defective, the insane and the habitual criminal. It relates to the sequestration of all so affected, which custody not only confines the individual but limits for a time or permanently the exercise of his reproductive functions.

SURGERY OF THE KIDNEY.

BEING A STUDY OF A SERIES OF CASES IN WHICH METHODS OF DIAGNOSIS AND TREATMENT ARE ILLUSTRATED.

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PERSISTENT RENAL HEMATURIA.

There are still many dark chapters in pathology and clinical medicine. To one of these belongs the subject of this paper. It can only be illuminated by calling the attention of the profession to the clinical features of these obscure cases and bringing to light the experience of the profession, which lies hidden in the literature and the note books. This paper tries to accomplish these two things and leaves for the fortunate pathologists the task of demonstrating the pathologic lesions of what seems to be a clinical entity.

Renal hematuria is to be distinguished from hemoglobinuria by the presence of blood corpuscles in the urine coming from the kidney in the place of urine stained with the coloring matters of blood.

The case here recorded and the collection of those relatively similar from recent medical literature seem to point to an unknown condition, or series of conditions, of which renal hematuria is the principal symptom. This condition has been met with in nearly all the hospitals of the world and it has been given, in the hospital reports, that clinical diagnosis, hematuria, which is so unsatisfactory to the pathologist. Thus, in the Berlin Charité, during five years ending 1893, there were 124,000 admissions, of which 22 received the diagnosis of hematuria. In the English reports this diagnosis is still more frequent.

Renal hematuria is common enough in injury of the kidney, in nephritis, in acute infectious diseases, in scurvy, in tuberculosis of the kidney and in calculus and new growths in the kidney. In the case before us the bladder showed no evidence of tubercular disease. The examination of the urine rejected nephritis and the examination of the blood excluded malaria. No detritus or formed elements, such as might reasonably be expected in cancer or other tumors could be found. No tubercular bacilli could be discovered in the sediment. The history had, to be sure, a distinct trend toward an acute local disease of the left kidney, but the condition of the urine from the two ureters pointed to a bilateral or to a constitutional disease.

This case, however, was carefully examined, the general conditions noted, the complete genito-urinary examination made and the contraindications to the removal of the left kidney, required by the clinical diagnosis, were made imperative.

The study of hematuria should always be prosecuted with the greatest care and exactness. The possibilities of tuberculosis, tumor, cancer and calculus are such grave possibilities that no means of diagnosis can safely be omitted. The urethra should be dilated, the bladder examined with the cystoscope and the catheters passed into each ureter, and even up to the pelvis of the kidney.

The danger of producing a ureteritis or a pyonephrosis, by the use of the ureteral catheters must not be forgotten. Nevertheless no case is recorded in which an unfavorable result has followed ureteral catheterization in the hands of experienced and careful operators. Casper[1] reported before the Medical Congress at Wiesbaden, that in 250 cases, of both men and women, in which the ureteral catheters had been used by him no case of infection had occurred. This procedure, like every other surgical operation, should, however, be employed only when adequate indications for it exist, and should, when such indications are present, never be neglected.

Synopsis. A multipara, 39 years old, with no history of hereditary or personal hemophilia: an acute painful attack in the left side accompanied with hematuria, which continued two years. This hematuria increased by exercise. A tender left kidney. Less than the normal amount of very bloody urine from the left ureter; more than the normal amount of less bloody urine from the right kidney; rest in bed and milk diet without improvement. Antisyphilitic treatment added; great improvement.

