

always means either incurability or ignorance of the diseased condition. Often in our haste to find relief for the sufferer we neglect well-known facts and principles. That there should have been 2,038 deaths from sunstroke during the month of August, 1896, and undoubtedly an enormously greater number of unreported cases of milder degree making partial recoveries, indicates, at least, that there is room for improvement in its treatment. Secondary fever and headache, with a low form of meningitis, incapacitates many men who have not been killed outright by the stroke.

Resulting from the rapid transpiration through the lungs, and surface of the body containing 2,800 sweat glands to the square inch, there is a great reduction in the volume of the blood, as if in an evaporator. With the perspiration is lost a large amount of sodium chlorid, but very little, comparatively, of the waste matters and impurities of the blood. The loss of sodium chlorid diminishes the acidity of the gastric juice and it soon becomes inefficient. The drinking of large amounts of water during the process of digestion further reduces the digestive power and weakens the muscular coat of the stomach, resulting in its dilatation and gastro-intestinal catarrh. The continued absorption of the products of incomplete digestion thus loading up the blood with waste matters assists in the production of toxemia. The kidneys are sluggish because of the diminished quantity of blood. The scanty urine passed is as heavily loaded as possible with waste matters and is strongly acid.

Considering all these important factors, and possibly more, the resulting condition would be that of heat stroke or thermal fever, with great injury to the nervous system in severe cases. This high percentage of toxins and waste matters in the blood must be rendered innocuous. Nature attempts to do it by burning it up with a high fever. But as nature's fevers often get beyond control if allowed full freedom, we prevent a disastrous result by reducing the temperature of the patient. At one time venesection, free and copious, was practiced in India with such fatal results that it was abandoned. By this means toxic elements were removed from the body, but the percentage in the blood remained the same or increased from the lower arterial pressure and the increased inactivity of the kidneys. However, there is one case of which I have read the report but have since been unable to find it, where the blood removed was immediately replaced by the normal salt solution, with rapid and complete recovery of the patient. This procedure effectually reduced the percentage of toxins in the blood.

I would propose the use of artificial blood serum (Cheron's), which is always ready and requires no preparation except the aseptic needle and operator. Its use should be continued until the normal action of the kidneys is established, and the temperature reduced to nearly normal. By this means we restore the two elements lost in large amounts from the blood as a result of excessive heat. The treatment of remaining conditions or complications should be based on accurate knowledge of their causes. Dr. A. Lambert read a paper before the New York Academy of Medicine, May 20, 1897, in which he says that "the theory best suited to our present knowledge is that it is due to auto-intoxication, with heat as a contributing cause." This, then, ought to be the basis for the scientific treatment of the condition in

all its manifestations. The initial treatment should probably always include the immediate use of the ice-cap and bath for high temperature and unconsciousness. Still, some cases die with low temperature while many recover from temperature ranging as high as 110 to 115 degrees F.; so that high temperature is not necessarily fatal, and it may be that if the theory of toxemia is made the basis for treatment, a much larger percentage of cases may be saved and make more rapid and complete recoveries.

126 State Street.

### ANCHORING THE KIDNEY.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY R. HARVEY REED, M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY, OHIO MEDICAL UNIVERSITY; SURGEON TO THE PROTESTANT AND UNIVERSITY HOSPITALS, COLUMBUS, OHIO.

The frequent occurrence of hydro- and pyonephrosis warrants our study as to their cause and prophylaxis.

Hydronephrosis is the result of an occlusion of the ureters. This may be due to a calculus, adhesive bands, tumors, or by a kink obstructing the lumen to such an extent as to prevent the flow of urine from the kidney to the bladder. Experimentation by the author and others, where the ureter has been ligated in the lower animals, has demonstrated that the healthy kidney will endure an enormous amount of torture without undergoing degeneration. Under these circumstances it has been demonstrated that hydronephrosis may exist from ten to fifteen days with the kidney greatly distended without a breaking down of its substance. Notwithstanding this fact a continuation of the pressure will sooner or later be followed by pressure necrosis and pyonephrosis.

It is not my purpose in this paper to take up the question of hydronephrosis or pyonephrosis caused by calculi, adhesive bands, pressure by tumor, or by tubercular or pus infection. I shall confine what I have to say on these conditions to the causes arising from the mechanical obstruction due to the displacement of the kidney and their relief. While the congenital displacement of the kidney may be followed by mechanical obstruction of the ureter, we are apt to have this form of obstruction arising from a traumatism resulting in a kink of the ureter at the point of obstruction, and if not promptly relieved it may be followed by permanent obstruction resulting in inflammatory adhesions followed by hydronephrosis, and if not relieved, by pyonephrosis.

