

M O V E A B L E K I D N E Y

An enquiry into its frequency, with remarks on the
ETIOLOGY, SYMPTOMS, DIAGNOSIS and TREATMENT

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— by —

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In the course of my practice during last year (1896) four cases of moveable kidney occurred within a comparatively short time. In three of these cases I performed the operation of nephrorrhaphy for the relief of symptoms which other means had failed to benefit. A history of these cases is subjoined.

Having hitherto considered renal mobility to be a somewhat rare condition, partly because it is a subject which has received but scant notice in systematic works on medicine, and partly, perhaps, because it is not so much the custom to examine the abdomen as to explore other regions of the body, I was led to make an investigation into the relative frequency of moveable kidney. I was enabled to do this through the courtesy of Dr. Hector Mackenzie, Assistant Physician to the Brompton Hospital for diseases of the chest, who is himself engaged in an extensive enquiry into this subject.

The cases have been examined, as far as possible, in the order in which they presented themselves in the out-patient department, and in every case the number in the hospital register has been given. The results have been verified by Dr. Mackenzie and other medical men who have been present from time to time. It will be observed that the numbers as taken from the hospital register are not in regular sequence, some old cases with earlier numbers being interposed. These cases

are only old ones in so far as the date of their first attendance is concerned and had not previously undergone abdominal examination. The long interval between 17810 and 17982 was due to my being prevented by illness from attending at the hospital.

DEFINITION of TERMS EMPLOYED.

In the table showing the results of my examinations, the word palpable is intended to denote that condition in which the kidney could be felt to a greater or less extent, but in which, on deep inspiration, it was not possible to fix it and prevent its return to the lumbar region.

To those cases, 'in which it was possible to fix the kidney when it descended on deep inspiration, and in which it was possible to displace the organ to a greater or less degree the term moveable has been applied.

I prefer to restrict the term "floating" to that rare congenital condition, in which the kidney is possessed of a mesonephron, the peritoneum surrounding the organ to a greater or less extent. I believe it is impossible to diagnose this condition during life, apart from surgical interference. Although the terms floating and moveable are sometimes used indiscriminately by others, I have preferred to use the latter term in referring to any "moveable" condition of the Kidney, irrespective of the degree of mobility.

It must be remembered that my observations have been made from examination of those seeking relief in the out-patient department of a hospital and the results may possibly show a greater proportion to be the subjects of moveable kidney than one might expect to meet with amongst healthy individuals.

METHOD of EXAMINATION.

The method I have adopted is the bimanual. The patient is placed in the dorsal decubitus with the knees well drawn up, the shoulders slightly raised and the chin approximated to the sternum.

To examine the right kidney, the palm of the left hand placed behind in the ilio-costal space, just outside the erector spinae, presses up towards the front, while the palm and fingers of the right hand depress the anterior abdominal wall immediately over the left hand. The right hand is depressed and the left is tilted forward, while at the same time the patient inspires deeply. If the Kidney be moveable it will be felt to move down under the right hand and may be fixed there by bringing the thumb of the left hand to the front, pressing it deeply above the swelling. The right hand is now free to palpate the swelling.

To examine the opposite side the hands are reversed.

The best position for the examiner to take is on the same side as that of the kidney to be investigated. Warm hands are essential, as in all cases of abdominal palpation. The bowels should be previously emptied. Well marked physiological lordosis of the lumbar spine facilitates the manipulation.

Can we feel the normal kidney?

This question I find is asked by the late Mr. Holden,¹ who states, "the only place where it is accessible to pressure is just below the last rib, on the outer edge of the erector spinae. I say accessible to pressure, for I have never succeeded in satisfying myself that I have distinctly felt its lower border in the living subject, nor even in the dead, with the advantage of flaccid abdominal walls and the opportunity of making hard pressure with both hands, placed simultaneously one in front of the abdomen, the other on the back. For these reasons although we can easily ascertain its degree of tenderness, we cannot actually feel it unless it be considerably enlarged" With this statement I cannot altogether agree, I must assume, there being no evidence to the contrary, that in many of those cases where I have been able to palpate the kidney, and more especially the right, that the organ is normal. Quain² states that the kidneys being situated at the back of the abdominal cavity, are not to be felt under normal conditions, or at most the right is at times to be detected. Treves³ states that the kidneys cannot be felt and distinctly identified when normal.

I have been able to palpate the right kidney in 27 cases, the left alone in one, while both kidneys could be felt in another case. Doubtful cases to which a query is prefixed are not included.

The conditions under which the Kidneys are not accessible to palpation are the following.

- (1) The presence of a large amount of peri-renal fat, or of an excessive quantity of fat in the abdominal wall.
- (2) Great tension upon the abdominal walls.
- (3) Small ilio-costal space.

No. of case	No. in Hospital register	Sex	Age	M or S.	TABLE of CASES			Disease	Symptoms attributable to Kidney.
					Chdrn	R.Kidney	L. Kidney		
1	17596	F	29	M	0	Felt	Not	Phthisis	
2	17597	F	35	M	0	Moveable	Not felt	Dyspepsia	Nil
3	17598	M	57	-	-	Nil	Not	Aneurism	
4	17600	F	19	S	-	Nil	Nil	Phth.	
5	17603	F	30	M	0	Nil	Nil	Anaemia	
6	17604	F	33	M	3	Felt	Nil	Pneumonia	
7	17240	F	25	M	0	Moveable	Nil	Dyspepsia	Occasional pain in right side.
8	17605	F	36	M.	1	Nil	Nil	Laryngitis	
9	17606	F	15	S	-	Nil	Nil	Cardiac	
10	17607	F	43	M	0	Nil	Nil	Bronchitis	
11	16346	F	30	S	-	Nil	Nil	Anaemia	
12	15437	F	48	M	0	Nil	Nil	Phthisis	
13	14840	F	49	M	1	Felt	Nil	Cardiac	
14	423	F	46	M	1	Felt	Nil	Phthisis	
15	16039	F	48	M	0	Felt	Nil	Dyspepsia	
16	4638	F	58	M	1	Felt	Felt	Dyspepsia	
17	15694	F	31	M	3	Felt	Nil	Dyspepsia	
18	1516	F	46	M	2	Nil	Nil	Goitre	
19	4773	M	57	-	-	?Felt	Nil	Ch. Bronchitis	
20	17608	M	17	-	-	Nil	Nil	Emphysema	
21	17609	F	18	S	-	Felt	Nil	Anaemia	
22	17610	M	22	-	-	Nil	Nil	Dyspepsia	
23	17611	F	20	M	0	Felt	Nil	Dyspepsia	

No. of case	No. in Hospital Register	Sex	Age	M. or S.	Chdrn	R. Kidney	L. Kidney	Disease	Symptoms attributable to Kidney.
24	17612	F	29	M	0	Nil	Nil	Nothing definite Cough	
25	17613	M	43	-	-	Nil	Nil	Haematemesis	
26	17614	F	37	S	-	Nil	Nil	Phthisis	
27	17362	F	30	M	2	Moveable	Moveable	Nothing definite cough	Dragging pain in right side especially when walking & occasional attacks of giddiness, no vomiting.
28	17616	M	35	-	-	Nil	Nil	Ch. Bronchitis	
29	17617	F	26	M	0	Nil	Nil	Phthisis	
30	127	F	28	M	2	Nil	Nil	Bronchitis	
31	14870	F	22	S	-	Felt	Nil	Cardiac	
32	17360	F	17	S	-	Nil	Nil	Cardiac	
33	17561	M	21	-	-	Nil	Nil	Phthisis	
34	9699	F	32	M	4	Nil	Nil	Dyspepsia	
36	15707	F	22	M	2	Nil	Nil	Anaemia	
37	17618	F	46	M	1	Moveable	Nil	Phthisis	Slight aching pain
38	17619	F	31	M	0	Nil	Nil	Dyspepsia	
39	17620	F	57	M	1	Nil	Nil	Dyspepsia	
40	15369	M	40	-	-	Nil	Nil	Ch. Bronchitis	
41	17214	M	29	-	-	Felt	Nil	Phthisis	
42	15483	M	58	-	-	Nil	Nil	Phthisis	