Mrs. C., 39 years old, was placed in my care in St. Luke's Hospital on April 14, 1896. She was a thin, anemic woman. She had never had malaria. Her husband has had an uncertain venereal history. Her mother is still living, but has some sort of skin disease of an unknown character. Her father died from an operation for hemorrhoids. No history of hemophilia in the family. One sister died of acute pulmonary tuberculosis. The other members of the family are in good health. Menstruation began when she was 13 years of age and was regular up to the time of the present illness. She was married at 18 years, had one child now 16 years old, and some years later had a miscarriage. Her present illness began two years ago with pain in the left side in the region of the kidney and with bloody urine. She was sick in bed at the time with chills and fever for several weeks. She does not know whether the pain or the bloody urine appeared first. During this sickness poultices were applied to the left side and back. The pain has been almost constant ever since. Bloody urine has been the most pronounced symptom of the disease. It is greatly increased on any exertion. The patient has lost twenty-five or thirty pounds and now weighs about 100. She is excessively anemic. The heart's action is violent on the slightest exertion. No evidence of disease could be found in the nose, throat, eyes, ears, or lungs. There was no heart murmur, no lymphatic enlargement, no enlargement of the spleen or thyroid. Since this disease began menstruation has been irregular, sometimes missing two or three months and the flow has been very scanty and watery. On admission she was put on a milk diet, her temperature was 99 degrees F., pulse 72, respiration 22. Twenty-eight ounces of dark bloody urine of an acid reaction and a specific gravity of 1.016 was passed in twenty-four hours. No pus, casts or formed matter, except blood corpuscles, could be found in the sediment, which was precipitated by the centrifugal machine. Examination of the kidneys demonstrated a body moving with each inspiration in the site of the right kidney; in the site of the left a similar body could be felt much less movable and very sensitive to a rolling pressure. The examination was easy on account of the spareness of the patient and the relaxed condition of the abdominal walls. The other abdominal organs seemed to be in normal position and of normal size. The spleen

[1] Berlin klin. Wochenschrift, Vol. i, 1896.

was certainly not enlarged. The heart's apex was three inches from the median line, and while sitting, a little below the fifth interspace.

On April 14, the left ureter was catheterized and one cubic centimeter of urine, dark with blood, was collected in fifteen minutes. This urine after the removal of blood and albumin, contained 17 grams of urea to the liter. The right ureter was also catheterized. There were 10 cubic centimeters of bloody urine passed in fifteen minutes, containing 28 grams of urea to the liter. By vaginal examination the ureters could not be felt and they were certainly not thickened or enlarged. The interior of the bladder was pale as were all the other mucous membranes of her body. There were 3,500,000 red blood corpuscles per cubic millimeter in her blood. She had had several wounds, but never any symptoms of hemophilia.

It was evident from the examination that the discharge of blood in the urine was not a local disease and the anemia contraindicated the removal of the left kidney, which seemed to perform some little function. The patient was, therefore, put to bed on a milk diet and after a time of no improvement, antisyphilitic treatment was begun. During two months of this treatment the patient gained twenty pounds and the amount of blood in the urine was greatly diminished.

At a recent examination of her urine, about July 15, great improvement was noticed. The urine free from blood and albumin is high colored, 4 or 5 on Vogel's scale. There is about one-half the normal quantity in twenty-four hours, namely 500 cubic centimeters. The normal solids are also about one-half the normal average except uric acid which is relatively in excess and absolutely normal. The albumin is 0.2 per cent. by weight. The urea is 26 grams in twenty-four hours. There are no formed elements in the sediment except a few red blood corpuscles.

This is a very interesting case from the clear history of the disease of the left kidney, the large amount of blood in the urine and the almost absolute clinical indications of a unilateral disease, which might be helped by the removal of the left kidney. The examination of the urine from the two ureters, however, seemed to me a complete contraindication to the operation as it demonstrated the same disease on the other side. The anemia also was a contraindication to any operation, which did not promise to entirely arrest the hemorrhage. The value of catheterizing the ureters is not better shown than by this case. Before any operation is undertaken on the kidney both ureters should be catheterized and the results compared with the combined urine for twenty-four hours.

The pathology of this case is undemonstrated. It is evidently not a case of malaria, as the blood examination and the small spleen plainly showed. There were no parasites in the urine. Neither ureter was enlarged. Enlargement of the ureter might be expected in suppurative or tubercular disease of the corresponding kidney. The fact that some improvement was made under antisyphilitic treatment might be considered by many a positive diagnosis, but to me this fact does not warrant the conclusion. There are many cases in the literature which resemble this one in nearly all particulars.

