

Pathogeny.—According to Davaine, this parasite is rarely found in the kidney. It is a sac composed of several layers, transparent and hyaline, the mother-sac, and within it are contained a watery fluid and a number of small vesicles (daughter-vesicles), attached to the brood-capsule (mother-sac) or floating freely. These daughter-vesicles vary in size from a grape-seed to an orange—the largest containing their own progeny, or granddaughter-vesicles. As the daughter-vesicles enlarge, the brood-capsule with its germinating layer also enlarges. Within each capsule or vesicle is seen the scolex, or so-called head with its suckers and row of hooklets. The fluid of the vesicles is watery, albuminous, and saline, and contains, besides chloride of sodium, crystals of uric acid, oxalate of lime, triple phosphates, and plates of cholesteroline. The parent-vesicle is inclosed in a vascular, white, dense connective-tissue tunic or envelope, one half to two or three lines in thickness, and firmly adherent to the surrounding gland-substance. The size of the cysts varies from a small marble to a child's head, and it is situated in the substance of the kidney, and occasionally between the capsule and the gland-structure. The pressure of the enlarging cyst induces atrophy of the adjacent renal substance, until ultimately the whole organ may be destroyed. Rupture may take place into the pelvis of the kidney, but not into the peritoneum, this untoward result being prevented by a limiting adhesive peritonitis. Adhesions are also formed with neighboring organs. Sometimes the cysts are sterile, and consist of a single cavity. The growth may be arrested and the cyst undergo calcareous degeneration mixed with a fatty change. In two thirds of the cases a rupture of the cyst takes place into the pelvis, and pyelitis is produced thereby.

Symptoms.—As the parasite is deposited in one kidney—a rule to which there are but few exceptions—and as no disturbance is caused in the functions of the affected organ until the parasite has attained a certain development, it is obvious that the first period of growth will escape recognition. As the tumor enlarges, neighboring organs are displaced, and as inflammatory attacks are excited and adhesions formed, these will be accompanied by attacks of pain and feverishness. Usually only the symptom of a tumor, smooth and elastic, in the flank, is experienced, and for which advice is sought. According to Roberts's statistics, of sixty-three cases of hydatids of the kidney, only eighteen presented the symptom of a tumor, varying in size from an orange to an adult's head.* Fluctuation was distinct in part, feeble in others, and not perceived in the rest. The most characteristic symptom is the "purring tremor," "the hydatid thrill," unfortunately a symptom which is not often encountered. It can be produced only when there are numerous daughter-vesicles inclosed in the mother-sac, the thrill

* "Urinary and Renal Diseases," p. 572.

being caused by the collision of these elastic bodies. The tumor will usually have the colon in front, but it may be at one side. The dullness on percussion will be much influenced by the position of the bowel, which must always be taken into consideration. As the cyst in a majority of cases tends to rupture into the pelvis of the kidney, the symptoms connected with this are of great importance. Vesicles, shreds of the germinating layer, and an emulsion of milky appearance containing fragments, hooklets, and oil-drops, are discharged with the urine, and at once indicate the character of the case, the microscope being used to find the hooklets. The rupture of a sac into the pelvis of the kidney is usually announced by the occurrence of sharp pains in the region of the kidney, with a sensation of something giving way. This seems all the more probable if, as has been the case, the patient has received a blow in the side, followed by the sensation of something giving way. The pain descends by the ureter, the testicle is retracted, the surface cold, and the pulse feeble. The severe attacks of renal colic are comparatively rare, but some pain in the loin and down the ureter is usual. The paroxysms do not continue longer than a few hours, or a day or two, to be resumed again at variable intervals of a few weeks, several months, or even three years. When the vesicles reach the bladder, the pain of renal colic ceases; but new troubles arise in the attempt to pass these bodies by the urethra. Violent vesical tenesmus comes on, pain is felt at the glans penis, and with severe straining the vesicles are passed, but not unfrequently the aid of the catheter is necessary to empty the bladder. If there be a single mother-vesicle, the discharge of the daughter-progeny may end the symptoms by the shrinking and closure of the sac. The sac may be much reduced in size by the discharge, but fills up again, the same phenomena being repeated from time to time.

Course, Duration, and Termination.—The course of hydatids of the kidney is chronic, and the duration uncertain. If a single cyst is present, the discharge of its contents may terminate the case, but usually there are several discharges. The cases may terminate by rupture into the peritoneum, which is unusual, by bursting into a bronchus, by exciting pleuritis, by suppuration in the sac, by some intercurrent malady, and by recovery, which occurs in about two thirds.

Diagnosis.—If there be present a tumor, and parasites are discharged with the urine, the size of the tumor diminishing, there can be no doubt. Microscopic examination will determine the character of the milky fluid, or shreds passed. If no tumor can be detected, the discharge of vesicles with the symptoms of nephritic colic will indicate the probable seat of the mother-sac. If a tumor exist without the discharge, it can not be distinguished from hydronephrosis.

