AN ANALYSIS OF STATISTICS OF LATERAL LITHOTOMY AND LITHOTRITY:

WITH PRACTICAL REMARKS ON THESE OPERATIONS.

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In arranging the following statistics of my operations for the cure of stone in the bladder, I have attempted to bring out as much as possible the various points on which I believe the success or failure of the operations depends. I have afterwards given the comparative results of other operators; in order to show the peculiarities in regard to age in the patients with whom I have had to deal, and also to enable me to point out that, though the mortality of my lithotomy cases, taken as a whole, may seem to be high, yet, when we come to divide the cases into groups according to age, my results will bear favourable comparison with any of those obtained by the other operators.

Lithotomy.—Since I performed my first lithotomy in December 1838, I have, up to the present date (February 29th, 1868), operated on 208 patients by the lateral method; of these, I have cured 165, while the remainder, 43, have died. The youngest of these 208 was a child, 2 years of age; the oldest, a man of 85½ years, whom I cut successfully in 1857. The average age of all my patients was 55.89 years; while the average age of the fatal cases was 64.46 years, and of the successful cases 53.65 years.

The important influence which age bears on the success of lithotomy is further seen, if the cases be grouped according to age. Thus, I had 22 patients under 21 years of age; and of these I lost only 1; showing a mortality of 1 in 22, or 4.54 per cent. Of patients aged from 21 to 40 years inclusive, I had only 9, of whom I lost 2; showing a mortality of 1 in 4.5, or 22.22 per cent. Of patients, aged from 41 to 60 years inclusive, I had 58, with 6 deaths; or a mortality of 1 in 9.66, or 10.34 per cent. Of patients 61 years of age and upwards, I had, however, no fewer than 119, 34 of whom died; giving a death-rate of 1 in 3.50, or 28.56 per cent. Taking all the cases together, the mortality amounted to 1 in 4.83, or 20.66 per cent.; a result which, as I have already remarked, would be nothing to boast of, if the ages of my patients corresponded with the ages usually met with in stone cases. While, however, Cheselden had as many as 78.40 per cent. of his cases under 21 years of age, I had only 10.57 per cent. of mine under the same age; and, while he had only 3.28 per cent. of his cases above 60 years of age, I had no fewer than 57.21 per cent. of mine beyond that period of life.

Another point, also beyond the control of the surgeon, but which influences much the success of his operation, is the size of the stone. The heaviest stone which I have removed weighed 7 oz. 5½ drs.; the lightest weighed only 10 grains; while the average weight of the stones removed was 7.25 drs. In the fatal cases, however, the average weight of the stone amounted to 16.03 drs.; thus reducing the average weight in the successful cases to 5.02 drs. Or, to put it in another light, the average measurements of the stones removed were, in inches, 1.60 × 0.83 × 1.25. In the fatal cases, however, the average was 1.86 × 1 × 1.46; thus making the average in the successful cases, 1.56 × 0.78 × 1.19.

Being a strong advocate for the careful preparation of cases before the operation is performed, another point I would wish to bring out statistically is, the average time of preparation required in the various classes of cases. Now, the average residence of all my patients—both before and after the operation—was 51.15 days; the average residence before the operation, 22.81 days, and the average residence after it, 28.34 days. In the fatal cases, the preparatory treatment occupied, on an average, 24.82 days; while in the successful cases it was 22.29 days.

Death took place in the fatal cases, on an average, 10.62 days after the operation; death having occurred in four cases on the second day, and in one case as late as the fifty-third day. In only ten cases did death occur on or before the third day.

Now I hold that, while death occurring on or before the third day may or may not be owing to some error in the performance of the operation, if the patient survive the third day without any bad symptom ap-

pearing, a fatal result is to be attributed to some organic disease or vice in the patient's organism or constitution, and not at all to anything connected with the performance of the operation.

The average residence after the operation in the successful cases was 32.96 days.

Although I do not think that much importance is to be attached to the point, I may yet state that the urine came *per urethram* for the first time, on an average, 6.27 days after the operation.