In December, 1890, Senator[2] presented before the Berliner Medicinische Gesellschaft an interesting case of renal hematuria. The patient was a girl 19 years old, who gave a history of hereditary hemophilia. The cystoscope showed that the blood came from the right ureter. Rest was tried without success. The kidney was exposed by lumbar incision and appeared normal. The hematuria was so great that extirpation of the kidney was considered necessary to save the life of the patient, which was threatened by the anemia. Sonnenburg, who was present, agreed in the conclusion of Senator to perform nephrectomy. When the kidney had been removed it still appeared normal. Microscopic examination discovered the fact that the hemorrhage occurred inside Bowman's capsule and that the urinary tubules contained blood. In the discussion Senator referred to three other cases of a similar nature, one reported by Sabatier.[3] The patient was a woman 30 years old. Pain in the region of the kidney came on suddenly, with dyspnea, vomiting, strangury and bloody urine. The hematuria continued seven years. The patient gave a tubercular family history and had a cough. Repeated examinations showed tenderness of the right kidney, but no tumor. The other abdominal organs were perfectly normal. There was no gravel and no pus in the urine. During the year her case was under observation various diagnoses were made, namely, 1, tubercular kidney and rheumatism; 2, tubercular peritonitis and uremia; 3, paroxysmal hemaglobinuria; 4, nervousness, simulation, and 5, calculous nephritis. Oct. 16, 1886, Sebatier extirpated the right kidney. No stone was found and the microscopic examination did not demonstrate anything abnormal except a slight sclerosis. Sabatier considered the kidney perfectly sound. After forty-eight hours of bloody urine the last trace of blood disappeared and the patient recovered perfectly. Shede[4] is also quoted by Senator as reporting the following case: A strong, well man, 50 years old, with no hereditary taint, had very bloody urine for years, coming on after taking a cold drink. The bladder was found normal. The urine contained red and white corpuscles in their normal ratio to each other, but no other formed elements. Through a suprapubic cystotomy opening the two ureters were catheterized. This procedure showed that the blood came from the left ureter alone. Five days later, July 1, 1889, the left kidney was explored through a lumbar incision. It did not appear abnormal and nothing was found in the pelvis. It was, however, removed, but the microscopic examination demonstrated no adequate cause of the hematuria. Lanphear[5] observed a case of hematuria in a man 55 years old, but he did not catheterize the ureters and made the diagnosis of renal hematuria by washing out the bladder with boric acid solution and finding the fresh injection clear.

Broca[6] recites a case which is interesting in this connection. The patient, well until the present illness, was confined two years before with a perfectly normal puerperium. She served nineteen months as a wet nurse. Menstruation began nine months after confinement. In July, 1890, one month after weaning the child, hematuria appeared with indistinct pain in the right side. This advanced little by little with increasing pain in the right lumbar region; in the left side there was only occasional tenderness. After thirteen months of hematuria, very great lassitude appeared. One physician diagnosed a downward dis-

[2] Senator, H.: Über renal Hämophilie. Berlin klin. Wochenschrift, 1891, No. 1.

[3] Sabatier: Néphralgie hématurique. Revue de Chirurgie, Paris, 1888, p. 62.

[4] Jahrsbücher des Hamburger Stadtkrankenhauses, 1889.

[5] Lanphear, E.: An Obscure Case of Hematuria. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Chicago, 1894, vol. 22, p. 117.

[6] Broca, A.: Hémophilie rénale et hémorragies rénales sans lésion connue, Ann. malad. des org. genito-urin. December, 1894.

placement of the kidney, a truss was worn without improvement. Sixteen months after the beginning of the hematuria Broca first saw the patient and on strong pressure only could tenderness of the right kidney be demonstrated, but no enlargement or displacement. There was no colic. The urine was uniformly mixed with blood. There was frequent and painless micturition. The patient was in good condition and had a good appetite. A most careful examination of the urine gave no evidence of tuberculosis and no evidence of carcinoma. Rest in bed and a milk diet were tried without effect on the hematuria, which lessened a little during menstruation to increase again after it was over.

On Dec. 17, 1891, the kidney was laid bare through a lumbar incision, peeled out of its fat capsule and brought to view in the wound. Inspection and palpation failed to demonstrate anything abnormal. Exploratory nephrotomy revealed nothing more. This diagnosis was confirmed by Hartmann and Terrier, who stood by. The kidney and wound were closed, the latter without drainage, and recovery followed. The first urine passed after the operation was bloody, after that there was no more hematuria and no more tenderness in the right kidney. The patient was seen occasionally for three years and she remained perfectly well. It would have elucidated this case if the ureters had been catheterized. We do not know that the blood came from the right kidney alone.

