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A New Method for Anchoring the Kidney.

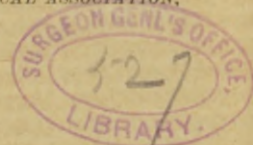
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A NEW METHOD FOR ANCHORING THE KIDNEY.

BY R. HARVEY REED, M.D.

Since Hahn, in 1881 anchored the kidney, operations for this purpose have gradually grown in favor until at the present time there are few surgeons who do not recognize it as a justifiable procedure. Prior to that time, in cases where a floating or movable kidney required operative interference, surgeons only considered the question of nephrectomy—a most formidable and dangerous operation without the protection of asepsis or antisepsis.

ANATOMIC MEMORANDA.

In anchoring the kidney, there are a few anatomic landmarks it is always well to keep clearly in mind and especially so in performing the operation which we are about to describe. Clinical experience teaches us that movable and floating kidneys occur more frequently on the right side than on the left. In this connection it is well to remember that the right kidney, when in its normal position is usually located a little lower than its fellow and, on the average, measures about four inches in length. The left kidney is usually longer and narrower than the right kidney. The upper margin of the right kidney when in its normal position is on a level with the twelfth dorsal vertebra. This throws its margin slightly above the upper border of the twelfth rib, which is an important point to remember in the operation I am about to describe. The left kidney being located a little higher than the right, its upper margin not infrequently is on a level with the lower border of the

eleventh rib and sometimes even reaches a point slightly higher.

The right kidney is usually about two and a half inches in width, while the left kidney seldom exceeds two inches, but makes up for its reduction in width by increase in length. They are each about one inch in thickness, which is also an important factor in considering the question of anchoring. By keeping these few anatomic landmarks in view, the operator will be able to comprehend the mechanical conditions that are present, and which he must meet in anchoring a floating or movable kidney in its normal position.

PATHOLOGIC CONDITIONS.

In a brief paper of this character we shall not attempt to enter into the details in considering the pathology. Only a few salient points will be noticed. If we have a true floating kidney to deal with we have a mesonephron or, in other words, the kidney is enveloped in a peritoneal sac with a pedicle, the base of which usually corresponds with the natural position of the kidney. The length of this pedicle varies in different cases while the size of the sac depends on the size of the kidney. The pedicle contains the nerve, artery, vein and ureter which are more or less displaced and imposed upon, often giving rise to severe congestion on the one hand or hydronephrosis on the other, and associated with frequent attacks of excruciating pain.

It will be observed that in this condition you have a tumor resembling that of a long-necked gourd hanging with the large end of the gourd down, the neck representing the pedicle and the large end of the gourd the kidney. As a rule this tumor is free to move and changes its position with the movements of the patient, or by manual manipulations, the peritoneal surfaces being free to glide upon each other.

In the movable kidney there is no mesonephron, but the kidney is jarred loose from its attachments and is free to move behind the peritoneum. In

changing its position it drags with it the artery, vein, nerve and ureter which form the pedicle. In a movable kidney you will observe the peritoneum is dissected up from its posterior attachments and the kidney is free to move behind it. It will, therefore, be observed that the only practical difference between a floating kidney and a movable kidney is that the one is enveloped in a peritoneal sac, while the other moves behind the peritoneum and has no sac. In either condition, however, there is danger of obstructing the artery, vein or ureter, or any two of these vessels, or all of them. They may become occluded by pressure or torsion, producing congestion or hydronephrosis, or both, as the case may be. At the same time the nerves are liable to be implicated, producing severe neuralgic pains with or without the presence of either congestion or hydronephrosis.

SURGICAL RELIEF.

Prior to 1881, when surgical relief was attempted under these conditions, nephrectomy was the only operation considered. At that time, Hahn, of Berlin, made a lumbar incision and fixed the kidney in its normal position by suturing it to the lumbar muscles. Ashhurst shortly afterward made the same operation successfully. Subsequently, the operation was performed by Kuster, Esmarch, Bassini, Newman and others with satisfactory results. The object in making *this* operation was to avoid entering the peritoneal cavity which was a very necessary precaution prior to the introduction of aseptic surgery. The difficulty, however, in performing this operation was in manipulating the kidney (and especially so in fleshy persons) and holding it in place until it could be fixed by sutures to the lumbar muscles. These operators did not close the incision but packed it with iodoform gauze and allowed it to heal by granulation. Those of us who have performed either the extra- or intra-peritoneal operation will readily appreciate the difficulty of holding the kidney in its

place. In my experience I find it about as difficult to manipulate a floating kidney and hold it in a fixed position as it is to manipulate a cake of wet soap on a wet soap dish with soapy hands, and hold it firmly in one place. I have seen good operators attempt this operation (both extra- and intra-peritoneal) who were absolutely unable to manipulate the kidney so as to hold it in its place long enough to securely suture it. This difficulty, together with the advancement of aseptic surgery, has led to opening the peritoneal cavity with a view of getting at the kidney more readily and by manual manipulation hold it to its place until it can be securely anchored. In fixing the kidney in this way, it was necessary to use a curved needle which was sufficiently long to pass through the kidney (which you will remember is an inch in thickness) the fascia, and into the muscle of the back sufficiently deep to insure a firm attachment. This requires a half-curved needle not less than two and a half to three inches in length. In making this operation it was not only a difficult task to hold the kidney in position until the first suture could be inserted, but it also necessitated great care on the part of the operator to avoid wounding the liver, gall-bladder and even the intestines with the point of the needle, or tearing the parenchyma of the kidney with its heel in making the short curve necessary in completing the suture. I have seen hemorrhage from tears of this kind so profuse that it became necessary to open the posterior wall of the peritoneum and control it by the use of hot compresses which not only delayed the operation, but increased the danger to the peritoneum. I never anchored the kidney, either intra- or extra-peritoneal, without feeling that the various operations heretofore employed should be simplified and the operation performed in less time, with less danger and much less trouble, and equally good or better results obtained. The consequence is that I have devised the operation which I now perform, and from

the limited experience I have had with this operation and the successful results following it, I feel that I am justified in presenting it to the profession for their consideration.

