and carried the unattached end into a vessel beneath the bed. The object was fully attained. Not a drop of urine was ever afterwards passed through the perineum, and in a little more than four weeks the wound had quite closed. For six months I occasionally passed a No. 10 bougie. He remains well at the present time.

CASE II.—In May 1867, William C., aged 6 years, was brought to me from the country. In the previous January he had been cut for stone, and a large calculus weighing seven drachms had been extracted. For a time his symptoms disappeared, but they soon returned with increased vigour, and a fistulous opening at the inferior extremity of the cicatrix remained, from which urine was almost constantly dropping. On sounding, I readily detected the presence of more than one stone. On May 22nd, I performed lateral lithectomy, and extracted four small phosphatic coated calculi, weighing together one drachm. In the external incision I included the fistulous track. Immediately on the completion of the operation, I passed through the penis, and fixed in the bladder, a No. 6 silver catheter, with India-rubber tube attached. In the evening of the same day a wet spot, as large as a crown piece, was observed upon the sheet; but as this was partially stained with blood, and had not an urinous odour, it was probably from serum only. With this exception, if exception it could be called, all the urine passed through the tube. On the morning of May 25th, the tube and catheter were removed; the wound had closed except at the surface. The urine continued to flow through the urethra, and on the 26th he ran about the house quite well.

CASE III.—On March 12th, 1867, I removed a small oval calculus weighing two and a half drachms from the bladder of Mrs. M., aged 46, at Pudsey near Leeds. She had suffered from symptoms of stone for four and a half years, and during the last two years her life had been miserable in the extreme in consequence of the almost incessant straining to pass urine. The urethra was *rapidly* expanded by Weiss's dilator, to such an extent as to allow a pair of ordinary small sized lithotomy forceps to be introduced between the blades of the instrument; the stone was then seized, and was readily withdrawn. The extent of dilatation required for the extraction of the stone grasped by the forceps is represented by a circle, whose diameter measures seven-eighths of an inch. A silver female catheter, with India-rubber tube attached, was fixed in the bladder, and retained until March 18th. During the entire treatment not a single drop of urine ever escaped upon the bed, and when the catheter was removed she could retain her urine for an hour and a half. She now has perfect control over the bladder, and is quite well.

CASE IV.—In December 1867, I was called to see Mrs. B., who five days before had been delivered of her first child. Her labour had lasted many days, and finally a dead child had been extracted by instruments. For the first two days after her delivery, she had not passed any water, and since then she had suffered from violent abdominal pain, and her bed had been constantly soaked with fetid urine. I found the bladder distended so as to reach above the umbilicus, the vagina in a putrid and sloughing state, and urine dribbling from the orifice of the urethra. A very large quantity of decomposed urine was at once drawn off through a catheter, which, with India-rubber tube attached, was fixed in the bladder. The friends were directed to syringe the vagina several times daily with warm water. The catheter was removed at the end of six days, having during the whole of that time been the means of keeping the bladder continually empty, and the bed perfectly dry. The patient ultimately recovered with no other defect than a contracted vagina.

I might cite many other cases; but these are sufficient, I think, to prove that it is quite possible, by the means I have indicated, to carry off all the urine as secreted both from the male and female bladder, without allowing any to escape by the side of the instrument; indeed, whilst I have in dozens of instances proved the fact, I have not yet met with a case in which urine escaped by the side of the catheter.

It would seem then that, if the urine be allowed to accumulate even to a slight extent, whilst a catheter is retained in the bladder, as is necessarily the case where a *plugged* catheter is made use of, the bladder will by its contraction force some of its contents out by the side of the catheter, and so defeat our object; whereas, if a continuous drain be provided, whereby the bladder can be kept constantly empty, the urethra, even when it has been freely incised, or, as in the third case narrated above, when it has been very considerably dilated, may be kept free from the contact of urine.

I need hardly dwell further upon the importance of this fact in the after-treatment of operations upon the urinary apparatus. I am sanguine enough to think that the use of the continuous drainage-tube may be the means of materially diminishing the mortality in these cases, by removing the principal barrier to union by first intention of the incisions into the urethral canal.

