

n vaccination; that about from the ninth to the eleventh day a general eruption may appear which in some instances, as in a monkey which, at the request of Professor Foster, was inoculated at Cambridge, covers the whole surface of the body; and that the final scab at the site of inoculation is not so elevated in the variolated as in the vaccinated animal. In both cases there is usually a rise in body temperature, which is more marked and longer sustained in variola than in vaccinia. After variolation it was noticed in several cases that the monkey suffered from diarrhoea, that its eyes were suffused, and that it was not as active as usual. A peculiar odour was also noticed quite distinct from the well-known smell of "monkey." In no instance had the experiment a fatal termination.

Having thus proved to my own satisfaction that monkeys are susceptible not only to vaccination but also to small-pox I next determined to make trial as to the protection against small-pox afforded in the monkey by previous vaccination and the protection against vaccination afforded it by variolation, and I went on to compare the effect produced by the use of human and of calf vaccine respectively. For this purpose humanised lymph was obtained from Birmingham, where, to the best of my belief, the same strain has been continuously carried on by means of arm-to-arm vaccination for the past 38 years. The calf lymph used was obtained from the Government Animal Vaccination station in Lamb's Conduit-street, while small-pox lymph was supplied to me from the hospital ships, from Warrington, and from Manchester. The following experiments will serve as illustration of the system I pursued:—

Experiment 1.—On July 13th, 1892, I vaccinated a male rhesus monkey in four places on the left arm with calf lymph on points taken at the Animal Vaccine Establishment on the previous day. On July 20th, the eighth day, the appearance presented was undistinguishable from that of a successful case of human vaccination. On July 23rd the vesicles had given place to four large scabs raised nearly $\frac{1}{8}$ in. above the surface of the arm, while the surrounding inflammatory zone had nearly disappeared; the axillary glands on the same side were considerably enlarged. The arm was drawn on this day by Mr. Lapidge. By Aug. 9th the scabs had all come off and the monkey was again vaccinated, but this time on the opposite arm in two places and on the inside of the right thigh, also in two places, with humanised lymph of ascertained activity. The animal was carefully examined day by day up to Aug. 17th, but no sign of the second vaccination having "taken" was observed.

Experiment 2.—On July 19th a large female rhesus monkey was inoculated by scarification in eight places (four on each arm) with two tubes of small-pox lymph from the hospital ships. It was obtained from a patient, aged nineteen years, stated to have been vaccinated in infancy, who was suffering from a semi-confluent attack of the disease. The lymph had been sealed up in carefully sterilised tubes. On July 23rd (the fifth day) the right arm showed papulation and commencing vesiculation. The axillary glands were slightly enlarged. On April 18th, a month after inoculation, this monkey was vaccinated in four places on the inner aspect of the right thigh with active calf lymph. No result followed the operation.

It is, I think, hardly necessary here to enter into details of the numerous experiments which have been performed at intervals of from one to five months after the primary inoculation, whether vaccinal or variolous, and I will merely add that in no instance did anything in the nature of a successful result follow the first or subsequent revaccinations. From these experiments it would appear that the protective power of lymph obtained from these three different sources when inoculated on the monkey is practically identical in all respects.

In discussing the origin of the various lymph stocks at present in use Dr. Collins and Mr. Picton in the Minority Report appended to the Final Report of the Royal Commission on Vaccination make a point of the impossibility of employing at the present day what used to be known as the "variolous test" as a proof of the efficacy or the reverse of any particular strain of lymph. In view, however, of the results of my experiments with monkeys this criticism of Dr. Collins and Mr. Picton falls to the ground, since if it is desired to apply the "variolous test" to any given lymph stock all that is necessary is to vaccinate

a monkey with a sample of the lymph in question and subsequently to inoculate the animal with potent small-pox lymphs after the lapse of such period from the first operation as may be thought desirable.

ABSTRACT OF TABLES ILLUSTRATING

The Hunterian Lectures.