This brings us to the point of how we shall best relieve this pathologic condition. We all know, as in an ordinary hernia, it may be temporarily relieved by taxis or change of position so as to replace the kidney and by doing so relieve the obstruction for the time being. But also like hernia, it is liable to return, and while the patient may live for years in this condition we never know the moment a permanent occlusion may occur which will place the patient's life in jeopardy. If this be true, then we are justified in performing a radical operation whereby the kidney shall be anchored as near its normal position as possible.

Experience has taught the writer that like pessaries and trusses, abdominal palliative treatment which usually consists in abdominal bandages and compresses is of little or no value. While these are advocated in our text-books, and have been resorted to by many

practitioners, I am of the firm belief that their use is of little or no value in giving permanent relief. It is only necessary to go to the cadaver and examine for ourselves to see that a bandage can not be placed over the abdominal cavity with sufficient firmness to hold the kidney in place, for the reason if the bandage be drawn sufficiently tight to press upon the anterior portion of the spinal column itself, it would still leave

condition by the use of a compress would likewise be dangerous and useless.

I realize that there are objections to the radical cure of a floating or loose kidney, but I believe on the average, there is less danger to the patient who submits to a radical cure than to allow this condition to

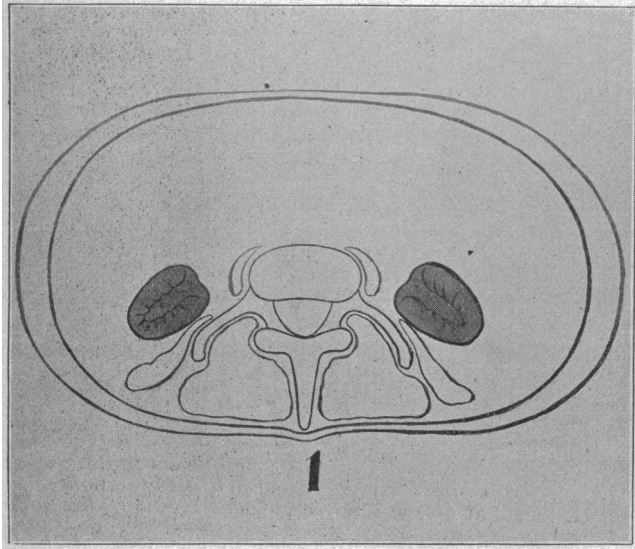


Diagram showing the relative relations of the kidney to the abdominal wall and the spinal column.

the kidney free to move underneath the bandage beyond any question.

A glance at the accompanying chart will aid in recognizing the fact that the kidney is so located, ana-

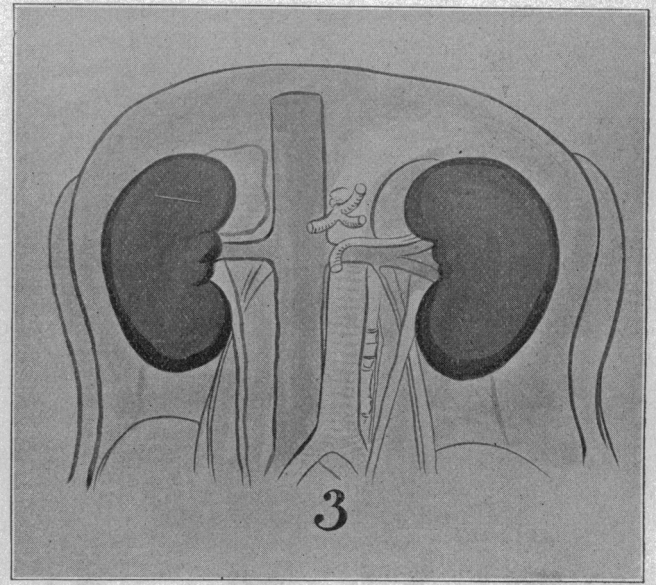


Diagram showing the anchor after it has been placed, as seen from the opening in the anterior abdominal parietes.

exist taking the chances of hydro- or pyo-nephrosis which is so apt to follow a chronic condition of this kind. The methods for anchoring the kidney, which have been handed down to us for ages in our text-books,