Before concluding, I am anxious that I shall not be understood to be putting forth a claim to have been the first to have attached an India-rubber tube to the end of a catheter, for the purpose of carrying off the urine into a vessel beneath the bed; for I am well aware that several surgeons have anticipated me in that they have made use of the tube for purposes of cleanliness and convenience, but I am not aware that it has ever before been suggested as a *principle* of treatment in lithotomy and perineal section. And yet, whilst my main object is to show, that in the India-rubber tube we have a means at our command by which urethral wounds may be rendered comparatively simple, I would take this opportunity of strongly recommending its extended application in many of those cases, whether in the male or female, in which the frequent use of the catheter is called for, on account of the great comfort which will be thereby secured for the patient, and the valuable convenience it will prove to the surgeon. I have known a medical man travel thirty miles a day, during many consecutive days, for the purpose of passing a catheter for a female after parturition, and I have lately restored the perineum by the usual plastic operation in a patient, who, owing to the distance at which she lived, would have been compelled at great inconvenience to have left her home, had I not been able to dispense with the necessity of regular catheterism by the use of the tube.

A CASE IN WHICH HÆMATURIA OCCURRED AS THE CONSEQUENCE OF OXALURIA.

By DYCE DUCKWORTH, M.D.,

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THE following case is remarkable for several reasons; and I am induced to record it, because I have neither seen nor read of one which resembled it.

A gentleman, about thirty years of age, came under my observation in August 1868, suffering mostly from a slight hæmorrhoidal condition. He was usually a strong and active person, but had felt much relaxed and weakened of late, owing to the extreme heat of the summer.

There were no distinct hæmorrhoids, but there was a general turgescence about the anal vessels. A sensation of tightness and uneasiness about the lower part of the rectum was experienced. Nothing was particularly noteworthy about the complexion; the skin was soft, often perspiring; the tongue flabby, indented, and clean; the appetite fairly good; the bowels rather constipated; pulse over 70, rather soft, of fair volume. The urine was acid, and usually deposited lithates, especially in the mornings. He confessed to having taken less exercise of late, especially in the evenings after dinner, which was his custom in summer time. There was some lassitude, and occasionally depression of spirits. Physical examination elicited nothing beyond the fact that deep palpation over the liver caused some dull pain.

A regulated diet, with small doses of the mercurial and colocynth pill, did not relieve these conditions, and in about ten days a new symptom occurred. It seemed that, after micturition one afternoon, a troublesome smarting was felt in the whole course of the urethra, extending indeed from the pubes to the meatus. Some uneasiness remained that evening in the perineum, and after each subsequent micturition the pain was induced afresh. This led the patient to examine the urine he passed, and it was found to be clear, but of a bright red colour. I procured some of this, and carefully examined it. On standing for a few hours, a granular deposit occurred, not unlike the sediment which falls from beef-tea. The urine was highly acid. With heat and nitric acid, coagula formed to some extent. Microscopic examination revealed the presence in the sediment of numerous blood-discs, mucus-corpuscles, and abundant octohedral crystals of oxalate of lime, some of the latter being very large. There was no appearance of renal epithelium or casts of the tubes.

Next day, the morning urine was clear and free from all appearance of blood; some few crystals of oxalate of lime, however, were deposited from it. Nothing further was noticed by the patient till three days subsequently, when the same series of symptoms recurred, the bloody urine and urethral uneasiness returning. Examination of the urine shewed the presence of the same structures as on the previous occasion.

On reviewing the facts of the case, it was not at first clear whence the hæmorrhage proceeded. No pure blood was passed; not even a drop. It was noticed to be intimately mixed with the urine at the time of passing it. No blood-casts or tube-casts were found, though careful examination was made with a view to discover them. Close investigation elicited no probability of calculus in either kidney, or in the bladder, and there was no previous history of renal colic. There

were, moreover, no dumb-bell-shaped crystals of the oxalate of lime detected in the urinary deposit; and these I knew Dr. Beale regarded as at least pathognomonic of the gravest form of oxaluria.