No. of case	No. in Hospital register	Sex	Age	M. or S.	Chdrn	R. Kidney	L. Kidney	Disease	Symptoms attributable to Kidney.
43	17205	M	35	-	-	Nil	Nil	Pleurisy	
44	16991	M	23	-	-	Nil	Nil	Pleurisy	
45	17050	M	20	-	-	Nil	Nil	Phthisis	
46	17623	F	62	S	-	Nil	Nil	Ch. Bronchitis	
47	17635	M	46	-	-	Nil	Nil	Phthisis	
48	17636	M	33	-	-	Nil	Nil	Dyspepsia	
49	17644	M	36	-	-	?Felt	Nil	Dyspepsia	
50	17645	M	31	-	-	Nil	Nil	Phthisis	
51	17402	F	35	M	8	Moveable	Nil	Bronchitis	Nil
52	17646	F	19	S	-	Nil	Nil	Dyspepsia	
53	17467	F	37	M	2	Moveable	Moveable	Dyspepsia	Nil
54	15182	M	22	-	-	Nil	Nil	Phthisis	
55	11969	F	29	S	-	Felt	Nil	Gastric ulcer	
56	10506	F	27	S	-	Felt	Nil	Dyspepsia	
57	17075	F	35	M	0	Nil	Nil	Nothing definite	
58	15601	F	35	M	0	Nil	Nil	Nothing definite	
59	17654	F	20	S	-	Nil	Nil	Cardiac	
60	17655	F	13	-	-	Nil	Nil	Aphonia	
61	17656	F	12	-	-	Nil	Nil	Adenoids	
62	17657	M	13	-	-	Nil	Nil	Nothing definite	
63	17658	F	5	-	-	Nil	Nil	Nothing definite	

No. of case	No. in Hospital register.	Sex.	Age	M. or S.	Chdrn.	R. Kidney.	L. Kidney	Disease	Symptoms attributable to Kidney
4	17660	M	32	-	-	Nil	Nil	Bronchitis	
5	17661	M	26	-	-	Nil	Nil	Cardiac	
6	12238	M	47	-	-	Nil	Nil	Phthisis	
7	2962	M	19	-	-	Nil	Nil	Phthisis	
8	12790	M	27	-	-	Nil	Nil	Cardiac	
9	12961	F	18	S	-	Nil	Nil	Dyspepsia	
0	17663	M	21	-	-	Nil	Nil	Cardiac	
1	17665	M	29	-	-	Nil	Nil	Bronchitis	
2	17667	M	36	-	-	Nil	Nil	Phthisis	
3	17666	F	52	M	0	Nil	Nil	Bronchitis	
4	17668	F	32	-	--	Nil	Nil	Pertussis	
5	17669	F	26	M	I	Felt	Nil	Phthisis	
6	15341	F	51	M	5	Moveable	Nil	Bronchitis	Nil
7	17676	F	40	M	3	Nil	Nil	Cardiac	
8	17681	M	34	-	-	Nil	Nil	Phthisis	
9	17682	F	46	M	0	Nil	Nil	Dyspepsia	Too stout
0	17683	M	26	-	-	Nil	Nil	Cardiac	
1	17689	M	30	-	-	Nil	Nil	Cardiac	
2	17690	M	41	-	-	Nil	Nil	Phthisis	
3	17691	F	21	S	-	Nil	Nil	Cardiac	
4	16842	F	27	S	-	Nil	Nil	Neuralgia	
5	17692	M	34	-	-	Nil	Nil	Dyspepsia	
6	17178	F	18	S	-	Moveable	Nil	Bronch. Catarrh	Pain in right side when standing

No. of case	No. in Hospital Register	Sex	Age	M. or S.	Chdrn.	R. Kidney.	L. Kidney	Disease	Symptoms attributable to Kidney.
7	17693	F	25	S	-	Nil	Nil	Nothing definite	
8	17694	M	40	-	-	?Moveable	Nil	Phthisis	Nil. Difficult to fix muscles rigid
9	17695	M	19	-	-	Nil	Nil	Phthisis	
0	17696	M	37	-	-	Nil	Nil	Cardiac	
1	17697	F	26	M	1	Nil	Nil	Bronchitis	
2	17698	M	38	-	-	Nil	Nil	Dyspepsia	
3	15307	F	25	S	-	Moveable	Nil	Dyspepsia	Nil
4	17703	M	27	-	-	Moveable	Nil	Phthisis	Nil
5	17704	F	31	M	5	Felt	Nil	Cardiac	
6	17708	M	56	-	-	Nil	Nil	Renal	
7	17709	M	27	-	-	Nil	Nil	Bronchitis	
8	17710	M	29	-	-	Nil	Nil	Bronchitis	
9	17711	M	36	-	-	Nil	Nil	Phthisis	
0	16580	F	53	M	2	Moveable	Nil	Dyspepsia	
1	13270	F	21	S	-	Felt	Nil	Anaemia	
2	11222	F	49	M	6	Nil	Nil	Phthisis	
3	17288	M	41	-	-	Nil	Nil	Phthisis	
4	13847	M	8	-	-	Nil	Nil	Bronchitis	
5	17713	F	38	M	5	Nil	Nil	Albuminuria	
6	17715	F	27	M	4	Nil	Nil	Cardiac	
7	17733	M	24	-	-	Nil	Nil	Phthisis	
8	17734	M	50	-	-	Nil	Nil	Bronchitis	
9	17735	F	25	M	4	Felt	Nil	Phthisis	

No. of case	No. in Hospital Register	Sex	Age	M. or S.	Chdrn	R. Kidney	L. Kidney	Disease	Symptoms attributable to Kidney
10	17736	F	37	M	5	Nil	Nil	Cardiac	
11	17737	F	19	S	-	Nil	Nil	Cardiac	
12	17739	F	49	M	13	Nil	Nil	Bronchitis	
13	17740	M	28	-	-	Nil	Nil	Cardiac	
14	17741	F	36	M	9	Felt	Nil	Anaemia	
15	17467	F	34	M	2	Moveable	Moveable	Dyspepsia	Nil
16	17742	F	64	M	6	Nil	Nil	Nothing definite	
17	17746	F	16	S	-	Felt	Nil	Cardiac	
18	17772	M	28	-	-	Nil	Nil	Phthisis	
19	17773	F	28	M	2	Nil	Nil	Bronchitis	
20	17775	M	23	-	-	Nil	Nil	Phthisis	
21	17777	M	55	-	-	Nil	Nil	Bronchitis	
22	17778	F	36	M	8	Nil	Nil	Phthisis	
23	17779	F	37	M	3	Nil	Nil	Laryngitis	
24	7116	M	20	-	-	Nil	Nil	Cardiac	
25	17344	F	63	M	0	Moveable	Felt	Cardiac	Nil
26	13353	F	32	M	2	Moveable	Nil	Phthisis	Pain in right side
27	15404	F	54	M	3	Nil	Nil	Dyspepsia	Complained of swelling in stomach - great rigidity of right rectus
28	17784	M	25	-	-	Nil	Nil	Phthisis	
29	17785	M	51	-	-	Nil	Nil	Bronchitis	