Treatment.—The pain and disturbance caused by the passage of the cysts must be treated as renal colic. If the cysts are enlarging,

an attempt should be made to destroy them. Electrolysis has been proposed for this purpose, but it appears the attempts which have been made have not succeeded. Injection with tincture of iodine, or with bile, which seems very poisonous to these parasites, should be practiced.

MOVABLE KIDNEY.

Definition.—By this term is meant a kidney become abnormally movable. It is sometimes called *floating kidney*.

Causes.—The kidney may have an unusual mobility, by reason of anatomical peculiarities. The peritoneum may be reflected in front and behind, constituting a *mesos* permitting free motion to the organ. In its natural position imbedded in fat, having the peritoneum in front, and unsupported by ligaments, it is so placed as to be readily dislocated. Should the fat be absorbed, or the peritoneum relaxed, the kidney becomes abnormally movable. This disability is more common in women than in men (ten to two, about), a difference due to two factors—to tight lacing, and to pregnancy. Pregnancy by the great distention of the abdomen, relaxes the peritoneum, and thus removes the principal support. Tight lacing forces the liver down, which pushes the kidney before it, but on the left side the organs have more room. The right kidney is affected in the majority—in Roberts's collection of sixty-five cases, the right kidney was movable in forty-two, the left in nine, and both in fourteen. If the weight of the organ is increased by any cause, the tendency to displacement is proportionately increased. Usually, however, an enlarging kidney contracts inflammatory adhesions to neighboring parts, and thus dislocation is prevented.

Pathological Anatomy.—The congenital movable kidney is distinguished from the acquired by abnormal arrangement of the vessels or peritoneum, or of both. In the acquired mobility the organ is rather elongated, without fat, and detached from the peritoneum. The degree of mobility varies, but the extreme length is not greater than the length of the vessels which form the pedicle. Attacks of perinephritis are common, and hence the kidney may be surrounded by old exudations and bands of adhesion. The dislocated kidney may become attached again and cease to give any more trouble.

Symptoms.—When displaced, the kidney may descend to the margin of the iliac region, but it is usually felt about midway between the inferior border of the ribs and the umbilicus. If the patient is thin, the outline of the organ can be distinctly made out, and it may even be grasped by the thumb and fingers, the pressure producing a sickening pain and faintness. The kidney may also be pushed about, and upward and backward into its proper position, but it will not remain, descending as soon as the support is withdrawn. Respiration changes

its position also: it descends on full inspiration; ascends on full expiration. Percussion does not afford a flat note, but a dull tympanitic note. Over the normal site occupied by the kidney, there will be, instead of a flat note on percussion, a hollow tympanitic sound.

Besides the presence of a movable body in the abdomen, which always excites apprehension, there may be no other symptom. In other cases there may be only soreness in the kidney, and a deep-seated sense of aching and pain, with a dragging feeling in the back and loins. Usually, the most pronounced symptoms are those connected with the digestive organs: the appetite is poor, the bowels are constipated, there is much flatulence, and at the same time they suffer from pain in the rambling kidney, and aching and dragging in the loins. This group of symptoms has a paroxysmal character—there are intervals not of entire exemption, but of relief. The intestinal disorders sometimes take the character of cholera morbus, the attacks occurring every few days or weeks, and between them the digestion is troubled, and there is much flatulent distention. Now and then there are cerebral attacks—extreme vertigo, headache, nausea, and vomiting, due probably to twisting of the ureter and retention of urine, congestion of the kidney, etc., and followed by bloody urine, purulent sediment, and finally a copious urinary discharge, the symptoms subsiding. Again, in other cases, there will be much pain and tenderness experienced about the kidney, and requiring confinement to bed, feverishness, a coated tongue, headache, scanty, acid urine, etc.—symptoms probably due to attacks of local peritonitis or adhesive inflammation. In a case of displaced right kidney in a male, there were obstinate constipation, small, flattened feces, persistent flatus with the sensation of passing an obstacle, due to the position of the kidney against the ascending colon. In all cases, causing symptoms, there is much hypochondriasis, or depression of spirits, even suicidal feelings.

Course, Duration, and Termination.—The cases continue indefinitely. It sometimes happens that the kidney secures firm attachments again, but the author has seen but a single example of such termination. A dislocated kidney is more liable to degenerative changes than a fixed one.

Diagnosis.—As no other tumor behaves as the movable kidney, the diagnosis ought to be easy. The diagnosis rests on these data: the tumor has the shape and size of the kidney; it descends from the position occupied by the kidney, and can be pushed back into the same; it has a special sensibility; the position which the kidney normally occupies is found to be vacant.