Not to lose time in treating these symptoms, the patient was put upon a nitro-muriatic acid mixture, and dieted so as to favour as little as possible the presence or production of oxalic acid in the system. This last consisted in withholding all vegetables, malt liquors, and wines; keeping to moderate allowance of bread and meat, with milk, and a little brandy and seltzer water. Gentle exercise was enjoined, and the patient was advised to be in the open air as much as possible.

The next noteworthy point in the case was a certain periodicity in the symptoms. They were noticed to be most marked about five o'clock in the afternoons, and walking seemed to aggravate the urethral distress.

That there was nothing in the case to ally it with those of the intermittent or paroxysmal form of hæmaturia, I felt confident, since there were no preliminary chills, nor was there a source for these during the extremely warm weather then present. There was no history of ague. The urine remained bloody till the morning of the following day, and blood globules were always found in it, which is certainly not often the case in the paroxysmal hæmaturia. Moreover, the oxalate of lime was persistently present; and thus the opinion rose uppermost that there was cause sufficient for the hæmorrhage in the large and irritating crystals of this salt which collected and irritated the vesical and urethral surfaces. Further, I could not ignore the continuance of the congested state of the adjacent hæmorrhoidal vessels, and the presence of dull hepatic pain—symptoms clearly pointing to an improper condition of the liver.

At this time I had the advantage of seeing the case with my colleague Dr. Andrew, who carefully examined the urine, and investigated the symptoms. He quite concurred in the view taken and above expressed, and was disposed to ignore any notion of more grave renal or vesical affection. It was agreed to treat the hæmorrhoidal state more directly, and to continue the more special method to obviate oxaluria. Two drachms of the confection of black pepper were accordingly ordered to be taken each night at bedtime, and the acid mixture three times daily before meals. The result of this treatment was, that the turgid state of the vessels about the anus shortly passed off, and no more blood appeared in the urine; the oxaluria likewise disappeared. In the course of the next six or eight weeks, however, the patient suffered from a succession of painful boils, three in number, upon the right forearm. He removed to the country for some weeks, and thoroughly regained his former health. Up to the present time, eight months subsequently, there has been no recurrence of the hæmaturia, nor indeed any urinary disturbance whatever. Two months ago I detected upon all the fingernails of this person, and upon those of the great toes, transverse furrows. These, from their position, evidently corresponded to the parts grown during the period of depressed health.*

It may be well to review briefly the leading features of this case. First, as to the symptoms: there was a generally relaxed, atonic condition of system; there were signs of a somewhat congested liver, as evinced by hepatic tenderness, constipation, and loaded hæmorrhoidal vessels: under these circumstances, several attacks of hæmaturia occurred, accompanied with irritability of the neck of the bladder, and whole course of urethra.

For the reasons before mentioned; viz., the absence of renal colic, of the passage of any kind of gravel, clot, or fibrinous shred at any time, as also of lumbar pain or tenderness, the idea of calculus could not be entertained. There was no history of blow or injury to the loins, and no purpuric or hæmorrhagic tendency. No special irritant of any kind had been taken or applied to the body. The urine, between the attacks, was natural, with the exception—in this instance important—of some crystals of oxalate of lime; hence the renal textures were presumably healthy. The blood, when passed, was always intimately mixed with the urine, and so it seemed fair to suppose that there could be no important source of bleeding in either the bladder or urethra. And yet I believe these surfaces did yield the blood in this instance. The situation of the pain and uneasiness, together with the presence of great abundance of large crystals of oxalate of lime, appeared to point to the true nature of the case. We can indeed exclude the kidneys as to their secreting structures, and almost their infundibula and pelves, the ureters likewise, from contributing to the hæmorrhage; certainly there were no marked symptoms referable to any of these parts.