No. of case	No. in Hospital Register	Sex	Age	M. or S.	Chdrn.	R. Kidney.	L. Kidney.	Disease	Symptoms attributable to Kidney.
30	17786	M	31	-	-	Nil	Nil	Cardiac	
31	17787	F	28	M	0	Felt	Nil	Dyspepsia	
32	17788	F	38	M	4	Nil	Nil	Neurosis	
33	17791	F	23	S	-	Felt	Nil	Dyspepsia	
34	17793	M	14	-	-	Nil	Nil	Nothing definite	
35	17794	M	17	-	-	Nil	Nil	Cardiac	
36	17795	F	25	S	-	Nil	Nil	Cardiac	
37	17796	F	20	S	-	Nil	Nil	Anaemia	
38	17797	F	49	M	8	Nil	Nil	Dyspepsia	
39	17798	F	50	S	-	Nil	Nil	Bronchitis	
40	17799	F	20	S	-	Moveable	Nil	Phthisis	Dragging pain in right side
41	17807	F	27	M	2	Felt	Nil	Phthisis	
42	17808	F	42	M	0	Nil	Nil	Goitre	
43	17294	M	17	-	-	Nil	Nil	Pleurisy	
44	16990	M	29	-	-	Nil	Nil	Phthisis	
45	9243	M	17	-	-	Nil	Nil	Cardiac	
46	17810	F	24	S	-	Nil	Nil	Anaemia	
47	17982	M	63	-	-	Nil	Nil	Pleurisy	
48	17988	F	39	M	4	Moveable	Moveable	Phthisis	Nil
49	17994	M	45	-	-	Nil	Nil	Bronchitis	
50	16964	F	28	M	3	Moveable	Nil	Phthisis	Nil
51	18005	F	50	M	3	Nil	Nil	Cardiac	
52	18006	F	26	M	3	Felt	Nil	Dyspepsia	
53	18008	M	10	-	-	Nil	Nil	Chorea	

No. of case	No. in Hospital Register	Sex	Age	M. or S.	Chdrn.	R. Kidney	L. Kindey	Disease	Symptoms attributable to Kidney.
54	18041	M	32	-	-	Nil	Nil	Phthisis	
55	18042	F	30	M	2	Moveable	Nil	Gastric ulcer	Nil
56	18043	M	23	-	-	Nil	Nil	Dyspepsia	
57	18044	F	31	M	3	Moveable	Nil	Phthisis	Nil
58	18045	M	27	-	-	Nil	Nil	Phthisis	
59	17502	M	33	-	-	Nil	Nil	Phthisis	
60	18046	F	21	S	-	Nil	Nil	Cardiac	
61	18064	M	29	-	-	Nil	Nil	Bronchitis	
62	18065	F	16	S	-	Nil	Nil	Bronchitis	
63	18066	M	42	-	-	Nil	Nil	Pleurisy	
64	18067	M	47	-	-	Nil	Nil	Emphysema	
65	18068	M	56	-	-	Nil	Nil	Bronchitis	
66	18073	F	50	M	3	Nil	Nil	Phthisis	
67	18074	F	18	S	-	Felt	Nil	Anaemia	
68	18075	F	48	M	4	Nil	Nil	Dyspepsia	
69	18076	F	41	M	6	Moveable	Nil	Dyspepsia	Nil
70	18007	F	26	S	-	Nil	Nil	Anaemia	
71	18088	F	16	S	-	Felt	Nil	Phthisis	
72	18091	M	42	-	-	Nil	Nil	Phthisis	
73	18092	F	19	S	-	Moveable	Nil	Anaemia	Nil
74	16340	F	35	M	0	Nil	Nil	Specific	
75	18093	M	64	-	-	Nil	Nil	Phthisis	
76	18094	F	22	S	-	Nil	Nil	Phthisis	
77	18095	M	36	-	-	Nil	Nil	Phthisis	

No. of case	No. in Hospital Register	Sex	Age	M. or S.	Chdrn.	R. Kidney	L. Kidney	Disease	Symptoms attributable to Kidney
78	18098	M	36	-	-	Nil	Nil	Pleurisy	
79	18100	F	26	S	-	Felt	Nil	Cardiac	
80	18101	F	39	M	8	Nil	Nil	Bronchitis	
81	18109	F	38	M	7	Nil	Nil	Cardiac	Ascites present
82	18111	M	51	-	-	Nil	Nil	Bronchitis	
83	18112	M	21	-	-	Nil	Nil	Phthisis	
84	18113	F	18	S	-	Nil	Nil	Anaemia	
85	18114	F	38	M	4	Felt	Nil	Dyspepsia	
86	18117	F	42	M	1	Nil	Nil	Cardiac	Too stout
87	18120	F	28	S	-	Moveable	Felt	Dyspepsia	Pain in right side
88	8546	M	10	-	-	Nil	Nil	Phthisis	
89	18121	F	49	M	7	Nil	Nil	Emphysema	
90	18122	F	42	S	-	Nil	Nil	Phthisis	A mass felt, probably faecal
91	18123	F	43	M	9	Nil	Nil	Dyspepsia	?Gall bladder felt, no jaundice.
92	18125	F	33	S	-	Moveable	Nil	Nothing definite	Nil
93	18129	F	18	S	-	Nil	Nil	Phthisis	
94	18130	F	19	S	-	Nil	Nil	Anaemia	
95	18131	F	35	S	-	Nil	Nil	Laryngitis	
96	13934	F	33	S	-	Nil	Nil	Phthisis	
97	18134	F	31	M	1	Nil	Nil	Laryngitis	
98	18135	F	57	M	4	Felt	Nil	Pleurisy	
99	18136	F	21	S	-	Nil	Nil	Anaemia	
100	18137	F	30	M	0	Nil	Nil	Phthisis.	

124 Women examined- of these 22 were found to possess moveable kidneys a little over 17 per cent.

In 18 the right only and in 4 both were affected.

76 men were examined and only one of these possessed a moveable kidney, that one being on the right side.

Edebohls states that out of 500 women examined by him, 90- or 18 per cent + were found to possess amongst other things, a moveable kidney.

In an editorial notice in the British Medical Journal Vol ii 1888. p.677, Dr. Lindner is said to assert in his book, that floating kidney is the most frequent anomaly in women and according to his experience , one out of every five or six women has a floating kidney.

ETIOLOGY.

In a certain number of cases no clear determining cause can be discovered. While a "floating" kidney is a congenital condition, "mobility" of that organ is usually acquired.

A variety of causes have been adduced as serving to bring about this latter anomalous condition.

SEX.

All observers are agreed as to the greater frequency in the female sex, and with this my observations coincide. Out of the 200 cases which I have tabulated, 22 instances of moveable kidney occurred in 124 women and only 1 out of 76 men. Sixteen of the women were married and of these thirteen had borne children. The remaining six were single - one doubtful case, (no. 88) in which it was difficult to fix the right kidney, owing to muscular rigidity, is not included.

AGE.

The greater proportion of cases occurs between the ages of twenty and fifty, corresponding to the child-bearing period in women. The earliest case I have observed being 19 and the oldest 53. The condition appears to become more frequent as age increases. Children do not appear to furnish examples of this condition. The reason apparently being that they are

exempt from most of the conditions which tend to its production

From a conversation with one of the surgeons to the hospital for children, Great Ormond Street, I ascertained that he had not met with a single case amongst children, nor do I find in any of the authorities to which I have had access, any record of such.

SIDE AFFECTED.

The right kidney is far more frequently affected than the left. All the cases on which I have operated occurred on the right side and in those which I have tabulated, the right side was affected in 19 cases, the left alone in not a single instance. Mobility on both sides is more rare, occurring in 4 cases.