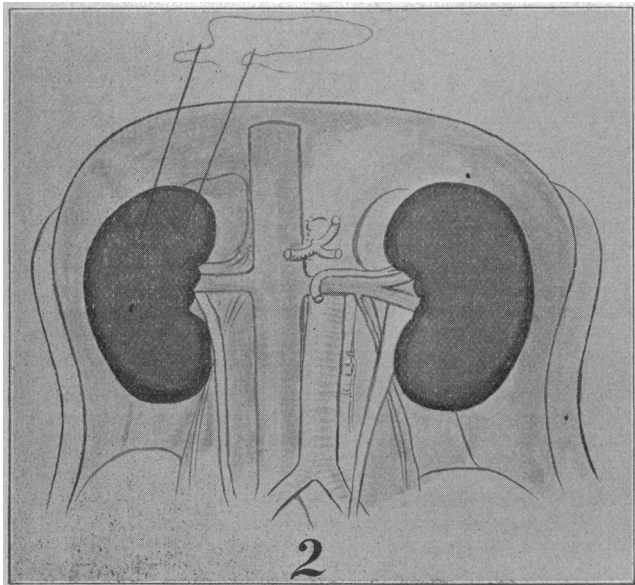


Diagram showing the insertion of the needles through the upper part of the kidney, one needle being inserted at a time.

tomically, as to be out of reach of general pressure made upon the abdominal cavity although that pressure may be of such a character as to press firmly upon the anterior and posterior portion of the spinal column. If this were done we all know that it would be followed by serious injury to the contents of the abdominal cavity, and to attempt to overcome this anatomic

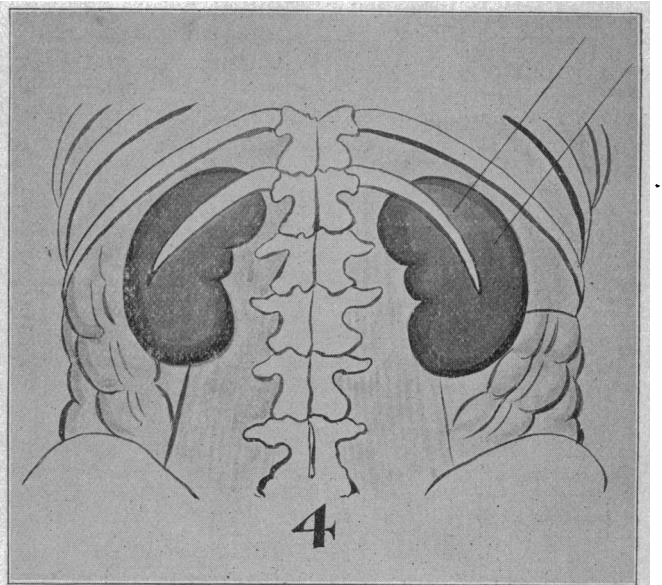


Diagram showing the exit of the needles posteriorly between the 11th and 12th ribs.

entail difficulties which I have endeavored to overcome and, while this method contemplates the opening of the abdominal cavity, I feel justified in advocating this procedure under the present advanced stage of aseptic surgery especially when the method proposed is so much more simple and so much easier performed. Notwithstanding the attempts at describing this

method in previous papers, I feel that the description has not been clearly understood, basing the same upon the numerous letters I have received from members of the medical profession in different parts of the country. For this reason I endeavor to make this method more clearly understood by the accompanying illustrations.

In making this operation very few instruments are required. All that is necessary is a scalpel, two or three hemostats, a pair of small retractors and two straight needles which I have had made especially for this purpose, each one of which should not be less than six inches in length. These needles should be placed one at each end of a single suture which may be sterilized silk-worm gut, silk, kangaroo tail or catgut.

In making the operation a small incision is made in the abdominal wall over the normal position of the kidney. Usually this opening need not exceed two and one-half inches. The intestines are turned to one side and the kidney brought up or down, as the case may be, to its normal position, when the needles are passed through the cortical substance and brought out