Treatment.—As the chief distress arises from the movable condition of the kidney, an attempt should be made to confine it to its proper place by a suitable bandage. The patient must be recumbent, the muscles of the abdomen relaxed; then the kidney is pushed back, a

compress is so placed as to prevent its descending, and a closely fitting bandage must then be fastened around the abdomen, so arranged that the support is from below upward. Attention must be paid to the diet, and flatulent-forming food given up entirely. Constipation must be avoided, and the bowels kept in a soluble state. If anæmia exist, a course of chalybeate tonics will be necessary. The secretion of urine should be closely observed, to discover changes in time.

PERINEPHRITIS.

Definition.—By *perinephritis* is meant an inflammation of the loose connective tissue about the kidney. This term is comparable to perityphlitis. As the ordinary result is suppuration, it may be comprehended in the term *perinephric abscess*, as employed by Trousseau.

Causes.—Penetrating wounds, contusions, and even strain (Trousseau) will excite inflammation of the perinephritic connective tissue. Pelvic cellulitis may extend upward by the subperitoneal connective tissue, and ultimately involve the renal. This, although often a puerperal process, may arise from operations on the pelvic organs, etc. Operations on the rectum and inflammatory affections about the bladder may also produce the same result. Chronic pyelitis may extend to and involve the perinephric connective tissue. This disease occurs at adult life till old age, and is more common in men than in women.

Pathological Anatomy.—The connective tissue is at first the seat of an intense hyperæmia; suppuration soon follows, the purulent elements being mixed with blood, and presenting therefore a grumous aspect; the area of suppuration is not limited, the boundaries of the pus being shreds of breaking-down tissue, the abscess enlarging irregularly. The pus presently becomes yellowish and homogeneous, and something like well-defined limits surround it, but the tendency is to spread along the retroperitoneal connective tissue. An enormous accumulation may take place. The disposition of the abscess occurs in various ways: it may rupture into the peritoneum, exciting general peritonitis; it may dissect through and discharge externally in the lumbar region; it may open the colon and discharge by the bowel; it may burrow along the psoas muscle and open underneath Poupart's ligament, or at the lesser trochanter, etc.

Symptoms.—Pain is a very usual and persistent symptom. Often it begins with the blow or strain, and is a deep-seated aching in the lumbar region, increased by firm pressure, by bending the body, and is not relieved by changes of position, but it sometimes ceases for days, even weeks, but when it returns is more severe than before. With the first pain there is more or less chilliness, followed by fever, general *malaise*, nausea, anorexia, a coated tongue, etc., the fever rising to 103°, 104°, or even higher. The fever has the remittent

type, with a morning remission, and there is considerable sweating, especially toward morning. A severe rigor announces suppuration, and chills occur subsequently irregularly, and are followed by high fever and profuse sweats. The body emaciates; the appetite is gone; there is vomiting; an obstinate constipation, requiring active purgatives to relieve it, comes on; the skin acquires the yellowish, earthy hue or fawn-color of suppuration. After a time, a swelling is discovered in the flank, and the depression, which normally exists in the lumbar region, assumes a convex shape. On careful manipulation, deep-seated fluctuation may be detected. If left to pursue its course undisturbed, the pus finally points in the lumbar region. The pus may be odorless, or it may have a fecal odor without any communication with the bowel. If the abscess discharges, and there is no complication, the condition of the patient at once improves, the fever ceases, the appetite returns. If the pus burrows downward, the duration is more protracted, and there is much pain, the abscesses opening in the groin. Discharge taking place by the lumbar region, extensive emphysema, occupying the whole extent of the back, may occur (Trousseau). In such cases communication is established with the bowel, and hence the emphysema is due to the intestinal gases. Fæces may be discharged by the lumbar opening, and recovery ensue. If rupture into the peritoneal cavity occurs, intense peritonitis, with the usual symptoms, will be excited. Rupture into the pelvis of the kidney will be announced by the sudden discharge of pus in the urine.

Course, Duration, and Termination.—The symptoms are very obscure until the fluctuating tumor appears; the cases then pursue a very uniform course, and the primary form, rapid course. Discharge of pus may terminate an uncomplicated case in three or four weeks. Recovery is the usual termination in such cases. Extensive and protracted suppuration will induce a typhoid state and death by exhaustion. Rupture into the intestinal canal is rapidly fatal. When communication is established with the colon, recovery may ensue, but the result is doubtful. When the abscess is secondary to puerperal processes, the termination is usually in death. In a few cases, the inflammation of the perinephric tissue undergoes resolution without suppuration. The morbid process may produce or succeed to pyelitis, or the kidney itself may become diseased—results which aggravate the existing disease.