Landau⁴ states that both Kidneys are affected about once out of twelve cases. The greater frequency on the right side is supposed to be due to the position of the kidney just below the liver, and the depression to which it is subjected on each descent of the diaphragm. The renal vessels on the right side being longer than on the opposite side may also aid in the production of this abnormality on that side - Another cause may be the fact that the ascending colon is less firmly bound to the right kidney than the descending colon to the left

PREGNANCY.

Although it is by no means infrequent in women who have never borne children, in many instances this affection appears to be a consequence of repeated pregnancies, especially if these have occurred in rapid succession and have been terminated by difficult labours. This may account for the greater frequency of moveable kidneys in women than in men. Two of the cases on which I operated occurred in nulliparous women.

The explanation of this is not far to seek, for in successive pregnancies there is alternate tension and relaxation of the abdominal walls. During parturition the diaphragm is forcibly contracted, and in consequence pressure is exerted downwards on the liver and more especially on the right kidney. Another circumstance to be borne in mind in connection with this, is the fact that the majority of those patients from whom my statistics have been collected are not able, owing to their social position, to maintain the recumbent posture more than about ten days after delivery, and do not adopt any means of abdominal support thereafter. In many instances, especially in those attended by a midwife, the binder, which it is customary to apply after labour, is as often as not applied round the lower part of the thorax as to the abdomen.

It may be urged that pregnancy cannot be a universal cause in the production of mobility of the kidney, as the condition

is not infrequent in nulliparous women and occurs also in men. But while this is so, the fact that the proportion of cases of moveable kidney among parous women is considerably greater than among nullipar^a~~ae~~ or in the opposite sex, would appear to point to the occurrence of gestation as an important element in their causation. An analysis of the cases quoted in my abstract shows a percentage of moveable kidney among parous women of 23.6, as against 14 per cent in nullipar^a.

EMACIATION.

Mobility of the kidney is favoured by absorption of the fatty tissue surrounding the organ. In six of my tabulated cases the patient was suffering from phthisis, and in private practice I have had a phthisical patient under observation for some time, in whom I have found that the kidney has apparently become more mobile as emaciation has progressed. If the surrounding fatty tissue be absorbed for any reason, the kidney can be readily moved about and displaced in the subserous tissue. The peritoneum becomes at the same time more lax and the kidney of its own weight can drag still further upon it.

TIGHT-LACING.

This may be another factor in the production of moveable kidney more frequently in women than in men, and also appears

to account for the greater frequency on the right side than on the left. Landau considers the corset of no importance.

It must be admitted that hospital patients are not those amongst whom the habit of tight-lacing is practised, and it is from this class that most of our statistics are gathered.

Cruveilhier⁵ states in reference to this "I have often observed in women who wore tight stays, the right kidney to lie sometimes in the right iliac fossa sometimes in front of the sacro-iliac synchondrosis, sometimes even in front of the vertebral column, at the level of the adherent border of the mesentery, in the substance of which it was placed. The Kidney thus accidentally displaced enjoys a certain mobility. This displacement of the Kidney arises, when the pressure exercised on the liver by the stays dislodges the right kidney from the kind of niche which it occupies on the under surface of this organ. If the left kidney is not so frequently displaced as the right that is owing to the fact that the left hypochondrium occupied by the spleen and the great end of the stomach, bears the pressure of the stays with much more impunity than the right".

TRAUMA.

In many instances mobility of the kidney appears to have been caused by an injury, such as a blow or kick in the loins, or severe exercise. The effect may either be produced rapidly or more slowly by the cause being frequently repeated.

Roberts⁶ relates two cases of this nature. In one case , in which the right kidney was affected, the condition was due to a fall on the ice on the left side, and in the other it was due to a fall down stairs, a blow being received in the right loin.

Harrisson⁷ records a case which he saw, where the lesion was connected with a fall in the hunting field, and after which the patient had to abandon all jolting exercise. He wore a pad and belt but would not submit to operation.

At the Surgical Congress in Berlin (1895) Professor Kuster⁸ discussed the etiology of moveable kidney. He was of opinion that it is always produced by mechanical causes. He thought that tight lacing, especially in women whose abdominal walls have become thinned by repeated pregnancy, causes the ribs to exercise a pressure during respiration which eventually loosens the Kidney. Direct violence he also cites as tending to produce the same result. An interesting statement is made by him, that rupture of the kidney in men, and moveable kidney in women, arise often from the same cause, 93 per cent of the total cases of rupture of the kidney happen in men only, and only 7 per cent in women, whereas 93 per cent of the cases of moveable kidney occur in women and only 7 per cent in men. Lindner (Berlin) objected that mechanical causes alone were not sufficient to explain these cases, that traumatic lesions produce moveable kidney only when a congenital

disposition exists. In support of this he instances the lengthening of the renal vessels, to prove that the cases are congenital, But Kuster replied that the lengthening of the vessels must be regarded as a consequence and not as a cause of the abnormality.

MENSTRUATION.

The relation between the kidneys and the genital organs is apt to be overlooked, unless we recall the anatomy of the embryo. Embryologically the genital and the urinary organs are closely connected. As development proceeds, they become separated from each other. It is not unusual for women to suffer from renal pain at each menstrual period, and a number of those who are the subject of moveable kidney associated with pain, distinctly state that the pain is aggravated at that time. It is believed that the kidneys, as well as the generative organs, are congested during menstruation and in consequence, being increased in size and weight, have a greater tendency to become loose from their attachments. It not being customary for patients to present themselves for abdominal examination while menstruating accounts for the fact that this subject so frequently eludes the physician.

Becquet⁹ is of opinion that there is some causal relation between mobility of the kidneys and menstruation. He thus explains "on the breaking forth of the menstrual flux, the kidneys are associated in the congestion of the generative organs, and become swelled. This fact, less rare doubtless than is usually supposed, perhaps even physiological does it not explain the renal pain so often felt at the menstrual periods, especially in women who are subject to dysmenorrhagia?

Thus swelled and rendered heavier, the kidney and especially the right kidney strains the feeble attachments which

retain it, and tends to start out of its place. Soon the congestion subsides, and the organ returns to its original position; a second congestion displaces it further; and a third further still; the kidney, becoming each time heavier from the incompleteness of the resolution, comes to occupy a lower position; and thus gradually and at length, but not without suffering, breaks loose, and floats in the abdominal cavity".

It may be objected, that under normal conditions, such congestion is not known to take place,

Mobility of the kidney is sometimes associated with a general want of tone in the abdominal and pelvic tissues.

Landau gives a table showing the relative frequency of the different complications of moveable kidney in 45 cases, of which the following is an analysis.

25	per cent	suffered	from	pendulous	belly.
13	"	"	"	"	descent of uterus
13	"	"	"	"	cancer.
15	"	"	"	"	retroflexion.
7	"	"	"	"	hernia,

Fagge["] states that enlargement of the liver may displace the kidney. He records a case where on post mortem examination the kidney was pushed down by cancer of the liver.

TOPOGRAPHICAL ANATOMY.

The kidneys are deeply placed in the loins, lying one on each side of the spinal column, mainly in the epigastric and hypochondriac regions and behind the peritoneum. Each kidney lies opposite the bodies of $3\frac{1}{2}$ vertebrae, extending from the upper border of the last dorsal vertebra to the middle of the body of the third lumbar vertebra.

The kidneys are embedded in a large quantity of loose fatty tissue - tunica adiposa. They are maintained in position by the tension of the peritoneum which passes over them, by their vessels and by the loose areolar tissue which surrounds them.

The right kidney is situated a little lower than the left, its inferior extremity reaching about one and a quarter inches from the iliac crest.