Passet[7] describes an interesting and obscure case of renal hemorrhage in a woman who had four children. The first attack came on after menstruation and the next one six months later. It was considered a case of vesical hematuria and was treated by injections of nitrate of silver solution. Cystoscopy was impossible on account of the hemorrhage. Digital exploration discovered a small tumor (?). Suprapubic cystotomy was performed and the bladder found perfectly normal in appearance, the ureters were catheterized and the blood found to come from the right ureter alone. On account of the anemic condition of the patient it was not thought best to do nephrectomy at once. The bladder was sewed up and the patient recovered. The urine became clear and continued so for two years, when a transient attack of hematuria came on again. No similar attacks appeared during the following year during which she was under observation.

A somewhat similar case is reported by Stavely.[8] The patient was a multipara, 39 years old, who noticed blood in the urine two months after the birth of her last child. It was intermittent, but at last it came on every other week. She was anemic, 3,172,000 red, 10,000 white corpuscles per cubic millimeter of blood. The urine was very bloody and contained 110,000 red blood corpuscles per cubic millimeter of urine. No tubercle bacilli could be found in the urine. The bladder was found clear, the left ureter was catheterized and 10 minims (.66 cubic centimeters) of reddish yellow urine containing blood corpuscles was passed in five minutes. This was repeated on the following day, but it was not possible to pass the sound into the right ureter in the ordinary manner. An incision was therefore made in the base of the bladder and the right ureteral orifice exposed and catheterized. The urine from the right kidney contained a trace of blood, the wound in the bladder was closed with silk-worm sutures. The left kidney was then exposed and explored by a deep incision into the back of the kidney down to the pelvis. No disease could be found. The wound was closed. The patient recovered and the hematuria disappeared.

The second patient was probably 35 or 40 years old had borne children. A year ago she suddenly developed hematuria without any known cause, which hematuria had continued, with slight exacerbations ever since. The urine had a specific gravity of 1.020. It was slightly acid and contained quantities of blood but no casts. The ureters were catheterized simultaneously by touch. The bladder was full of methyl blue solution at the time. In fourteen minutes, 20 minims (1.3 cubic centimeters) of dark bloody urine was obtained from the left kidney and 10 minims (.66 cubic centimeters) of clear amber urine free from albumin from the other. The left kidney was exposed and incised along its back while the renal vessels were compressed between the thumb and finger, but no disease could be detected. The kidney was closed with gauze drainage. The wound was also closed. The amount of blood in the urine gradually disappeared until the fifteenth day after the operation, when it was all gone and never returned.

Denny[9] of St. Paul, Minn., reports a case of persistent hematuria and uses its ultimate recovery without operative procedure as an argument against early operation. It would be more logical from these data to insist upon an exact and absolute diagnosis. The history is very clear, but no positive diagnosis was made and as the man, who was 39 years old recovered promptly with vesical injections of nitrate of silver solutions, and has since remained well, it is possible that he suffered from hemorrhage of the bladder.

1. Renal hemorrhage can be demonstrated only by the catheterization of the ureters and kidneys, and these procedures should always be accomplished before nephrotomy or nephrectomy. The Pawlick or Kelley instruments may be used with females, but the Casper or Nitze instrument must be employed in males.

2. The patient should undergo a most careful observation in the hospital and a protracted rest in bed with a milk diet before an exploration of the kidney is made.

3. There is some unknown pathologic condition of which hematuria is a symptom, which has not yet been explained, and this condition seems to be relieved in some cases by nephrotomy and in others by palpation of the exposed kidney.

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LUXATION OF THE ENSIFORM PROCESS.

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Dislocation of the xyphoid appendix is a rare occurrence, and only a few instances have been recorded. Owing to the rarity of this accident, I deem it important to give it publicity.

The patient, a German, aged 33 years, and of of a robust build, consulted me for what he termed "chronic indigestion" about one year ago. He gave the following history: About three years prior to coming to the city he was in Philadelphia on a visit. During his meanderings he inbibed too freely and mistaking a lamp post for the middle of the sidewalk ran against it with great force, receiving a terrific blow, as he explained, about the "pit" of the stomach. The blow felled him to the pavement where he lay unconscious for a few minutes. He was removed to his hotel where he rested fairly well the night of the accident. During the night he vomited freely several times, which seemed to give him relief. The next morning the patient left for his home before medical attention was summoned. After his return home the man was enabled to transact his usual farm duties after an elapse of two or three weeks. The patient has lived in this city for some time and has for the past several months been a sufferer from indigestion, which he says was invariably accompanied by vomiting. This is especially the case if he lies down directly after eating.

