureterica, and there are several on record similar to it. In one described by Tulpius, there was no urine passed for eighteen days. The patient suffered severe pain in the loins, with fever and vomiting, and died comatose and convulsed. The left kidney was enlarged and livid, and contained many calculi, the largest of which had insinuated itself by its smaller extremity into the commencement of the ureter, so as completely to obstruct it. The right ureter also was obstructed by a calculus sticking in it at its commencement; "Quæ duo obstacula, (says Tulpius,) conspicue omnibus ostensa, vindicarunt artem ab ignominia." * A gentleman, mentioned by Dr Clarke, had pain in the region of the kidneys, and in the left side of the abdomen, with vomiting, fever, and suppression of urine, the bladder being found empty. He died comatose on the eighth day. Both kidneys contained sand and small stones, and both ureters were obstructed about the middle, by calculi the size of horse beans. † A more singular case is described by Mr Balderston, in which there was a suppression of urine, that continued almost total for fifteen days, the case then terminating by convulsion. The right kidney was of a monstrous size, and contained a large stone, many smaller ones, and some purulent matter. The left kidney was so small that it was found with difficulty, and neither in it, nor the ureter connected with it, was there any trace either of calculi or sand. ‡

In a girl aged 8, who died on the seventh day, Cnoffelius found the right kidney so encrusted with calcareous matter, that there seemed to be no passage into the pelvis of it; the left kidney was sound, but the ureter of that side was completely filled up and distended with red sandy matter. In this case it is probable that the left kidney only had been performing its office for some time, and that the fatal attack had arisen from the more recent obstruction of the left ureter.

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* Tulpii, Obs. Med. Lib. II. Caput 45.
† Edin. Med. Commentaries, Vol. VI. (1779,) p. 204.
‡ Edinburgh Medical Essays, Vol. II. p. 308.

TREATMENT.

The proper Ischuria renalis is in general to be considered as an inflammatory affection, and is to be treated according to the circumstances of the particular case by bloodletting, large blisters, warm bath, mild diuretics, especially digitalis given in pretty full doses at short intervals, and perhaps sudorifics. I am doubtful of the effect of turpentine, either by the mouth or by injection; probably in an acute case the tobacco injection might be useful. It would probably be calculated to relieve the inflammatory state of the parts, and might promote the descent of calculi, if the affection proceeded from the presence of them in the ureters. In Dr Laing's case, the remedies employed were bloodletting repeated three times, saline diuretics, warm bath, and occasional laxatives; and the case terminated favourably, after the secretion had been completely suspended for nine days.* M. Raymond has strongly recommended very large blisters across the region of the kidneys, and has described several cases in which a flow of urine soon followed the application of this remedy, after a variety of active practice had been employed in vain.† As a last resource, Lieutaud recommends emetics. "Nonnullos enim decumbentes, et cum morte colluctantes, hocce præsidio tempestivè adhibito ex orci faucibus ereptos vidi."‡

Case V.—In Autumn 1818, I saw a woman aged about 40, who complained of pain across the region of the kidneys; there was some fever, with general constitutional disturbance, and the secretion of urine had been suspended for three days. The complaint was ascribed to a large draught of cold water, taken when she was much heated, while at work as a reaper. She was bled to ℥xx. a blister was applied to the region of the kidneys, and she began to take 20 drops of tincture of digitalis every three hours. In the evening of the same day she passed some urine; next day it was abundant, and in a few days more she was well.

Ischuria Renalis has been chiefly attended to in adults, but I suspect it is not of unfrequent occurrence in infants. The facts on this subject are not at present such as to warrant any general conclusions, but merely to point it out as a most interesting subject of research. Of the affections of infants which terminate

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* Edinburgh Medical Journal, Vol. X. p. 409.
† Medical Obs. and Inq. Vol. V. (Appendix.)
‡ Lieutaud, Synopsis Praxæos-Medicæ, Tom. I. p. 269.