The anterior surface is but slightly covered by peritoneum, being only in contact with that membrane in such parts as are not in relation with the cellular tissue at the back of the colon and at the back of the duodenum or pancreas. The external border is more closely in connection with the peritoneum, while the posterior border is quite devoid of that membrane.

PATHOLOGICAL ANATOMY.

The pathology of moveable kidney is a subject to which little attention has been given. In the course of making a post mortem examination it is not commonly noted whether the kidneys are mobile or not, unless one's attention be specially directed to this condition.

Mobility does not necessarily imply any change in the structure of the organ unless some other pathological condition such as calculus or hydronephrosis is associated with it. It is only the surroundings viz, the adipose capsule and peritoneum which form the attachments of the kidneys that are involved.

Three conditions are recognized as tending to produce the mobility.

1. The adipose capsule is atrophied, becoming large and loose. The fibrous capsule is unaltered, being in intimate relation to the kidney. The kidney moves within the atrophied adipose capsule which becomes distended and may ultimately form a sac of considerable size.

II The peritoneum over the adipose capsule, becomes loosened and allows the kidney to move about behind it.

III. The adipose capsule remains adherent to the kidney and moves along with it, behind the loosened peritoneum, and the attachments of the capsule to the posterior abdominal wall

are at the same time released.

The renal vessels at the same time are lengthened to enable the kidney to adapt itself to its varying positions in the abdomen.

SYMPTOMS.

Many persons possessing one or both Kidneys which are moveable, experience no discomfort whatever, and this was the case in sixteen of those included in my list. Nor do the symptoms appear to depend on the amount of mobility, in as much as, several cases of extensive mobility were marked by the absence of symptoms, on the other hand, pain may be present, and may vary from a mere sense of discomfort, to pain of a most agonising character.

It will be convenient to consider the symptoms under the different systems which may be affected.

NERVOUS SYSTEM.

The Symptom most frequently present, is the feeling of a dragging pain in the loin of the affected side, and extending in some instances along the course of the genito-crural and sciatic nerves. This pain is induced and exaggerated by the erect posture and by exertion. In females, hysteria, and in males, a hypochondriacal condition may be induced, and doubtless, some of the cases of so called visceral melancholia might be attributable to this cause.

ALIMENTARY SYSTEM.

There may be loss of appetite. Vomiting is a marked symptom in many cases, especially in those in which acute renal strangulation, as described by Bruce Clarke,¹² occurs.

The bowels are usually disturbed, either constipation or diarrhoea being induced. Flatulence is not uncommon. Dyspepsia was the only symptom in 8 of the cases ^t tabulated.

Many cases of abdominal pain, which cannot be otherwise satisfactorily explained are due to moveable Kidney. Osler states that remarkable attacks of pain, as described by Dietl,¹³ occur in connection with renal mobility. He terms them renal crises. They are characterised by attacks of nausea and vomiting, with great pain, swelling, and tenderness of the affected kidney.

VASCULAR SYSTEM.

Does not appear to be much affected. Roberts¹⁴ states that epigastric pulsation and oedema of the lower limbs from compression of the ascending vena cava by the displaced kidney have been observed.

URINARY SYSTEM.

The urine as a rule is healthy, and the frequency of micturition is unaltered. Should albumen be present, it is an indication of some additional disease. Sometimes micturition is more frequent than is natural and it may be painful in addition. Phosphates may be increased and urates diminished.

The urine may become temporarily bloody and albuminous after an attack of strangulation.

GENITAL SYSTEM.

Metrorrhagia has been observed in one of my cases.

PHYSICAL SIGNS.

In some cases these may be absent or very obscure but in the majority of cases, especially if the abdominal wall be flaccid, as it is in many instances, the diagnosis is not difficult.

The most valuable sign is the presence of a moveable tumour on either side of the abdomen, and which is firm, smooth rounded and approaching to the size and shape of the kidney. The swelling is usually found in the hypochondriac region, but sometimes it descends as low as the iliac fossa. It can be readily pushed back into the loin, tends to fall out of its normal situation on deep inspiration and when the patient sits up or assumes the erect posture. Sometimes the Kidneys extends towards the middle line, and may reach to the umbilicus or beyond it. In one of my operation cases (Mrs. B) the organ was displaced as far as the umbilicus and the patient being very thin, it was readily grasped by the fingers, giving rise to a feeling of nausea. In fact the mobility is only limited by the length of the renal vessels, whose length corresponds to the radius of a circle within which the Kidney can be moved.

Morris¹⁵ has applied the term "cinder shifting" in describing the movements it is possible for the moveable

organ to execute, viz. up and down, inwards and outwards.

If the patient rest on the elbows and knees, the kidney drops forward, and the loin on that side becomes tympanitic.

It is said that the loin also becomes flattened, but this is not readily perceived.

DIFFERENTIAL DIAGNOSIS.

Although the diagnosis of abdominal tumours is admittedly difficult, in the great majority of cases of renal mobility, no such difficulty exists. In some cases however, errors have arisen rather from the possibility of this condition not having been present to the mind of the physician than to any inherent obscurity of the case. In other cases the surgeon has even cut down on what was supposed to be a moveable kidney and has found something entirely different, E.G. adilated gall bladder. An instance of this occurred in one of my cases, notes of the operation are appended.

The conditions which are most likely to lead to errors in diagnosis, are the following.

1. Retained faeces.
- 2 . Distended gall bladder.
3. Small ovarian cysts with long pedicle.
4. Subperitoneal uterine fibroid with long pedicle.
5. Enlarged or wandering spleen.
6. Tumours of the omentum, mesentery, stomach, pancreas ascending or descending colon.
7. Linguiform prolongation of the right lobe of the liver - "Riedel's lobe"³⁶.

RETAINED FAECES.

A tumour caused by faecal accumulation in the colon, sigmoid flexure or coecum, may present a difficulty in the diagnosis of moveable kidney. The former is usually accompanied by intestinal disturbance, such as, attacks of abdominal pain and colic, flatulent distension, diarrhoea alternating with constipation and occasionally, vomiting hiccough and jaundice. The faecal mass can usually be indented, is hard, nodular, and has not the characteristic renal form. The doubt may be cleared up by the administration of laxatives and large enemata.

It is a good rule, in any doubtful case of abdominal tumour, to refrain from expressing a definite opinion until the bowels have been well opened.

DISTENDED GALL BLADDER.

It is with this abnormal condition, that some of the greatest difficulties in connection with the diagnosis of renal mobility on the right side, on which the greater proportion occurs, present themselves.

The gall bladder is superficial, lying immediately beneath the abdominal wall. It is smooth, elastic, rounded and pear-shaped. The outline above is obscure, there being no definite edge above the tumour, as in moveable kidney, mobility during respiration is well marked, but on deepest inspiration it cannot be grasped and fixed.

It is chiefly in stout persons whose abdominal walls are very tense, that error in diagnosis is likely to occur. When the patient is recumbent, the mobile kidney slips back or can be pushed back into the loin, and no tumour is evident. When the kidney descends, on deep inspiration, the sharp margin of the liver may be distinctly felt. There is no feeling of nausea when the gall bladder is handled.

There is no tendency for the kidney to increase in size, at least permanently. The percussion dulness of the gall bladder is continuous with that of the liver.

Lawson Tait¹⁶ reports a case of distended gall bladder which had been diagnosed as floating kidney "by several distinguished

authorities". The patient, a female age 18, had a freely moveable tumour in the upper and right part of the abdomen, and shaped like a kidney, tender on pressure and disappeared when the hips were raised, above the shoulders. Pain was induced by exercise. There was no jaundice, and the urine was normal. The tumour appeared to be cystic however, and at the operation the gall bladder was found to be distended by a pint of glairy mucus and about 80 gall stones.