Upon examination I found a complete luxation of the ensiform cartilage from the gladiolus, which could be moved easily in all directions.

This manipulation gave the man some pain, and caused him to say several times he "felt sick at the stomach." I tried all manner of palliative measures which proved useless. I suggested an operation with a view to anchoring or extirpating the offending member, but this was not acceded to. The man has been, for the past half dozen months losing flesh steadily, and his weight is now, I learn, in the descendency.

Since consulting me a short while ago, I am informed, the man has moved to some point in Texas.

306 Equitable Building.

SELECTIONS.

Anti-Choleraic Inoculations.—Dr. W. J. Simpson submits the results of the anti-choleraic inoculation work as carried on in Calcutta during the past two years.

The vaccins used for this work are prepared in the laboratory by a specially trained medical officer and the inoculations in the bustees and other parts of Calcutta are done by another medical officer.

The following records of the inoculations are kept in the Health Office:

1. A daily register filled up at the time of inoculation containing name, father's name, sex, age, caste, occupation, residence and place of inoculation; also any relative who may be inoculated.

2. An alphabetical register containing the names of the inoculated with the above details, so that ready reference can be made as to whether a person attacked with cholera has been inoculated.

3. A ward register showing the residence of the inoculated people, so that when any particular locality is affected with cholera the inoculated in that locality may be easily found.

The number of people inoculated during the period under review was 7,690; of these 5,853 are Hindus, 1,476 Mahomedans, and 361 other classes. Considering that the system is a new one, that the inoculations are purely voluntary and everything connected with them has to be explained before the confidence of the people can be obtained, and considering how long new ideas are in taking root among the general population, and in this case it is not merely the acceptance of idea, but such faith in it as to consent to an operation, the number is certainly satisfactory for a beginning.

The present problem can be compared with the introduction of vaccination against smallpox in Calcutta. It took twenty-five years before the number of vaccinations reached an average of 2,000; whereas the inoculations against cholera have in two years nearly doubled that average. This is proof that in spite of the difficulties which every new movement naturally has to meet with, there are large numbers of people anxious to avail themselves of the protective effect of the inoculations.

There is a certain discomfort produced by the inoculations, such as an attack of fever lasting about twenty-four hours, pain at the seat of inoculation on moving, thus interfering with heavy physical work for about thirty-six hours. The discomfort is not, however, worse than that induced by vaccination when the vesicles have risen well, and it has the advantage of not lasting nearly so long. The method of inoculation has been recently simplified by dispensing with the first vaccin, the second now being used directly in smaller doses. This increases slightly the degree of discomfort, but does away with the necessity of undergoing two inoculations. As in vaccination, the symptoms after inoculation, *i.e.*, the degree and duration of the fever and local effect vary according to the idiosyncrasy or peculiarity of constitution of the inoculated person; but it is necessary to prominently bring to notice that although all sorts and conditions of individuals, weak and strong, sickly and healthy, young and old, well nourished and badly nourished, and often persons suffering from chronic diseases have been inoculated in every instance without exception, the inoculations have proved perfectly harmless. In several instances, like that lately in Serampore, reports have been spread that injuries have followed the inoculations; on investigation it has been proved by the official medical and civil authorities that these reports were absolutely untrue. Since the system is new and disquieting rumors are harmful it is important that the Commissioners should know the real state of things in order that they may be able to give assistance in dispelling any false notions on the subject.

When an epidemic, such as cholera, attacks a town there are always localities and classes of the population which are not reached by the infection, while on the other hand, even among those who are actually exposed to the infection there are a number who escape owing to their hereditary or gradually acquired powers of resistance. As a rule outbreaks occur in particular localities and houses. The investigations on the effect of the inoculations are made exclusively in those houses in which cholera has actually occurred, the object being to ascertain and compare the incidence of cholera on the inoculated and not inoculated in those houses in which inoculations have been previously carried out. For this purpose affected houses in which inoculations have not been performed and inoculated houses in which cholera has not appeared are excluded as they do not generally furnish a reliable basis for comparison.

In seventy-six houses there were eighty-nine deaths from cholera, seventy-seven being among the uninoculated and