As to the composition of the calculi, the great majority of them consisted nearly entirely of uric acid; 59 being pure uric acid calculi, and 79 uric acid, with traces of other substances. Mulberry calculi I rarely met with; only 23 of oxalate of lime and uric acid having been found, and in most of these the uric acid predominated as a constituent; for in only 6 or 8 cases did the stone present the characteristic mulberry appearance. Uric acid, combined with the fusible calculus (mixed phosphates), occurred 26 times; uric acid and phosphate of lime 12 times; uric acid, oxalate, and mixed phosphates, 5 times; uric acid, mixed phosphates, and phosphate of lime, twice; while the number is made up by one calculus of oxalate and phosphate of lime, and one of cystic oxide, with a coating of uric acid and the fusible calculus.

Having thus given the particulars of the most important points of my lithotomy cases, so as to point out the conclusions to which they lead, I shall now put these results in a tabular form, adding a table to show the occupations of my patients; and I shall conclude the statistical part of my remarks on lithotomy by giving, in a tabular form, the results of 2488 cases of lithotomy, the particulars of which I have collected from various sources, references to which I shall give.

After these statistics, I think it may be neither uninteresting nor un-instructive to give a brief account of the salient points connected with the forty-three fatal cases I have had in my lithotomy experience, adding an account of a case in which I performed the high operation; and I shall conclude what I have to say on lithotomy by describing how I perform the operation, the results of which I have just given.

TABLE I.—*Ages and Results.*

	Cases.	Cures.	Deaths	Death-rate.
Under 21 years of age ...	22	21	1	1 in 22, or 4.54 p. cent.
From 21 to 40 years of age ...	9	7	2	1 in 4.5, or 22.22 p. c.
From 41 to 60 years of age ...	58	52	6	1 in 9.66, or 10.34 p. c.
Above 60 years of age ...	119	85	34	1 in 3.50, or 28.56 p. c.
Total.....	208	165	43	1 in 4.83, or 20.66 p. c.

TABLE II.—*Ages.*

Youngest operated on.....	2 years.
Oldest operated on.....	85½ "
Average age.....	55.89 "
Average age of fatal cases.....	64.46 "
Average age of successful cases.....	53.65 "

TABLE III.—*Percentage of Cases at different Ages.*

Under 21 years	10.57 per cent.
21 to 40 years.....	4.32 "
41 to 60 years.....	27.88 "
Above 60 years	57.21 "
Total	99.98 "

TABLE IV.—*Weight of Stone.*

Average weight.....	7.25 drachms.
Average weight in fatal cases.....	16.03 "
Average weight in successful cases.....	5.02 "
Heaviest stone removed	7 oz. 5½ drms.
Lightest " "	10 grains.

TABLE V.—*Measurements of Stone.*

Average measurements.....	{ 1.60 inches long. 0.83 inch thick. 1.25 inches broad.
Average measurements in fatal cases.....	{ 1.86 inches long. 1.00 inch thick. 1.46 inches broad.
Average measurements in successful cases.....	{ 1.56 inches long. 0.78 inch thick. 1.19 inches broad.

TABLE VI.

Average total residence	51.15 days.
Average preparatory residence	22.81 "
Average total residence in successful cases	55.25 "
Average preparatory residence in successful cases	22.29 "
Average residence after operation in successful cases	32.96 "
Average preparatory residence in fatal cases	24.82 "
Average day of death in fatal cases was	10.62 days after.
The earliest death took place 2 days after the operation; the latest 53 days after it.	
The average date of first urine <i>per urethram</i> was 6.23 days after the operation.	

TABLE VII.—Composition of, *Calculi*.

Uric acid	59
Uric acid, with traces of other substances	79
Oxalate of lime and uric acid	23
Uric acid and fusible calculus	26
Uric acid and phosphate of lime	12
Uric acid, oxalate and fusible	5
Uric acid, fusible, and phosphate of lime	2
Oxalate and phosphate of lime	1
Cystic oxide, with uric acid, and fusible	1
Total	208

TABLE VIII.—Number of Stones.