Osler,¹⁷ on the other hand, records a case in which the diagnosis of gall stones was made by Mr. Tait, who cut down and found the gall bladder normal, and which ultimately proved to be one of moveable kidney. The kidney was stitched to the side and great relief followed. The patient afterwards died of empyema, and the post mortem notes state "right organ in normal position, healed by firm union; nephrorrhaphy had been performed for floating kidney" no mention of enlarged gall bladder.

Mayo Robson¹⁸ refers to Ziemmsen's method of distending the colon with air or carbonic acid gas through the rectum. If the swelling be kidney, it will be pushed further into the loin, but if gall bladder, it will be pushed forwards and upwards. But even this does not always lead to a positive diagnosis, in illustration of which, Robson relates a case where the swelling was believed to be gall bladder after this test had been applied. It was ultimately found, at the

operation, to be a sarcoma of the supra-renal capsule, firmly fixed to the upper end of the right kidney.

In doubtful cases, exploration is the only means of settling the diagnosis, and the subsequent steps must be in accordance with the condition found. Hurry Fenwick¹⁹ notes the following points for differential diagnosis.

1. Enlarged gall bladder, as well as the kidney, is a frequent cause of abdominal tumour.
2. Presence or absence of a history of jaundice.
3. Enlarged gall bladder almost always to be felt, moveable kidney, unless also enlarged, cannot always be detected.
4. Variation in size from time to time of no import, unless diminution of swelling followed by marked increase of urine. Distended gall bladder also varies in size if stone in cystic duct slips back into gall bladder from time to time.
5. A gall bladder with calculi feels harder than a moveable kidney.
6. Movements of the gall bladder take place in the arc of a circle, the centre of which is a point beneath the right lobe of the liver. Unless the liver is unduly mobile as a whole, the gall bladder cannot be pushed downwards towards the pelvis, though it descends a little on deep inspiration.

The kidney on the other hand, moves bodily from place to place, within the limits of its loose connections. It has a tendency to spring back into its proper place in the loin;

whereas the enlarged gall bladder has the tendency to spring back to its position in the front of the abdomen.

Fenwick also states that aspiration is of no assistance as a means of diagnosis.

OVARIAN CYSTS.

Pediculated ovarian cysts, when of small size, might possibly be confused with a moveable kidney. The history must be fully taken into consideration in our endeavour to arrive at a correct diagnosis. A cyst cannot be displaced upwards into the loin; owing to its pelvic attachments, but can be felt per vaginam. The renal outline is absent, it tends to increase in size and the percussion note is dull over its anterior surface.

ENLARGED SPLEEN.

The spleen is always in front of the bowel; It has a sharp well defined edge, lies close under the abdominal wall and the notch may be felt. It is obvious that it is only on the left side that difficulty may arise and the left kidney appears to be rarely moveable.

Moveable or wandering spleen is, perhaps, more likely to be mistaken for moveable kidney than enlarged spleen. It is

a very rare but puzzling condition.

TUMOURS OF THE COLON.

Morris²⁰ relates two cases of malignant disease of the ascending and descending colon, simulating moveable kidney on the right and left side respectively.

RIEDEL'S LOBE.

Mayo Robson³⁶ refers to the tongue-shaped prolongation of the right lobe of the liver, described by Professor Riedel. It is stated that it may simulate an enlarged gall bladder and its presence might obscure the diagnosis of moveable kidney.

TREATMENT.

It is not necessary to acquaint a patient with the fact that a moveable kidney is present when the condition is unattended by any discomfort. Although in the majority of cases, and especially in those marked by absence of symptoms, no interference is desirable, we occasionally meet with patients whose health and usefulness in life are seriously impaired by the presence of a moveable kidney.

Life may not be directly threatened by the mobility, yet it is so indirectly, owing to the changes which may be induced in the kidney by the interference with the ureter and vessels, giving rise to the "backward pressure" symptoms which may ultimately end in suppurative changes and a fatal issue.

The various forms of treatment may be considered under three heads. 1. Medicinal. 2. Mechanical. 3. Operative.

MEDICINAL.

Any general disorder of the system must be removed if possible, Anaemia, for example, requiring a preparation of iron and appropriate dietetic treatment. Constipation must be attended to, and the bowels carefully regulated. The tone of the abdominal muscles should, if possible, be improved by iron and strychnine, aided by massage, electricity and cold douches.

Should symptoms of strangulation occur, we must rely on absolute rest on the back, poultices to the loin, and opium (hypodermic or suppository). In such a case, the necessity of operative interference would have to be considered.

A fat forming diet is indicated in cases associated with great wasting. Some of the cases I have observed occurred in the subjects of phthisis. Johnson²¹ reports a case in which the patient's abdomen presented several large scars produced by tartar emetic ointment which, by the advice of a London Surgeon, had been rubbed in as a remedy for the tumour. Happily the time is now past, when we would subject a patient to such useless treatment.

I am opinion that it is only in slight cases, where little discomfort exists, or in perhaps a few of the more severe, where operative interference is refused, that much advantage is likely to be derived from Medicinal treatment.

MECHANICAL.

I include under this head, that most useful form of treatment, viz, rest. The recumbent posture will at all times give relief. The majority of these patients are comparatively young, and desire to lead active lives, hence the impracticability of carrying out this form of treatment for

any length of time. All violent forms of exercise, such as riding, dancing and gymnastics, must be forbidden. Tight lacing which has been alluded to in discussing the etiology of this condition, must of course be avoided. A variety of pads, trusses and bandages have, from time to time been devised for the relief of mobile kidney. Newman,²² who has given much attention to this subject, employs a well fitting elastic bandage with an air pad. The bandage extends from the line of Poupart's ligament to the level of the 6th or 7th rib. It should be made to fit the body accurately and firmly, without exerting undue pressure at any point. It may be made of one piece, or, what he considers better, of strips of elastic bandage sewn together and united in the middle line in front by means of steel slips similar to those used to fix stays (busks). He directs that the patient should have the bowels well opened every morning, and then, before getting up for the day, should slip over the lower extremities, and upwards around the abdomen, a tight fitting jersey, applying over the region of the kidney an air pad, and then buckling over it the broad elastic bandage. It is stated that in the great majority of cases this is sufficient to relieve the patient from distressing symptoms.

Smith²³ describes a truss which he employs. It consists of 4 small pads behind, 2 on each side of the spine, with an

air pad in front. It resembles a hernia truss but has a straight spring.

Morris²⁴ has found a stout bandage with a pad like that used for umbilical hernia answer very well. Brace straps are added to prevent shifting.

It has been stated that a well adapted belt is all that is needed, but, in my opinion, the treatment of this condition by belts, pads and trusses is not satisfactory.

They rarely do good, and frequently aggravate the suffering. If the belt be applied when the kidney is not in its proper position, it is analogous to the application of a truss over an unreduced hernia, and it is most difficult for a patient to retain the organ in position, and apply the pad over it at the same time.

It has been my custom to provide those patients on whom I have performed the operation of nephrorrhaphy with a well fitting pad and belt, to give support to the abdominal wall and prevent any relapse of the condition, but this is hardly comparable to the application of a belt over a kidney which has not been previously secured by stitches to the loin.

OPERATIVE TREATMENT.

Although happily as has been already mentioned, the majority of the subjects of moveable kidney present no symptoms and consequently require no treatment, still, cases are occasionally met with in which the pain and discomfort are not amenable to medicinal or mechanical measures, and other means require to be adopted.