By HENRY MORRIS, F.R.C.S. ENG.,

SURGEON TO THE MIDDLESEX HOSPITAL.

THE Hunterian Lectures, abstracts of which were published in THE LANCET of April 16th, 23rd, and 30th, were illustrated by a valuable series of tables of cases of operations on the kidney. All the tables except the last refer to cases operated on by Mr. Morris. Table I. recording the cases of nephrolithotomy performed by Mr. Morris himself we print herewith, but we regret that the demands on our space prevent us from giving more than a *résumé* of the others.

Table II. contained cases of nephrotomy for stone. There were 44 cases in all and of these 27 occurred in males and 17 in females. The youngest patient was a male, seventeen years old, and the oldest was also a male, aged sixty-four years. The results were as follows: 33 cases recovered from the operation, one of these dying seventeen days later from apoplexy, and in 11 cases the patient died within a short time of the operation though the fatal result was in several of the cases hardly to be attributed to the operation itself.

Table III. contains Mr. Morris's cases of nephrectomy for stone. These are 18 in number, with 5 deaths. 13 of the cases were males and 5 were females.

Table IV. Exploratory Operations.—These cases show clearly the great value of an exploration when the symptoms point to some morbid renal condition; in many of the cases Mr. Morris was able to remove the cause of the symptoms, even though no stone was found. There were 42 exploratory operations and only 2 of the patients died, and of the remainder all were relieved with the exception of 7.

Table V. Operations for Moveable Kidney.—In 57 cases Mr. Morris has fixed a moveable kidney and all have recovered, though in one instance the patient was not relieved by the operation.

Table VI. Operations for Hydronephrosis and Pyonephrosis.—In 20 cases there were only 3 deaths.

Table VII. Operations for Tuberculous Disease of the Kidneys.—Of 28 cases 20 occurred in females. In some cases nephrotomy, in others nephrectomy, and in a few partial resection were performed. 5 cases died soon after the operation, but 4 others died later from tuberculosis elsewhere.

Table VIII. Nephrectomy for Fistula or other Cause.—Of 5 cases 3 recovered and 2 died.

Table IX. Operations for Tumours of the Kidney.—There are in all 15 cases—1 of retro-peritoneal tumour connected with kidney, 5 of cystic disease of the kidneys, and 9 of malignant disease of the kidneys. One of the cases with cystic disease died and 3 of the malignant cases; 2 others of the latter died later from recurrence.

Table X. Operations for Injury of the Kidney.—There were 4 cases and all recovered; in 2 the kidney was explored, in 1 nephrectomy was performed, and in 1 ureterectomy.

Table XI. Collected Cases of Calculous Anuria.—In 49 cases an operation has been performed for this condition. The earliest was by Guermontez in 1870. Of the 49 cases 25 died. This mortality must be considered in relation to the very fatal result of the disease when left untreated.

TABLE I.—CASES OF NEPHROLITHOTOMY.