1 stone in 156 cases	156 stones.
2 stones	52 "
3 "	24 "
4 "	8 "
5 "	35 "
6 "	6 "
7 "	28 "
8 "	8 "
10 "	10 "
12 "	12 "
18 "	18 "
Total in 208	357 "

TABLE IX.—Occupation of Lithotomy Patients, and Results.

Occupation.	Number	Cured.	Dead.	Mortality.
Farmers and farm-servants ..	123	96	27	1 in 4.55
Blacksmiths	9	7	2	1 in 4.5
Shopmen	2	2	0	.....
Bleachers	2	2	0	.....
Widows	2	2	0	.....
Children	12	11	1	1 in 12
Combmakers	1	1	0	.....
Dancing-master	1	1	0	.....
Foreman	1	1	0	.....
Joiners, sawyers, etc.	5	4	1	1 in 5
Labourers	9	9	0	.....
Masons, plasterers, etc.	12	8	4	1 in 3
Millers	2	1	1	1 in 2
Clergymen and schoolmasters.	8	8	0	.....
Pensioners	2	2	0	.....
Ropemakers	2	0	2	1 in 1
Seamen and fishermen	4	2	2	1 in 2
Shoemakers	5	4	1	1 in 5
Bookseller	1	1	0	.....
Weavers	5	3	2	1 in 2.5

The authorities for the numbers on which the following tables are based are as follow. Cheselden's results, Dupuytren's results, and the results at St. Thomas's Hospital, London, comprehending the years 1822 to 1845, are taken from Coulson's work on *Lithotomy and Lithotripsy*; as are, also, the statistics of the Bristol Infirmary. The statistics of Fifteen London Hospitals, from January 1854 to January 1857, are taken from the *Medical Times and Gazette* for the 20th August, 1859; and the statistics of Twenty-eight Provincial Hospitals, from October 1853 to December 1858, are taken from the same paper. The statistics of the Norfolk and Norwich Hospital, which are from 1773 to 1865, are taken from the *Medical Times and Gazette* for January 9th, 1864. From the same periodical for the 16th July, 1864, are taken the statistics of

the Birmingham General Hospital for ten years; and from the number for July 29th, 1865, the statistics of the Radcliffe Infirmary, Oxford, from 1838 up to that date.

I may here remark that these tables contain all the statistics on which I could lay my hands, in which the necessary data were given in such a form as to enable me to compare them both with my own results and with a sufficiently large number of other cases to be instructive.

TABLE X.—Under 21 Years of Age.

	No.	Cures.	Deaths.	Mortality.
Cheselden	167	160	7	1 in 23.85, or 4.19 p. c.
Dupuytren	54	51	3	1 in 18, or 5.55 p. c.
St. Thomas's Hospital ...	84	80	4	1 in 21, or 4.76 p. c.
Bristol Infirmary	200	158	42	1 in 4.76, or 21 p. c.
15 London hospitals	137	123	14	1 in 9.78, or 10.21 p. c.
28 Provincial hospitals ...	148	138	10	1 in 14.8, or 6.75 p. c.
Norfolk and Norwich H. ...	455	421	34	1 in 13.38, or 7.47 p. c.
Birmingham General H. ...	96	91	5	1 in 19.2, or 5.20 p. c.
Radcliffe Infirmary, Oxford	34	31	3	1 in 11.33, or 8.82 p. c.
Keith	22	21	1	1 in 22, or 4.54 p. c.
Total	1397	1274	123	1 in 11.35, or 8.80 p. c.

TABLE XI.—From 21 to 40 Years of Age inclusive.