Two operations have been carried out for the relief of these severe cases, nephrorrhaphy and nephrectomy, the latter being reserved for those rare cases in which the kidney is diseased as well as moveable, or in which the former operation has failed. The indications for nephrorrhaphy are the following:-

- 1 Symptoms severe and unrelieved by drugs, rest, and mechanical support.
2. Symptoms severe, and although relieved by rest, the patient is unable and unwilling to lead a life of chronic invalidism.
3. The occurrence of intermittent hydronephrosis.
4. The occurrence of frequent slight strangulation.

In considering the symptoms of renal mobility, the occurrence of sudden and severe attacks of pain, with vomiting and

collapse, has been noted. These attacks are believed to be associated with twisting of the kidney pedicle, with consequent pressure on the vessels and ureter, causing the pelvis of the kidney to become distended with urine. The frequent occurrence of these attacks must evidently in time produce a condition of hydro-nephrosis and indicates that early operation is requisite if the kidney is to be saved from destruction.

I do not intend to convey the impression that every case of moveable kidney should be thus treated, but we must be on our guard when these serious symptoms arise, and avoid delay and irreparable damage.

The operation of nephrorrhaphy was performed for the first time by Hahn²⁵ in 1881. He stitched the adipose capsule to the skin, but finding the results not satisfactory, he later adopted the method of opening the fibrous capsule, which proceeding is now followed by more modern surgeons.

Newman²⁶ of Glasgow first performed nephrorrhaphy in this country in 1883. The kidney was exposed by a vertical incision in the right loin, immediately external to the outer edge of the quadratus lumborum, and extending from the last rib to the iliac crest; the adipose capsule of the kidney was opened and stitched to the edges of the wound; and two catgut gutures

were passed through the cortex of the kidney, the muscles, fascia and skin and secured externally by buttons. The symptoms had been severe and the patient had been treated for some years without success.

Newman, later, split the fibrous capsule and separated it from the kidney. A large drainage tube was also inserted between the deeper parts of the wound and the surface of the kidney allowing the wound to heal by granulation tissue.

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Lowson records a case, in which he incised the capsule along its entire length to form two flaps at the back of the kidney. The periosteum was next raised for a short distance from the last rib, the bone drilled, a ligature passed through this and the two capsular flaps, slinging the kidney up to the rib. The flaps were also stitched to the muscle on each side. A drain was inserted and the edges of the skin united. A satisfactory result ensued, but this method, in my opinion, is unnecessarily severe.

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Morris, in his first three operations, stitched the adipose capsule to the cut edges of muscles and skin, but in his subsequent operations, he inserted three sutures of Kangaroo tendon into the kidney substance and through the adipose capsule, transversalis fascia and muscles. The sutures are cut short and buried in the wound. Other catgut

sutures bring the rest of the cut edges of the muscles together and the skin is closed by silk sutures. A drain is inserted.

I have adopted a similar method, the details of which are appended.

I use silkworm gut sutures which penetrate the whole of the structures incised and include the kidney in two of them. I have not employed a drainage tube nor used any packing. In no case did suppuration occur, and the results appear to be satisfactory.

²⁹
Vulliet (Geneva) has devised a new operation for fixing the kidney. In conjunction with Pouillet (Lyons) in January 1894, he performed experiments with dogs, suturing the kidney to one of the tendons of the postero-lateral muscles of the back. One dog was killed 14 months after the operation, and it was found, on dissection, that the kidney was held up in the most secure fashion to the spine of the first lumbar vertebra. In April 1895 Pouillet first performed a similar operation on a female patient. It consisted of four stages.

1 The kidney was exposed by usual incision in flank.

2. A second incision, two centimetres from and parallel with the spine, 8 centimetres in length, its centre corresponding to the first lumbar vertebra. A tendon of the latissimus doisi raised up and torn from its muscular insertion.

3. The tendon is drawn into the region of the kidney by means of a strong stylet passed (through the wound of access to the kidney) from within outwards.

4. The kidney is pierced en seton from below upwards on the posterior surface near the external margin. The tendon is inserted beneath the capsule. The end of the tendon is passed again through the posterior muscular wall of the abdomen and fixed by sutures to the wound.

The patient made a good recovery and was much benefited by the operation. Carless³⁰ reports a case of nephrorrhaphy which he performed by means of Vulliet's operation. The tendinous slip of the spinalis dorsi inserted into the first lumbar spine was selected and drawn under the kidney capsule. In addition, one or two silkworm sutures were passed through the renal cortex and the adjacent muscular tissues at both ends of the organ. Carless is of opinion that the statement that Vulliet used a portion of the latissimus dorsi, must be an error, since that muscle arises from the lumbar spines by a flat aponeurosis and not by rounded cords.

The wound healed by first intention, but the after progress was complicated by surgical emphysema and cystitis. The kidney appeared to be firmly fixed when the patient left the hospital.

This appears to me to be a much more formidable operation

than the one I have adopted, although possibly it is not more dangerous, being wholly extra-peritoneal. It appears to be indicated when the patient is elderly and whose reparative power is not so active as to lead one to expect a similar result from simple suturing to the loin.

Since the above was written, I have had an opportunity of seeing Mr. Carless perform this operation at King's College Hospital in a case of very moveable ^{right} kidney. He informed me that he reserves this operation for those cases in which extreme mobility exists and he intended to perform the operation on the left kidney also of the patient whose case he recorded in the clinical Journal.

The operation of nephrorrhaphy is almost free from danger. The mortality is but slight. In most cases the result has been satisfactory as regards health and comfort. Keen³ presents an admirable table of all the cases recorded up to 1890. Out of 134 operations, four deaths are recorded. One due, as he states to imprudent surgery, another to an unrelieved ileus a third to an accident, one of the stitches passing through an embolic renal infarct, followed by septicæmia, and lastly, a fourth due to suppuration. A mortality of 3 per cent is surely not a high price to pay for the immense benefit afforded in most cases and the immunity from a possible disorganisation of the renal tissue.

Bruce Clarke records a series of thirty cases of operation for moveable kidney, unattended by any fatal result.

NEPHRECTOMY.

Keppler considered the condition of moveable kidney so dangerous as to justify removal of the organ. Happily other surgeons do not consider the condition so grave as to necessitate, except in extreme cases, an operation, in which the mortality compares so unfavourably with nephrorrhaphy.

Nephrectomy should be reserved for those cases in which disease of the kidney consists with mobility, always provided that the other kidney be sound. In a few other cases, where nephrorrhaphy even repeated more than once, has failed to give relief, nephrectomy may be performed as a dernier resort. In certain cases of mobility, combined with misplacement, nephrectomy is the only means of affording relief.

It is obvious that renal disease being more dangerous in persons with only one kidney, and the presence of a moveable kidney never in itself tending to produce a fatal result, nephrectomy is employed to give relief from suffering, and not to save life, hence the necessity of great consideration previous to the adoption of this method of treatment.

In comparing the two operations, the advantages of nephrorrhaphy over nephrectomy are so self evident as scarcely

to need enumeration. They are, however, the following:-

1. The kidney is not removed. It might possibly be the only one. The excretory function is not diminished.

2. The mortality after excision is much higher - 30% Excepting the four cases reported by Keen and previously alluded to, I find no record of other fatal cases.

3. The peritoneal cavity is not opened, perhaps a matter of little moment at the present day, but the risk of contamination is present.

4. Nephrorrhaphy may be performed on both sides. Morris³⁵ records a case, in which the patient having experienced much relief on one side, returned to have the other organ fixed at a later period.

RECORD OF OPERATION CASES.

Case 1. M.B. age 48, widow, a charwoman, 7 children, youngest age 9; a thin short and slightly built woman, consulted me in February 1896, because she felt "a lump in the stomach" for some time, and although she had frequently suffered considerable abdominal pain and discomfort, she had not previously sought advice.