by effusion in the brain, and are included indiscriminately under the general name of hydrocephalus, there is reason to believe that there are important diversities. In the present state of our knowledge, I imagine it is generally admitted that the true idiopathic hydrocephalus is a primary disease of the brain, of an inflammatory nature, which must not be confounded with various other affections which terminate by effusion in the brain, though the primary symptoms were of a different nature. Of these there is probably a considerable variety, and in many of them the primary symptoms appear to be in the bowels. These occur chiefly in infants, and it is an interesting object of inquiry, whether some of them are not allied to the affection which has been the subject of this paper. Extensive observation is wanting, before we can venture on any conclusions, but there are facts which point out the inquiry as something more than conjecture. It may be considered as a fact, that Ischuria renalis is frequently followed by effusion in the brain, and it is a fact, that in many complaints of infants which terminate in the same manner, the primary symptoms were in the bowels. Now I believe it will also be found to be a fact, that in many diseases of infants, both simply febrile, and affections of the bowels, there is a remarkable diminution of the secretion of urine, amounting sometimes to a suspension of the secretion. The subject is worthy of careful investigation, and in a practical point of view, is one of considerable importance. A boy aged 9, whose case is related by Dr Willan,* a week after he had recovered from scarlatina, was seized with sickness and diarrhœa, (22d October 1786;) 23d and 24th, was much better, but on the 25th it was found that he passed no urine; his skin was cool; his pulse 90; and he complained of no pain. After the use of the warm bath, on the 26th he passed a very small quantity of urine; but on the 27th, the suspension of the secretion continued; and in the course of the day, he was seized with a kind of fit, in which he became very cold, and lay for some time in a state of coma. He recovered from this attack, however, and continued free from every urgent symptom, until midnight, when he complained that he could not see; then fell into a fit of coma, similar to the preceding, and soon after expired. No dissection was allowed in this case, but in a case considerably similar, which occurred to Dr Willan some time after, "The whole of the mesentery appeared to have been inflamed; the inflammation had extended thence to a considerable portion

* Medical Facts and Observations, Vol. III. p. 3.

of the ileum, in which there were found two gangrenous spots, each of them about the size of a sixpence. There was no urine in the bladder; the stomach, liver, and kidneys, were in a natural state; the gall-bladder was very turgid, and the mesenteric glands were much enlarged." This obscure affection had attracted his attention in several other instances, in which children had died unexpectedly, who had not been previously affected with any violent complaint. "The train of symptoms was nearly as follows: At first a slight feverish heat, restlessness, diarrhœa, and sometimes bilious vomiting, which continued for about a week. During that time the urine was made in small quantity, till at length the discharge of it entirely ceased, and soon afterwards the patients died unexpectedly, without complaining of pain or any particular uneasiness." Dr Willan had not an opportunity of examining the bodies in these cases, except in the one already mentioned, in which the mesentery appeared to have been inflamed. In the train of symptoms which he has described, there is a remarkable similarity to an affection of infants, which I have endeavoured to investigate in a former paper, and which I have considered as inflammation of the mucous membrane of the intestinal canal. In the cases of that affection which have occurred to me, the symptoms usually were, diarrhœa with some degree of fever, and frequently vomiting, and several of them were unexpectedly fatal by coma, while no symptoms had previously existed which indicated danger, or pointed out the affection as in any respect different from the common bowel complaints of the period of dentition. On dissection there was found reason to believe that the primary disease was in the mucous membrane of the intestine, in which there were portions in a state of inflammation, sensibly elevated above the level of the sound parts, and generally covered by minute vesicles or small ulcers. There was also remarked, in some of them, a considerable appearance of inflammation, or increased vascularity in the mesentery at the places corresponding to the inflamed portions of the mucous membrane. I know not whether that was the same disease that occurred to Dr Willan, but there certainly is a remarkable similarity. In some of the cases the urinary secretion was observed to be extremely deficient, or for a time suspended, but perhaps this symptom was not sufficiently attended to, for at the time when these cases occurred to me, I was not fully aware of the great importance of it, in the pathology of this affection.

The following case occurred to me lately. A child, aged 12 months, had enjoyed good health, except that he was liable at times to a loose state of his bowels; he had been weaned at 9

months, and had suffered no inconvenience from that change. On Thursday, 22d September 1820, he was seized with frequent diarrhœa and vomiting, and was observed to pass no urine; the stools thin and watery. The same symptoms continued on Friday and Saturday, and he was not observed to pass a drop of urine during these three days. He was not seen by any medical man until late in the evening of Saturday, when he was visited by my friend Dr Pitcairn; he found him in a state resembling the last stage of hydrocephalus, affording no room for practice; and he died soon after his visit. I examined the body along with Dr Pitcairn. The intestines were externally healthy, except some portions, which were of a dark colour; this was most remarkable about the lower part of the ileum; the mesentery was in many places unusually vascular, but not amounting to inflammation. There was extensive inflammation of the mucous membrane of the intestine in its first stage, at the lower end of the ilium; and a slighter degree in other places, especially in the colon. The bladder was collapsed and perfectly empty; the kidneys, liver, &c. were healthy. In the brain there was a little effusion, and a morbid vascularity in the medullary substance; innumerable red points appearing at every incision, as we observe in cases of acute hydrocephalus.