	No.	Cures.	Deaths.	Mortality.
Cheselden	22	17	5	1 in 4.4, or 22.72 p. c.
Dupuytren	14	10	4	1 in 3.5, or 28.57 p. c.
St. Thomas's Hospital ...	13	11	2	1 in 6.5, or 15.38 p. c.
Bristol Infirmary	69	57	12	1 in 5.75, or 17.39 p. c.
15 London hospitals	16	11	5	1 in 3.2, or 31.25 p. c.
28 Provincial hospitals ...	28	22	6	1 in 4.66, or 21.42 p. c.
Norfolk and Norwich H. ...	119	111	8	1 in 14.87, or 6.72 p. c.
Birmingham General H. ...	5	5	0	None.
Radcliffe Infirmary, Oxford.	6	5	1	1 in 6, or 16.66 p. c.
Keith	9	7	2	1 in 4.5, or 22.22 p. c.
Total	301	256	45	1 in 6.68, or 14.95 p. c.

TABLE XII.—From 41 to 60 Years of Age, inclusive.

	No.	Cures.	Deaths.	Mortality.
Cheselden	17	11	6	1 in 2.83, or 35.29 p. c.
Dupuytren	9	4	5	1 in 1.8, or 55.55 p. c.
St. Thomas's Hospital ...	13	10	3	1 in 4.33, or 23.07 p. c.
Bristol Infirmary	65	48	17	1 in 3.82, or 26.15 p. c.
15 London hospitals	17	8	9	1 in 1.88, or 52.94 p. c.
28 Provincial hospitals ...	22	15	7	1 in 3.14, or 31.81 p. c.
Norfolk and Norwich H. ...	190	155	35	1 in 5.42, or 18.42 p. c.
Birmingham General H. ...	16	13	3	1 in 5.33, or 18.75 p. c.
Radcliffe Infirmary, Oxford.	8	6	2	1 in 4, or 25 p. c.
Keith	58	52	6	1 in 9.66, or 10.34 p. c.
Total	415	322	93	1 in 4.46, or 22.40 p. c.

TABLE XIII.—Above 60 Years of Age.

	No.	Cures.	Deaths.	Mortality.
Cheselden	7	5	2	1 in 3.5, or 28.57 p. c.
Dupuytren	8	1	7	1 in 1.14, or 87.5 p. c.
St. Thomas's Hospital ...	14	9	5	1 in 2.8, or 35.71 p. c.
Bristol Infirmary	20	12	8	1 in 2.5, or 40 p. c.
15 London hospitals	16	4	12	1 in 1.33, or 75 p. c.
28 Provincial hospitals ...	24	20	4	1 in 6, or 16.66 p. c.
Norfolk and Norwich H. ...	146	105	41	1 in 3.56, or 28.08 p. c.
Birmingham General H. ...	5	3	2	1 in 2.5, or 40 p. c.
Radcliffe Infirmary, Oxford.	6	4	2	1 in 3, or 33.33 p. c.
Keith	119	85	34	1 in 3.50, or 28.56 p. c.
Total	365	248	117	1 in 3.11, or 32.05 p. c.

TABLE XIV.—*At all Ages.*

	No.	Cures.	Deaths.	Mortality.
Cheselden	213	193	20	1 in 10.65, or 9.38 p. c.
Dupuytren	95	76	19	1 in 5, or 20 p. c.
St. Thomas's Hospital ..	124	110	14	1 in 8.85, or 11.29 p. c.
Bristol Infirmary	354	275	79	1 in 4.48, or 22.31 p. c.
15 London hospitals	186	146	40	1 in 4.65, or 21.50 p. c.
28 Provincial hospitals ...	222	195	27	1 in 8.22, or 12.11 p. c.
Norfolk and Norwich H.	910	792	118	1 in 7.71, or 12.96 p. c.
Birmingham General H.	122	112	10	1 in 12.2, or 8.19 p. c.
Radcliffe Infirm., Oxford.	54	46	8	1 in 6.75, or 14.81 p. c.
Keith	208	165	43	1 in 4.83, or 20.66 p. c.
Total	2488	2118	375	1 in 6.58, or 15.19 p. c.