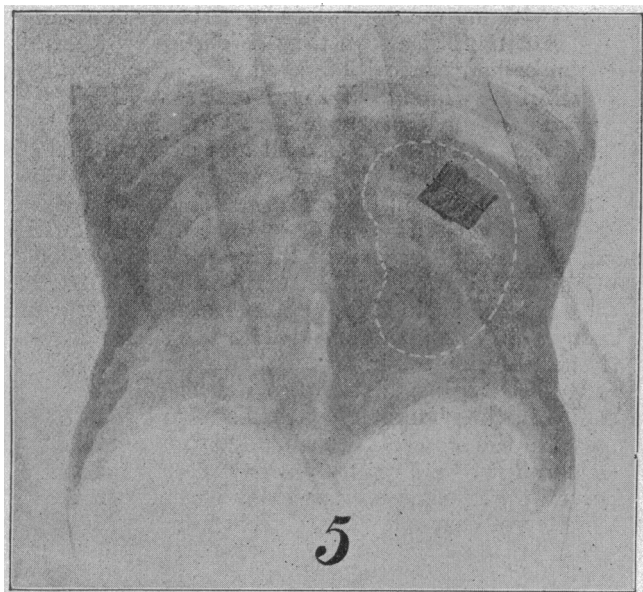


Diagram showing the ends of the anchor tied across a piece of gauze on the back, and the approximate position of the kidney.

between the eleventh and twelfth ribs on the back. By referring to diagram No. 2, the position of these needles will be observed as they appear from the front.

Referring to diagram No. 3, the position of the suture is shown, as seen from in front, while plate No. 4 shows the approximate position of the needles as they make their exit posteriorly.

After having passed the needles through the kidney, the lumbar muscles and the integument, the assistant makes traction on them until they have passed entirely through all these structures. In the meantime the operator should place his finger under the ligature and by the touch satisfy himself beyond a question that it does not include a loop of the intestine. It should only include the peritoneal covering of the kidney and the kidney itself. He should also guard against drawing the suture too tight, but just sufficiently taut to hold the kidney in place.

The ligature should be tied over a piece of gauze

(see diagram No. 5) to prevent unnecessary irritation of the skin. There is nothing left to do now but close the abdominal wound, allow the suture to remain from ten days to two weeks, when it can readily be removed, which leaves the kidney free from all foreign substance. If deemed necessary two or three sutures may be inserted, but I have not found it necessary to insert more than two in any case I have operated on, and in the majority of cases I have only used one, with the most satisfactory results.

In conclusion I would recommend:

1. The radical operation for anchoring the kidney rather than trust to the palliative treatment.
2. The use of the double spear or staple suture, as demonstrated by the accompanying illustrations, in preference to any form of lumbar operation.

#### DISCUSSION.

Dr. I. N. QUIMBY—I would like to report a case in which the kidney got loose some time after it had been anchored, and this was doubtless due to the inflammatory action which was set up. I must not speak against the bandage as I think it does much good by compression.

Dr. J. D. THOMAS of Pittsburg—Putting a ligature on the far side of the kidney to bring it up against the back is a good method, provided you feel sure it will stay there. The bandage does not cure the patient but gives some comfort. A certain number of cases will necessarily relapse.

Dr. REED—In comparing my method with that of Dr. Thomas I must say that I think it a very advisable one, although there are some objections. The principal one seems to me to be due to the fact that the surgeon does not always find the kidney just where it should be, and another objection is the time it takes. It matters not how you anchor the kidney, you will have the same difficulty in getting it where you want it and holding it there. In my method there is no slipping up or down of the kidney, and you have it fixed so that it can not move after the first suture is put in. The simplicity of my method is a great point in its favor. In any method we must have adhesions formed in order to have the kidney remain in place. I have never had any trouble with the operation and I hope that the gentlemen will be kind enough to try it.

## ROENTGEN RAY SKIAGRAPHY.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY DE FOREST WILLARD, M.D.

PHILADELPHIA, PA.

Professor Goodspeed has very properly emphasized the importance of the study of normal living anatomic delineations. Even surgeons are not familiar with the appearance of the living skeleton *in situ*, and for accurate comparison we assuredly require a series of skiagraphic normals.

I was in my first efforts greatly puzzled in the interpretation of conditions either plainly or indistinctly seen in the skiagraph, and even after considerable experience am obliged to study with great care each representation in order to differentiate the abnormal from the normal conditions.

Although skiagraphy is a most valuable assistant to the surgeon, yet a word of caution is necessary. It has been most conclusively shown that the position of the tube, the direction of the rays, the method and time of the exposure, the magnification of portions of an object not in contact with the plate, the elongation of shadows from distant portions of an object, together with other varied conditions, may so completely distort the resultant image that error is certainly possible. A fracture may appear to exist when a bone has not been broken; and on the other hand it has been shown that a known fracture produced by osteotomy is not