Year.	No.	Sex.	Age.	Leading symptoms.	Date of operation.	Result.	Remarks.
1880	1	Female.	19	Excessive pain and tenderness in right loin. Great hæmaturia, quite disabling her from work. Symptoms acute for 17 months. Occasional pain in right side for 11 years.	Feb. 11th, 1880; right kidney.	Recovered.	Incision into anterior surface of kidney near hilum. Recovered with a sinus from 1 in. to 1½ in long, not communicating with the kidney. Weight of calculus, 31 gr. (Vide Transactions of the Clinical Society, vol. xiv., 1881.)
1884	2	Male.	24	Shooting pains to left testis and tenderness in left loin. Some hæmaturia. Frequency of micturition. Symptoms for 2 years	May 10th, 1884; left kidney.	Recovered.	Incision into anterior and lower part of kidney. No sinus. Weight of calculus, 89½ gr. (Vide Transactions of the Clinical Society, vol. xviii.)
1886	3	Male.	42	Pain in right loin. Hæmaturia. Symptoms for 19 years.	May 15th, 1886; right kidney.	Recovered.	No sinus. Weight of calculus, 23½ gr. (Vide Transactions of the Clinical Society, vol. xx.)
1887 (P)	4	Male.	25	Tenderness and aching in left loin. Hæmaturia and slight pyuria. Never colic. Kidney felt hard. Symptoms 9 years; worse of late.	March 16th, 1887; left kidney.	Recovered.	Calculus removed from pelvis. Weight of calculus, 213 gr. No sinus. Nephrotomy and nephrectomy ten years after for recurrent calculus.
1888 (P)	5	Female.	26	Pain in both loins, but chiefly in right, for 4 years. Hæmaturia. Slight pyuria. Oxalate of lime crystals. Tenderness in right loin. Frequency of micturition for 1 year.	Jan. 18th, 1888; right kidney.	Recovered.	Incision into anterior aspect of kidney. No sinus. Weight of calculus, 109 gr.
1889	6	Female.	21	Pain in right loin for 4 years. Swelling for 1 week, which was freely moveable. Hæmaturia and albuminuria.	May 22nd, 1889; right kidney.	Recovered.	One large stone and 7 fragments removed. Total weight of calculus, 1303 gr. Urinary sinus followed. Subsequent left nephrolithotomy, 1890, and right nephrectomy 1891. (Vide No. 9)
1889	7	Male.	27	Pain and passage of calculi. Slight pyuria. Repeated attacks of pain for 8 years.	July 31st, 1889; right kidney.	Recovered.	Three calculi removed from kidney. Weight of calculi, 69 gr. No sinus.
1890	8	Male.	23	Pain on right side. Hæmaturia. Passed blood in urine when a child and had had pain for 10 years.	Feb. 23rd, 1890; right kidney.	Recovered.	Incision into anterior aspect. Three branched calculi were removed from the renal substance and a much larger one from the pelvis. Total weight 200 gr. Recovered without a sinus.
1890	9	Female.	22	Pain in left loin very severe.	April 23rd, 1890; left kidney.	Recovered.	Incision into pelvis of kidney. Weight of calculus, 513 gr. Sinus present but not urinary sinus. (For previous nephrolithotomy vide No. 6.)
1890	10	Male.	40	Pain and tenderness in left loin for more than 20 years.	June 7th, 1890; left kidney.	Recovered.	An oxalate of lime calculus was removed from the cortical part of the kidney. Weight of calculus, 62 gr. No sinus remained.
1890	11	Male.	34	Pain in left loin for 2 years. Hæmaturia, pyuria, and oxalate of lime crystals.	Aug. 29th, 1890; left kidney.	Recovered.	Incision into anterior aspect, and stone found lying in the kidney substance close to the pelvis. Weight, 129 gr. No sinus remained.
1891	12	Male.	35	Pain and swelling in right loin for 1 year. Hæmaturia and pyuria.	Feb. 11th, 1891; right kidney.	Recovered.	Incision into anterior aspect and extraction of a stone. No sinus. Weight of calculus, 27½ gr.
1891	13	Male.	26	Pain and tenderness in left loin and hæmaturia for 2 years.	April 29th, 1891; left kidney.	Recovered.	Incision into anterior surface near hilum. No sinus. Weight of calculus, 34 gr.
1891	14	Male.	48	Pain in left loin for 5 years and hæmaturia on three occasions 3 or 4 years ago, but not since. Frequent severe colic during last four months. Pain shooting into left groin.	May 9th, 1891; left kidney.	Died May 13th, with symptoms of uræmia and intense mental agitation.	The patient was a very stout man and the kidney was very difficult to reach through an oblique wound 12 in. long joined by a vertical incision 3 in. long. Brisk hæmorrhage followed renal incision, but was soon stopped by pressure. Two stones were removed. Post-mortem wound in left kidney 1½ in. long. Left kidney weighed 7½ oz. and was fatty. Right kidney weighed 5½ oz. and was fatty, as were also the liver and the heart. Small branch of renal vein divided and plugged by recent clot. No injury to peritoneum. Weight of calculi, 19½ gr.
1892	15	Male.	35	Pain in left loin, radiating to scrotum. Hæmaturia. Frequent micturition. Symptoms 1 year.	Jan. 3rd, 1892; left kidney.	Recovered.	Incision into convex border of kidney. No sinus. Weight of calculus, 18 gr.
1892 (P)	16	Female.	35	Attacks of pain and frequent micturition. Hæmaturia for 7 years. Pain in right side and occasionally in left.	July 13th, 1892; right kidney.	Recovered.	Calculus weighed 362 gr. No sinus.
1892 (P)	17	Female.	25	Pain for two months and suppression of urine from left kidney. In November, 1891, a calculus was removed from the right (pyonephrotic) kidney by another surgeon. A large abscess followed and this was succeeded by a sinus. The urine from right kidney was discharged through the loin by the old nephrotomy sinus.	Dec. 24th, 1892; left kidney.	Recovered.	Left kidney drawn on to loin and incised in three places. Twenty-two phosphatic calculi were removed. Weight of calculi, 96 gr. An abscess followed, but on Jan. 9th wound closed and was never afterwards reopened. All attempts to close sinus on the right side were followed by severe symptoms requiring sinus to be reopened. A cannula was therefore at length permanently maintained on the right side.

