UNIQUE CASE OF "FLOATING KIDNEY," IN WHICH NEPHRORRHAPHY WAS SUCCESSFULLY PERFORMED:

THE KIDNEY WAS WITHIN THE PERITONEAL CAVITY AND HAD A MESONEPHRON.

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DISPLACEMENTS of the kidney may be divided into three kinds—simple misplacements without mobility of the organ, "movable kidney," where the kidney is perceptibly mobile behind the peritoneum, and "floating kidney," where the peritoneum forms a mesonephron which attaches the kidney loosely to the spine. The terms "movable kidney" and "floating kidney," as used by most writers, are synonymous. Morris, in his excellent work on *Surgical Diseases of the Kidney and Ureter* (p. 95), remarks: "A 'floating kidney' is one which, whether it possesses a mesonephron or not, moves freely forward, so as to rise or 'float' towards the anterior abdominal wall, as well as vertically and laterally. This 'forward' movement or 'floating' makes the distinction between it and the 'movable kidney.' It is not possible to distinguish until the abdomen is opened or the kidney is exposed through the loin, whether a 'floating kidney' has a mesonephron or not." And again, at p. 97, he says: "For convenience of description the terms 'movable' and 'floating' kidney will be used indiscriminately, except when one or the other type is specially referred to. It will then be designated by the term 'movable behind the peritoneum,' or 'floating kidney without a mesonephron,' or 'floating kidney with a mesonephron,' as the case may be."

The distinction between "movable kidney" and "floating kidney" is clearly an anatomical one. Clinically the two conditions cannot be distinguished, although it may be said that in all cases of "floating kidney" the mobility is great. Still, it must be admitted that in cases of "movable kidney"—that is to say, kidneys without a mesonephron—the mobility may be equally extensive. It is to be regretted that a writer of Morris's distinction has chosen to perpetuate the confusion in the minds of the profession in this matter. In order to have a clear understanding of the pathology of the subject, as also for the sake of treatment, it is well to have an exact mode of expression and an accurate knowledge of the varieties of the malpositions which may be met with in practice. In cases of "movable kidney" the organ is mobile behind the peritoneum, either within its adipose capsule or in a sac formed behind the peritoneum and the muscular wall of the abdomen, whereas in cases of "floating kidney" the kidney moves about within the cavity of the peritoneum, and is attached by a mesentery to the spine.

In my book on *Surgical Diseases of the Kidney* (p. 72) I observed, in regard to "floating kidney," "objections may be raised to this division on the subject, seeing that, as a matter of custom, both the terms are used synonymously by most writers, and that, clinically, the diseases are not distinguishable from one another. It is only after the abdomen is opened that the presence or absence of a mesonephron can be demonstrated. It is necessary, however, from the surgical standpoint, particularly when operative interference is contemplated, carefully to separate the two conditions from one another. In "movable kidney" the organ can be exposed without opening the peritoneum, whereas in "floating kidney" it cannot. These varieties of displacement are recognized, not only by being distinct anatomically, but also by their etiology being different. "Floating kidney" is always a congenital condition, whereas movable kidney is usually acquired. The earlier writers on the subject looked upon elongation of the renal vessels as a proof of the affection not being acquired. They, however, did not distinguish between the two forms, but grouped all displacements of the kidney associated with mobility in one class.

It would, indeed, be difficult to explain how a mesonephron, properly so-called, could be formed otherwise than congenitally, unless by supposing that the displaced kidney has pushed before it a fold of peritoneum, the surfaces of which have become adherent around it and united to each other along the line of the renal vessels. That such a condition might arise as a result of localized peritonitis seems possible. There are, however, no cases recorded where there is any evidence of this having taken place. When inflammation has occurred in cases of movable kidney it has in most in-

stances led to an adhesion of the layers of the peritoneum, not only to the kidney and to one another, but also to the surrounding parts, the result being that the kidney ceased to be movable, and became fixed in an abnormal position.

The point of importance to be attended to in connexion with floating kidney is that it cannot be reached by an operation from behind without opening the peritoneum, and is therefore not so favourable for nephrorrhaphy as movable kidney. This should be borne in mind while operating. It is not possible, however, previous to the operation, to differentiate by physical examination the two conditions.