On examination of the abdomen, a moveable, smooth, firm and slippery body was found immediately to the right of the umbilicus. It could be returned to the right loin, but always descended on deep inspiration or when the patient assumed the erect posture. On grasping the swelling in the hand, pain and nausea were induced. The right kidney could not be felt in the usual situation. The left kidney was not palpable.

The condition was explained to the patient and she readily assented to an operation being performed, it having become almost impossible for her to undertake her daily duties. Owing to the free mobility of the kidney, I did not consider it a suitable case for any retentive apparatus.

There was nothing of special import in her previous history. Her labours had been normal but tedious. Menstruation regular and the function still normal. The urine was healthy. On March 2nd she was admitted to the Barnet Cottage

Hospital and on the 16th the operation of nephrorraphy was performed by me.

Placing the patient on the left side with a cushion under the loin, so as to render the right ilio-costal space more prominent and give more room, the kidney was returned to the loin and retained in its position during the operation, by the hand of an assistant. Beginning at the outer border of the erector spine, I made an oblique incision, parallel with and about half an inch nearer to the last rib than the iliac crest, dividing the skin, subcutaneous fat and fascia, and fibres of the latissimus dorsi and external oblique muscles. The transversalis aponeurosis being now reached, was divided. All bleeding points having been secured, the transversalis fascia was carefully divided and the adipose capsule of the kidney was exposed. The perirenal fat being separated by dissecting forceps, to expose the fibrous capsule, the kidney was well pressed into the wound and maintained there till secured to the lumbar parietes by several silkworm gut sutures. Two sutures were now inserted through the parenchyma of the kidney and several others through the divided muscles and fascia, by means of a Hagedorn needle. All the stitches were introduced successively through the structures which were divided to reach the kidney and brought to the surface at a corresponding point on the opposite side of the wound.

The wound was closed, no drainage tube being employed. A firm pad of wool was placed in front to assist in maintaining the organ in position after the assistant's hand was removed. The wound was dusted with iodoform and dressed with cyanide gauze.

The after progress of the case was uneventful. On the day after the operation only 20 ounces of urine were passed and but 22 ounces on the following day, but thereafter the quantity averaged about 45 ounces per diem.

April 23rd the wound was drssed and some of the stitches removed. A week later it was again dressed and other stitches removed, The final dressing took place on May 2nd, the stitches passing through the renal parenchyma were removed and the wound found to be soundly healed.

The patient was provided with a belt and pad, and left the hospital on May 17th.

I have seen the patient from time to time since the operation. She states that she has obtained much relief, and is now able to perform her duties free from discomfort. The kidney appears to be firmly fixed to the loin.

CASE II.

L.H. age 27, single domestic servant, consulted me in March of last year. She complained of severe dragging pain,

extending from the right loin down to the groin. At times it was so intense as to cause nausea, and even attacks of fainting. She was quite unfitted for work, and was obliged to give up her situation.

A moveable right kidney was discovered, and operative interference was proposed and readily assented to. The patient was anoemic, with a soft bruit accompanying the first sound at the apex of the heart. Bowels confined. Menstrual function regular. She was exhausted by frequent attacks of pain.

She was admitted to Hospital on the 20th April, kept in bed. Bland's pills in capsules were ordered, and after her health had somewhat improved, nephrorrhaphy was performed on May 7th. The steps of the operation were similar to those already described in Case 1.

The operation was followed by a good deal of sickness and there was severe lumbar pain for a few days, necessitating the administration of an opiate.

May 13th the wound was dressed and again on the 17th, when some of the stitches were removed. The remaining stitches were removed on May 21st. A sharp attack of cystitis arose on the fourth day, but yielded rapidly to treatment.

The patient was discharged on June 5th, wearing a belt and pad. After a visit to a convalescent home, she obtained another situation and has been able to remain in it up to this time (March 1897).

CASE III.

A.H. age 34, single, a teacher of drawing, consulted me in the end of 1895 on account of obstinate constipation. She also complained of a dragging pain in the right loin, increased on walking. Her occupation necessitated a good deal of walking and she feared, at one time, she would become quite unfitted to carry on her work. The constipation was treated for some time, but with little benefit. I then examined her abdomen and found she had a moveable right kidney.

On June 24th 1896 I performed nephrorrhaphy, adopting the same method as already recorded, and with similar result.

Her constipation was but slightly improved, but the pain in the back disappeared and she is now able to undergo any exertion without bad effect.

CASE illustrative of the difficulty in diagnosis between
moveable kidney and enlarged gall bladder.

E.H. age 29, single, domestic servant, consulted me in November 1896, on account of severe attacks of abdominal pain, causing faintness and vomiting. She was anæmic and thin. I found she was wearing a belt, prescribed for her by a hospital surgeon, who had diagnosed moveable kidney. A firm, round, smooth, mobile and slightly tender swelling was detected in the right hypochondrium and umbilical region. On deep

inspiration, the swelling descended and could be grasped and apparently fixed. It could be pushed back to the loin. No fluctuation could be made out. It was dull on percussion. The kidney could not be felt apart from the swelling. There was no jaundice at any time.

The patient was admitted into hospital and at the end of a month, it was noticed that the swelling appeared to be larger than on admission. The urine was normal. There was comparative freedom from pain while recumbent, but on attempting to get up, even while wearing the belt, pain was induced. She felt that she could not endure the pain much longer without relief and she was utterly incapacitated for work. Several medical friends, to whom I showed the case, were of opinion that it was a case of moveable kidney, and suggestions were made of the possibility of some kidney disease in addition, although there was nothing to indicate this from examination of the urine. On January 21st 1897 I proposed to stitch the kidney to the loin. Making the usual incision I found that the swelling was cystic, the peritoneum was opened and the tumour traced up to the under surface of the liver. The kidney was in its normal situation and fixed. The gall bladder, for such the tumour proved to be, was now drawn into the wound, sponges being packed round it, and incised. A quantity of a white glairy, not bile stained, fluid escaped and on introducing a finger, a number of gall stones were felt. These were

extracted. The gall bladder and peritoneum were washed out with warm boracic lotion. The lips of the opening in the gall bladder were stitched to the aponeurosis and parietal peritoneum by silk sutures, the rest of the wound being closed by silk worm gut in the usual way. A drainage tube was inserted and the wound dressed with iodoform gauze.

The operation was well borne.

Jan. 22nd. The wound was dressed and gall bladder syringed with boracic lotion.

January 30th. The stitches were removed. The wound which up to this time had been dressed twice daily, owing to the somewhat profuse discharge of mucus, was soundly healed, except for a little suppuration in the track of one of the stitches. The skin having become red and irritable, iodoform gauze was changed for absorbent wool, a pigment of zinc oxide and castor oil being applied to the adjacent skin.

February 18th. The tube which had been gradually shortened, was removed. The patient was allowed to sit up.

March 2nd. Patient was discharged from the hospital. There was still a slight mucous discharge from the sinus, which continues to the present time (April) There is complete freedom from pain.

CONCLUSION.

I have endeavoured as far as my opportunities permitted , to show that the condition of renal mobility is one which occurs more often than is generally supposed.

It is much more frequent in women than in men. The right kidney is much more frequently displaced than the left.

Symptoms are often absent.

It is a condition which is frequently discovered accidentally, during an examination in connection with some other condition, and without any previous suspicion of its presence.

It has been known to produce hydronephrosis.

Nephrorrhaphy properly performed upon properly selected cases, affords a safe and effectual means of alleviating the distressing symptoms which accompany them.

Many cases of hitherto unexplained abdominal pain and intestinal disturbance might be attributed to this cause, if the subject were recognised as of greater clinical import, than can be assumed from the attention which it has received.

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