In view of the minimum amount of danger in opening the peritoneal cavity under aseptic precautions, together with the decided advantage it gives to the operator in manipulating the kidney, and assuring himself that the vessels and ureter are not incarcerated in any way, I have arrived at the conclusion that the intra-peritoneal operation is to be preferred over that of the extra peritoneal.

My operation consists in making the ordinary perpendicular abdominal incision over the median line of the kidney. As a rule, it need not exceed two and a half to three inches in length, depending largely on the thickness of the abdominal walls. Having made the incision sufficiently large to get the fingers in and bring the kidney to its normal place, I then use a long needle which I have had made on purpose, varying from five to seven inches in length. Two of these needles are threaded with aseptic silkworm gut or aseptic silk, using but one ligature, armed with one of these long needles at each end. Having placed the kidney in its normal position (and in the case of a floating kidney scored the peritoneum so as to favor adhesions), I now insert my first needle through the upper and inner part of the cortical substance of the kidney, directly through the muscles of the back, coming out between the eleventh and twelfth ribs. The second needle which is on the other end of the ligature is also passed through in a similar manner, about an inch from its fellow, through the upper and outer cortical substance of the kidney making, as you will recognize, a staple stitch. These ligatures are tied on the integument of the patient's back by an assistant. If necessary, another suture is inserted in a similar manner through the outer margin of the kidney, the first needle of the second suture being passed about an

inch below the last needle of the first suture, and the second needle of the second suture about an inch below the first needle of the second suture through the cortical substance of the outer portion of the kidney. By anchoring the kidney in this manner, the entire operation can be performed in not to exceed fifteen minutes unless there are some annoying complications to contend with, for, as you will observe, all that is necessary is to open the abdominal cavity, place the kidney in its normal position and with the use of these long needles the suture can be placed in position quickly without any fear of injuring the abdominal viscera, or unnecessarily tearing the cortical substance of the kidney. In tying the sutures, care should be taken to draw them sufficiently tight to not only hold the kidney in place, but to produce sufficient irritation to excite inflammatory adhesions, which are intended to hold the kidney in place, and which are so essential to make the operation a permanent success. It is also necessary to be guarded against tying the sutures so tight as to cut through the peritoneum and the substance of the kidney. Either of these conditions, however, can be avoided by care on the part of the operator. After properly tying the sutures the abdominal wound is closed in the ordinary manner. The anchor is allowed to remain from ten days to two weeks. At the expiration of this time, adhesions are formed sufficiently strong to hold the kidney in place when the anchor is removed, and in two weeks more the patient will be able to leave the hospital.

The advantages we claim for this operation are:

1. Simplicity.
2. Rapidity.
3. Efficiency.

The operation is practically bloodless. There is no danger of injuring the abdominal viscera. It is easily performed and the results so far are certainly very satisfactory as illustrated by the following case:

Miss E. E. B., age 28; single; occupation a stenographer;

family history and previous health good. In February, 1894, while lifting a large piece of coal, felt something give way in the abdomen, and from that time had suffered from pain principally located on the left side of the abdominal cavity. Living in Chicago, she consulted several physicians in that city who differed in opinion as to the nature of the case. One pronounced it ulceration of the os uteri and treated her accordingly; another announced that it was a floating left kidney. The patient in the meantime gradually grew worse and returned to this city, her former home, when she consulted her family physician, Dr. E. Frazier Wilson, who called the writer in counsel. Upon examination a wandering right kidney was readily discernible, which could be moved from its normal position to a point as low down as the brim of the pelvis and could be easily shot up until it was lost behind the lobe of the liver. This manipulation was not painful. On further examination, a displacement of the left kidney was discovered, which was found fixed in an abnormal position. The exact condition of the left kidney could not be satisfactorily diagnosed prior to operation, and patient so informed.

She was admitted to the Protestant Hospital, July 21, 1894. Assisted by Dr. Wilson, I operated on her July 22, and found the wandering kidney, which we anchored according to the method I have already described, using but one silkworm gut suture. This part of the operation was rapidly accomplished and was practically bloodless. Had it not been for other complications the operation could have been completed in a few minutes. On further examination, it was discovered that the left kidney was congenitally malplaced, and was located much below, and very much closer to, the vertebral column than it should be normally. The peritoneum covering the lower margin of the kidney was adherent to the left ovary. The latter was found to be about the size of a walnut and very much inflamed. The adhesions were broken up, the ovary removed and the abdominal incision, which in this case was made through the linea alba on account of the suspected complications, closed in the usual manner. There were no unfavorable symptoms. The temperature and pulse ranged from 98.6 to 101.7 and from 72 to 108 respectively.

The patient was discharged from the hospital August 14, and in a few weeks returned to her position at Chicago, where she has been working ever since. It was my fortune to see her, when in Chicago recently, at which time I was permitted to make a careful examination. I found the right kidney firmly anchored in its normal position and free from all tenderness.

The patient's health has improved ever since the operation. She has gained several pounds in weight and to all appearances has obtained permanent relief.

After reading the paper, the author exhibited the needles he has had made for this purpose.

150 East Broad Street.