Some authorities have expressed the opinion that floating kidney is more freely movable than movable kidney, and use this as a basis for diagnosis. This is an error. In not a few cases of movable kidney the organ can be pushed with perfect freedom up under the ribs, down into the pelvis, and for a short distance across the middle line. What greater freedom of movement could be shown? It is true that in some instances of movable kidney the excursion may be limited to an up-and-down motion in a plane parallel to the lumbar muscles, as is seen when the sac in which the kidney moves is formed by the adipose capsule, without the capsule being detached from its seat behind the peritoneum. Where, however, the peritoneal covering has become raised from the posterior abdominal wall less impediment is offered to movement, and so what was clearly at first a case of movable kidney gradually may assume the physical signs of the more mobile form, and may pass, according to some observers, from the class of movable kidneys into that of floating ones.

Fortunately, floating kidney is a very rare condition, but nevertheless it must not be entirely overlooked where an operation is contemplated for the cure of the more common variety of displacement with mobility.

As far as I can ascertain, the case about to be described is the first one in which nephrorrhaphy was performed for a mobile kidney with a mesonephron, and to this condition I would like to see the term "floating kidney" limited.

The patient, C.A., was advised to consult me by Dr. Palton Petrie, of Strathaven.

History.

In his account of the case he informs me that the patient is aged 37, single, housekeeper in her father's house. Her general condition of health was never quite satisfactory, and during the past three years she has been getting steadily worse, and within the last three months she became unfit to perform her household duties. There was considerable abdominal disturbance, characterized by a feeling of distress rather than of pain, and at times considerable quantities of mucus were passed per rectum, evidently due to a subacute colitis. On examination of the abdomen there was distinct tenderness along the course of the transverse and descending colon, and Dr. Petrie, on palpating in the right renal region, found the kidney to be freely movable. The pulse was very feeble, and the patient suffered from great "nervous prostration." At this time Dr. Petrie kept her in bed for three or four months with considerable advantage, so that she was able to be removed to Dunblane, where she remained a fortnight. During her residence at the hydropathic establishment there she was subjected to high-frequency electrical treatment with the view of improving the condition of the bowel, but owing to the mobility of the kidney the treatment was not pushed, and she returned home for the purpose of consulting me as to the question of operation.

In her school days the patient suffered greatly from headache, the attacks sometimes being of two or three days' duration. They were always preceded by a very uncomfortable feeling about the waist, which passed up her back and culminated in a severe headache. She was very fond of active exercise in childhood, but if this was indulged it was certain to be followed by sudden and violent reaction, so as to make her feel completely exhausted, and the attacks of headache were certain to follow. When 16 years of age she had abdominal swelling of a few days' duration—at first at irregular, but afterwards at regular intervals. Shortly after this, on account of her mother's death, she, being the eldest daughter, had to undertake the household duties of the family, consisting of a father and six brothers. After eight years of this work, with occasional complete breakdown, her health became so much impaired that she was quite unfit for any kind of work, and on account of the pain in the right kidney she found it necessary to wear her corsets both night and day. She also suffered from sleeplessness. At this time she was ordered to remain in bed for three months, and with that treatment considerable improvement occurred. Since that time she enjoyed rather better health than previously, until within three years ago. She has always had to guard against the slightest over-exertion or sudden excitement.

Condition When First Seen.

When I saw the patient on June 16th, 1903, I found her pale, emaciated, and highly "neurotic." She complained of what she described as "abdominal distress," which really meant a sense of weight and dragging in the right loin, with occasional attacks of severe sickening pain, which was induced by any exertion or sudden movement of the body. Digestion was very feeble and appetite poor, but she informed me that she was now rather better than before she went to Dunblane.

On examination of the abdomen I found the right kidney freely movable, it could be pushed well beyond the middle line in front and down into the pelvis, and upwards under the ribs, but when it was once reduced to its normal position it remained there, and could not be readily disturbed unless the patient walked about for some time. Deep inspiration sometimes forced it downwards, and then it would suddenly shoot from the margin of the thorax towards the umbilicus. On palpation the whole organ could easily be caught up in the hand and its form traced. The kidney was unusually firm, a little smaller than normal, and the slightest pressure of the hand caused sickening pain. So long as it was not pushed under the costal margin it could be rolled from side to side freely, and very often suddenly slipped out of the hand in a downward direction. The percussion over the kidney gave a dull, tympanitic sound, and in the loin, whether the kidney was replaced or not, there was a deficiency of resistance compared with the opposite side.