[Table I. continued on next page.]

TABLE I.—CASES OF NEPHROLITHOTOMY (*continued*).

Year.	No.	Sex.	Age.	Leading symptoms.	Date of operation.	Result.	Remarks.
1893 (P)	18	Male.	13	Pain in right side for 7 years. Albuminuria and occasional hæmaturia.	May 13th, 1893; right kidney.	Recovered.	Tuberculated heart-shaped stone removed from pelvis of kidney. Weight 33 gr. No sinus.
1893 (P)	19	Female.	35	Pain and tenderness in right renal region for 4 or 5 months. Pain on micturition, necessitating a vesico-vaginal fistula for 10 years.	May 14th, 1893; right kidney.	Recovered.	A small lozenge-shaped uric-acid calculus removed. No sinus. After operation all painful micturition disappeared and vesico-vaginal fistula was closed by operation. Weight of calculus, 4 gr.
1893 (P)	20	Male.	38	Had been operated upon in February, 1893, for a perinephric abscess on left side. This re-formed and was opened on June 10th, 1893. A sinus followed. In November, 1892, and at both the above-named dates there was marked anuria.	June 29th, 1893; left kidney.	Recovered.	Three calculi removed. The kidney was small and somewhat hydronephrotic. In this case an abdominal incision was made as well as the lumbar. Only a few ounces of urine passed by urethra till operation wound began to close. On July 11th 11 oz. were voided naturally and from this time the quantity gradually increased. Weight of calculi, 17 gr. No sinus remained.
1893	21	Male.	21	Pain in right loin for 1 year. Hæmaturia, albuminuria, and pyuria.	Sept. 27th, 1893; right kidney.	Recovered.	Incision made into the organ and a stone extracted. Weight of calculus, 40 gr. No sinus remained.
1894 (P)	22	Female.	35	Lumbar pain on left side. Pyuria with very high temperature and nervous agitation. Hard irregular swelling in right loin, to which no symptoms had been referred and which was not known by patient to exist.	May 17th, 1894 (1st operation); right kidney.	Recovered.	A large calculus removed, weighing 830 gr., which was closely enveloped by the dilated pelvis and upper end of ureter. Urinary sinus persisted. Subsequently nephrotomy was performed on both kidneys.
1894 (P)	23	Male.	49	Previous passage of many calculi—the first 20 years ago, the last in January, 1894. Pain in left loin. Pyuria and hæmaturia and also ova of bilharzia hæmatobia.	May 29th, 1894; left kidney.	Recovered.	An incision in the loin 9 in. long joined by a vertical incision 1½ in. long. Incision into convex border of kidney and a uric-acid calculus, weighing 35½ gr., extracted from the lower fourth. No sinus.
1894	24	Female.	22	Pain and resistance in right loin for 1 year. Albuminuria, pyuria, and hæmaturia. Oxalic and uric acid crystals.	Aug. 20th, 1894; right kidney.	Recovered.	Incision into convex border and a calculus extracted weighing 5 gr. Incision in kidney closed with catgut sutures. No sinus.
1895	25	Male.	30	Pain in right loin for 4 years. Hæmaturia and albuminuria. Oxalate of lime crystals.	Jan. 2nd, 1895; right kidney.	Recovered.	Incision into pelvis and ureter. Stone impacted at entrance of ureter; removed through incision in renal pelvis. No sutures. No sinus. Weight of calculus, 6 gr.