Diagnosis.—Perinephritis may be confounded with hydronephrosis, echinococcus, and cancer. In all of these diseases a tumor exists: in perinephritis, accompanied by fever and sweats and the other evidences of suppuration; in hydronephrosis and echinococcus, an enlarging tumor without pain; in cancer, a painful tumor and hæmaturia. Perinephritic abscess tends outwardly to point in the lumbar region, or downward, in the groin, while the other tumors grow for-

ward and downward into the peritoneal cavity. Pyelitis with tumor is distinguished from perinephritis by the condition of the urine.

Treatment.—With the first symptoms, leeches may be applied to the lumbar region, followed by ice. Purgatives should be administered. If there is much pain, morphine is necessary. Large doses of quinine (ten grains every four hours) should be given with the view to check the migration of the white corpuscles, and preferably with morphine, although the pain may not be great. As soon as suppuration occurs, supporting measures are required. Malt liquors, a generous diet, alcoholic liquors, and quinine are the most appropriate means. A free incision should be practiced as early as possible, and drainage established.

SOME DISEASES OF THE BLADDER AND URETHRA IN THE MALE.

CLINICAL EXAMINATION.

[NOTE.—Diseases of the bladder and urethra are usually considered surgical maladies, and do not appear in a medical treatise; but as they so often come into relations purely medical, and demand the kind of consideration which a practical physician gives to all his work, I have decided to incorporate some account of them in this edition].

I have already given (page 503) an outline of the modes in which urine is studied for clinical purposes. It is necessary to add, however, some special points in respect to vesical troubles.

When disease of the bladder is supposed to exist, the urine of twenty-four hours should be collected, and its appearance compared with known specimens of the normal fluid.

There being simultaneous disease of the urethra, a drop of the urethral discharge should be compared with a drop of the urinary sediment coming from the bladder. In this way valuable information is got as to the source of a given specimen of urine in disease of the urinary passages.

In catarrh of the bladder, whether acute or chronic, the action of extraneous causes must be taken into account. A gonorrhœa, recent or that has suddenly ceased to flow, some obstructive difficulty as an urethral stricture, enlarged prostate, etc., or some reflex irritation, as hæmorrhoids, etc., may be the source of the mucous inflammation, rather than any intrinsic trouble.

It is necessary, therefore, to be provided with means for investigating the condition of the urethra. For this purpose, bulbous sounds*

* From Van Buren and Keyes's "Treatise." Published by D. Appleton & Co.

are necessary if the lesion is a stricture. These were at first graduated according to the French scale, and extended from No 1 (.03 in diameter) to No. 40 (in diameter, 13.33). At present, chiefly through the

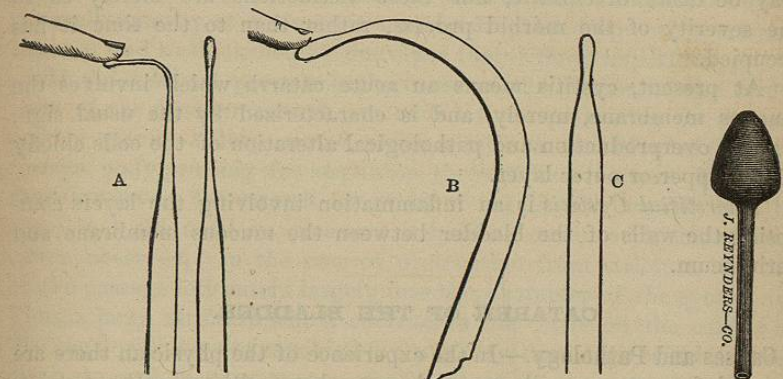


FIG. 45.—A, B, C, Flexible Bulbs. D, Metal Bulb.

remarkable work and practical demonstrations of Dr. Otis,* we have an American scale, the sounds graduated in the metric system, and increasing *one millimetre in circumference*, up to No. 40, the maximum size.

To determine the normal size of any urethra, it is necessary to make use of a measuring instrument, graduated in the same scale. This introduced and gradually expanded up to the proper point will necessarily give an approximation to the proper measure of the canal, but it must be remembered that this tissue is extensible, and too great force will furnish an abnormal result.

If the canal be narrowed by any thickness of deposit, a catarrh of the bladder will be produced ultimately. Hence it follows that the stricture must be removed.

Enlarged prostate so often figures as a cause of vesical catarrh that grievous errors are sometimes committed—errors of opinion and errors in the treatment. The age of the subject must be taken into account. Enlarged prostate may exist without changing the caliber of the urethra, it has been proved, and much obstruction may be due to changes in the isthmus of the prostate so situated as to narrow the caliber of the canal at the very entrance of the bladder, and yet not cause any demonstrable change in the body (in the two lobes) of the gland.

No mistake is more common than confounding stricture with the triangular ligament, through which the urethra passes, and against which it doubles up when a sound or catheter is hastily and indiscreetly passed.

* "Practical Clinical Lessons in Syphilis and Genito-Urinary Diseases," New York, 1883, p. 437.