Operation and Result.

On June 18th the ordinary incision was made through the parietes in the lumbar region, but the kidney could not be found in its normal position, and when pressed up to the depth of the wound by the hand it was found that in order to reach the organ the peritoneum required to be opened. On opening the peritoneum a careful examination was made, when the kidney was found to have a distinct mesonephron, and showed the organ was surrounded by peritoneum on all sides. An incision was made through the peritoneal layer covering the kidney, the fibrous capsule was split, and the kidney parenchyma brought in position to the edges of the parietal wound. There was no fatty capsule. Four sutures were inserted into the kidney and the depth of the wound packed with iodoform gauze. The patient made an uninterrupted recovery, gained rapidly in strength, the appetite rapidly increased, and she was dismissed from the Sandford Home on August 10th.

Dr. Petrie, writing to me on October 1st, says "that since the patient returned home she has gradually improved, is sleeping better than she has done for years, and the right kidney seems securely anchored. She is looking altogether healthier and plumper, and is able to take a short walk daily without discomfort."

A CASE OF LEUKANAEMIA

WITH GREAT HYPERPLASIA OF THE SPLEEN AND PREVERTEBRAL HAEMOLYMPH GLANDS AND WITH INCREASE OF CONNECTIVE TISSUE IN THE BONE MARROW.*

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By leukaemia (W. Von Leube¹) I understand a morbid condition in which clinical symptoms found in pernicious anaemia are combined with blood changes and anatomical changes in the organs characteristic of leukaemia or pseudo-leukaemia, whether of the "lymphocytic" or "mixed-cell" type. The present case seems to combine certain features of pernicious anaemia with those of a "mixed-cell" pseudo-leukaemia. I intend first to give an account of the case, including the anatomical-pathological findings, and then to draw what conclusions I can as to its pathological nature.

The patient, P. von E., a German, aged 58 years, was admitted under my care at the German Hospital on December 10th, 1903, suffering from great anaemia, progressive weakness, anorexia, and tinnitus.

History.

The history was that he had enjoyed fairly good health till twelve months ago. In fact he seems to have been able to insure his life about one year before admission. The symptoms of his illness, wax-like pallor and weakness, with anorexia, commenced about that time—that is to say, about the end of 1902; but at first there seems to have been improvement under treatment.

He had never suffered from malaria or been out of Europe. He had lived in England since 1865. He had had attacks of gonorrhoea, and in 1868 had had a chancre, but apparently without any signs of secondary syphilis. He had never had any kind of haemorrhage.

Condition after Admission, in December, 1903.

The patient is somewhat fat, flabby, and very pale. His faint-yellowish wax-like pallor and puffy appearance are such as Addison described in pernicious anaemia. There is no evidence of anything abnormal in the heart or lungs, excepting a soft systolic murmur at the cardiac apex, and a few crepitations at the base of the left lung. The liver and spleen are greatly and uniformly enlarged. The hepatic dullness commences above at the sixth rib in the right nipple line, and in the same line the lower edge can be felt at the umbilical level. The splenic dullness commences above at the eighth rib in the left axillary line, and the organ is so enormously enlarged that its lower edge can be felt in the hypogastrium below the level of the anterior superior iliac spine, and in the front of the abdomen its right margin is felt considerably to the right of the navel. No distinct ascites. Some oedema of lower extremities and loins. Urine, of specific gravity 1016, free from albumen and sugar (see later note). Bowels open regularly. No vomiting. No cough. Pulse about 88 per minute, regular. Radial arteries somewhat thickened.

* Microscopic preparations were shown at the Pathological Society, on May 17th when the paper was accepted as read.

After-history.

In spite of treatment, the patient steadily lost strength. The oedema increased and became very noticeable in the face. At last he hardly had strength to swallow, and died quietly early on January 15th, 1904.

There was slight fever (about 100°F.) during the first days in the hospital, but afterwards the temperature seldom rose above 99°F. The pulse, as recorded on the chart during the last days of life, varied between 76 and 96 per minute.

The urine was of specific gravity 1014 to 1020, pale, acid, and free from albumen and sugar. On only two occasions was a lower specific gravity noted, and on only two occasions was a trace of albumen detected. The amount of urine was at one time below the normal, but during the last period reached about 1,800 c.cm. per diem.