That urine charged with oxalate of lime crystals, independently of even small calculi, should prove a source of cystic or urethral hæmorrhage, is not usually taught or believed. It is not unworthy of note,

however, in connection with this point, that crystals of oxalate lime, generally in small quantity, it is true, not unfrequently appear in the urine in cases of hæmaturia, due to very various causes; such, for instance, as is produced by injection of turpentine (vide case reported by Dr. G. Johnson, *Diseases of Kidney*, p. 487), by the presence of "irritating material" in the blood (*ibid.*, p. 490), or, more commonly still, in the intermittent form of hæmaturia, where, as Dr. Greenhow has shewn (*Transactions of the Clinical Society*, 1868), oxalates are very often present. I may mention here that, when some time back, I repeated some interesting experiments, devised and fully carried out by Dr. Leared, upon the artificial induction of oxaluria, I did not notice hæmaturia in connection with the symptoms (*St. Bartholomew's Hospital Reports*, vol. ii, 1866); neither, I believe, did Dr. Leared. Hence, I think, we may not look for this symptom in ordinary cases of oxaluria; there must be some other morbid state or tendency in addition to the oxalic diathesis, however temporary or confirmed the latter may be.

"Hæmaturia is not a recognised consequence of oxalate of lime, unless when a calculus has formed." So writes Dr. George Johnson (*op. cit.*, p. 492). The late Dr. Todd (*Clinical Lectures on Urinary Diseases*, p. 62, edit. 1857), in commenting on a case of cystic hæmaturia, which indeed bears resemblance, in some particulars, to the one here detailed, except that the blood was passed only at the completion of micturition, asks—"could the great abundance of oxalate of lime crystals in the urine have acted as an irritant to the bladder, exciting the mucous secretion as well as the hæmorrhage?" If we ask this question with reference to the present case, I believe we may reply in the affirmative. It is fair to suppose that there was a turgid condition of the vesical mucous membrane, and the prostatic portion of the urethra, and that the presence of a considerable amount of such irritating material as large octohedra of oxalate of lime lodging about these congested surfaces, induced rupture of certain of their capillaries from time to time.

The subsequent outbreak of boils is noteworthy in connection with the oxaluria, general atonic condition, and perhaps with the presence of "irritating material" in the blood.

With respect to the therapeutics in this case, it was clear that benefit was first and most unequivocally derived from the employment of Ward's paste, or confection of black pepper. This, no doubt, relieved, as it so often satisfactorily does, the hæmorrhoidal congestion which led to the prominent symptoms, while the good effects of regulated diet and hygiene, with direct treatment by the mineral acids, led no less obviously to the removal of the oxalic diathesis.

ON ACUPRESSURE.

By JAMES F. WEST, F.R.C.S. (Exam.)

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THE following table, showing the results of acupressure in a number of important surgical operations, performed at the Queen's Hospital within a period of twelve months, was brought forward by me at the Inaugural Clinical Address which I delivered at the opening of the present winter session, in testimony of the value of that method of arresting hæmorrhage.

It will be observed that in only two of these cases did any bleeding follow its employment; one was a case of secondary amputation of the leg just below the knee in a delicate boy, aged 17, whose foot had been crushed by a waggon, and in whom sloughing of the leg followed; and the other was an amputation of the thigh by Teale's method for acute necrosis of the femur with suppuration in the knee-joint, also in a boy, aged 13. In both cases, hæmorrhage was arrested by pressure on the femoral artery, without any reapplication of the needles being necessary. In one instance the tourniquet, and in the other digital compression was used for the purpose, and both terminated favourably.

Out of the whole number, only two cases proved fatal, but in them the result was in no way due to hæmorrhage. *Post mortem* examination in each case showed that the arteries had been firmly compressed by the needles, and that above the site of pressure coagula existed which blocked the arteries completely, and further there was no extravasation of blood between the flaps. Both patients died from shock: one was a case of double amputation of the lower extremities for a railway accident, which proved fatal in six hours; and the other was a case of amputation of the thigh through the trochanters, of a young strumous girl, who had been much reduced by profuse suppuration from a deep burn, and who never rallied from the effects of the operation, but sunk on the morning of the fourth day. Reference to this table will show that the average length of time which elapsed before withdrawal of the needles was about fifty hours. Simple needles applied after Sir J. Simpson's first and fourth methods without ligature were used in all the cases.

* This symptom was first pointed out, I believe, by the late M. Beau, of La Charité in Paris. I know that nine years ago, in his wards, he used frequently to direct attention to it. Dr. Wilks has lately brought the subject forward again.