1895	26	Male.	11	Pain in right loin. Hæmaturia and pyuria. Duration of symptoms 3 years.	Oct. 11th, 1895; right kidney.	Recovered.	Incision into pelvis of kidney, which was closed by silk sutures. Stone size of small plum-stone extracted. No sinus. Weight of calculus, 8 gr.
1896	27	Male.	20	Pain in left loin for 4 years. Occasional hæmaturia.	March 3rd, 1896; left kidney.	Recovered.	Incision into pelvis of kidney. Stone size of hazel nut extracted. No sinus. Weight of calculus, 25 gr.
1896 (P)	28	Female.	18	Pain in left loin. Hæmaturia. Symptoms since twelfth year of age.	March 15th, 1896; left kidney.	Recovered.	Calculus removed through the front of the renal pelvis. The incision was sutured. No sinus. Weight of calculus, 25 gr.
1896 (P)	29	Male.	58	Pain in left loin. Hæmaturia. Periodic attacks every 6 months for 8 years. During last 2 years attacks much more frequent. For several weeks preceding operation hæmaturia constant.	Aug. 1st, 1896; left kidney.	Recovered.	Incision into posterior aspect of renal pelvis. Oxalate of lime calculus removed weighing 41 gr. No sutures were used for the pelvis. No sinus.
1897	30	Male.	48	Pain in right loin for 40 years. Albuminuria, pyuria, and oxalate crystals.	July 28th, 1897; right kidney.	Recovered.	Incision into the anterior aspect of kidney and a stone removed from its lower part. No sinus. Weight of calculus, 147 gr.
1897	31	Female.	29	Pain in left loin for 16 years.	July 28th, 1897; left kidney.	Recovered.	Incision into pelvis and a stone extracted. The renal wound was sutured with 4 fine catgut sutures. No sinus. Weight of calculus, 35 gr.
1897	32	Female.	22	Pain and swelling in right loin for 6 months. Hæmaturia, pyuria, and albuminuria.	Nov. 22nd, 1897; right kidney.	Recovered.	Incision into posterior wall of pelvis and a friable, irregularly shaped stone was removed. Wound in pelvis was sutured. No sinus. Weight of calculus, 2 gr.
1897 (P)	33	Male.	44	Repeated attacks of pain and tenderness on left side for 16 years. Occasional hæmaturia. An abiding aching aggravated by exercise. No pus; no crystals in urine.	Dec. 18th, 1897; left kidney.	Recovered.	Calculus removed from upper end of ureter by an incision through posterior surface of pelvis. No sutures used, as the tissue of renal pelvis was very soft. No sinus remained. Weight of calculus, 17 gr.
1898	34	Female.	26	Pains in left loin for 2 years. Repeated attacks of left renal colic, accompanied by temporary complete suppression of urine, which lasted for 2 or 3 days at a time. There was enlargement of right kidney, which was also believed to contain a stone, but to which no symptoms were referred. During attacks of pain a swelling was felt in left renal region.	Jan. 26th, 1898; left kidney.	Recovered.	Kidney large and congested. An incision was made in the convex border and through it a stone weighing 11 gr. was extracted from the renal pelvis. Uninterrupted recovery. No sinus. To return for purpose of having right kidney explored.