The Blood.—On admission (Dr. Camptche, December 11th, 1903), the red corpuscles numbered 1,800,000, and the white cells 3,000 per cubic millimetre, the haemoglobin was 25 to 30 per cent. of the normal, and there was a good deal of poikilocytosis. The following differential count of the white corpuscles was made by Dr. G. L. Eastes, January 7th, 1904:—Small lymphocytes 49.4 per cent., large lymphocytes 9.6 (total lymphocytes 59.0), polymorphonuclear leucocytes 37.5, eosinophile leucocytes 0.5; myelocytes, 3.0; no eosinophile myelocytes. During the count of 400 white cells, 30 erythroblasts (24 normoblasts, 2 microblasts and 4 megaloblasts) were seen. There was poikilocytosis and polychromatism (neither extreme) and likewise leucopenia. On January 14th (the day before death) a rough blood count was made, the red corpuscles being estimated as about 1,200,000 the white cells as about 12,000 in the cubic millimetre, and the haemoglobin richness as about 25 per cent. of the normal. During the last days of life, therefore, the number of white cells appears to have considerably increased.

Necropsy (January 15th, 1904).

Brain.—Examination not permitted.

Thorax.—The heart showed nothing noteworthy, and weighed 11 oz. (312 grams). There were some pleuritic adhesions over part of the left lung and great hypostatic congestion of the left lower lobe, but otherwise the lungs appeared free from disease. There was a moderate amount of serous fluid in the pericardium and both pleurae.

Abdomen.—There were many small peritoneal petechiae.

The spleen was enormously enlarged, weighed 66 oz. (1,872 grams), and its capsule was slightly thickened. On section the splenic substance appeared normal to naked-eye examination, excepting that it contained one pale nodule below the capsule, of about the size of a large cherry, which subsequent microscopic examination showed to be an infarct.

The liver was uniformly enlarged and weighed 88 oz. (2,496 grams), but to naked-eye examination showed no cirrhosis or other distinct structural changes.

The kidneys were of normal size and weighed together about 10 oz. (256 grams). The cortical substance was not diminished and the capsules stripped fairly well. At one or two spots below the capsules there was slight increase of connective tissue (that is, by subsequent microscopic examination). The right kidney contained a few small cysts. In the left kidney was a minute cystic papillary adenoma, with the remains of a haemorrhage into it.

Nothing abnormal was found by naked-eye examination in the pancreas, suprarenal glands, stomach, or intestines excepting a few small petechiae in the gastric mucosa.

The lymphatic glands generally were not obviously enlarged, but the prevertebral tissue about the bifurcation of the aorta was studded with small red haemolymph nodes. Most of these were small and oval in shape, about 3 mm. by 4 mm., but their sizes varied and some were much bigger (10 mm. by 20 mm. or so), and some alongside of the aorta, owing to their elongated shape, or because they lay close together end to end, might almost be compared to leeches² in appearance.

Bone Marrow.—The left humerus was sawn through longitudinally, and the whole of the fatty marrow of the shaft was found to have undergone transformation into a red substance (red metaplasia) of unusually firm consistence. Owing to the markedly firm texture of this bone marrow no good films were obtained for microscopic examination. (For the examination, however, of microscopic sections see later.)

MICROSCOPIC EXAMINATION.

Sections were stained with eosin and haematoxylin, and haematoxylin alone, and by Ehrlich's triacid stain, Mann's long eosin-methyl-blue method, and by some other blood stains.

The bone marrow (from the shaft of the left humerus) was almost destitute of the normal fat vesicles. It showed a stroma of a kind of loose connective tissue containing blood, myelocytes, non-granular large mononuclear cells³, and abundance of erythroblasts. The erythroblasts, conspicuous by their deeply and almost homogeneously stained nuclei, were not uniformly distributed, but, as usual, occurred here and there in greater numbers, that is, in clusters. They were of various sizes, some large, some small, but mostly of medium size (normoblasts). Many of them possessed more than one nucleus or a partially divided nucleus, and often the nucleus appeared to have been split up into many fragments or droplets. There were likewise a good many giant cells in the bone marrow, and a few coarsely granular eosinophile cells were seen. The fibrous stroma was best seen in a portion of