TABLE XV.—*Number of Cases at Different Ages.*

	Und. 21.	21 to 40.	41 to 60.	Abov. 60.	Total.
Cheselden	167	22	17	7	213
Dupuytren	54	14	9	8	95
St. Thomas's Hospital	84	13	13	14	124
Bristol Infirmary	200	69	65	20	354
15 London hospitals	136	16	17	16	186
28 Provincial hospitals	148	28	22	24	222
Norfolk and Norwich Hospital ...	455	119	190	146	910
Birmingham General Hospital ...	96	5	16	5	122
Radcliffe Infirmary, Oxford	34	6	8	6	54
Keith	22	9	58	119	208
Total	1397	301	415	365	2488

TABLE XVI.—*Percentage of Cases at Different Ages.*

	Under 21.	21 to 40.	41 to 60.	Above 60.
Cheselden	78.40	10.32	7.98	3.28
Dupuytren	56.84	14.73	9.47	8.42
St. Thomas's Hospital	67.74	10.48	10.48	11.29
Bristol Infirmary	56.49	19.49	18.36	5.64
15 London hospitals	73.65	8.60	9.13	8.60
28 Provincial hospitals	66.66	12.61	9.90	10.81
Norfolk and Norwich Hospital ..	50.00	13.07	20.87	16.04
Birmingham General Hospital ..	78.68	4.09	16.11	4.09
Radcliffe Infirmary, Oxford	62.96	11.11	14.81	11.11
Keith	10.57	4.32	27.88	57.21
Of all cases	56.14	12.09	16.68	14.67

COMPRESSION OF A CONSIDERABLE PORTION OF THE SKULL-CAP IN AN INFANT SIX MONTHS OLD.

By W. A. ELLISTON, M.D., Ipswich.

A FEW months since, an infant, aged six months, was brought to my house, in a state of collapse and vomiting, having fallen from the arms of the nurse-girl upon a flight of brick steps. Upon examining the child, I found that a large portion of the cranium, a surface of two and a half inches by one and a half inches, and extending over and including the posterior portion of the temporal bone, and the upper part of the parietal and occipital bones, had been driven inwards upon the brain, leaving a considerable depression, into which half a hen's egg cut in the longitudinal direction could have been easily laid. I naturally gave an unfavourable prognosis, and had some doubt whether I ought not to have interfered surgically at once. However, upon seeing the child one hour later in the evening, I found the depression less, the child no worse, and therefore decided that it would be better to wait for more urgent symptoms. I accordingly sent the child into the East Suffolk Hospital, in order that she could be carefully watched. Two days later, she was discharged from the hospital much improved; and, one week later, the depression had almost disappeared.

MASSAWAH:

CLIMATE OF THE SHORES OF THE RED SEA; EFFECTS ON EUROPEANS; PREVENTABLE DEATHS.

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PART I.

THE Portuguese missionary, Lobo, gives a very startling account of his misfortunes at Massawah at the beginning of the fifteenth century. The Turks were then the open enemies of the Christians, and the hatred they professed for them was not manifested, as in the present day, by half-muttered imprecations, but vented itself in a form more suitable to their tastes, and to the teachings of the Koran. Fetters and a dungeon, if not a cruel death, was the fate which the Christian might rightly expect, should he be unfortunate enough to fall into the hands of the all-dreaded Muslims. Massawah and Souakin, the two ports on the Red Sea, through which it was necessary to pass before crossing to the highlands of Ethiopia, unless the longer, and as yet dangerous route by the Nile was adopted, were for the Catholic missionaries—those pioneers of African explorers—invested with more dread and terror than the blood-stained plateaux where, for half a century, a cruel religious war alternatively made martyrs of Copts or Romans, according to the religious tenets adopted at the time by the Abyssinian Emperors.

Bruce himself, at the end of the last century, had still to contend there with serious difficulties; and had it not been for his *pluck*, perseverance, and, above all things, for his *medical knowledge*, he would certainly have paid with his life for his love of adventures; and, murdered in the lowlands bordering on the Red Sea, never returned to his own highlands to relate his very interesting, and so unjustly criticised, narrative. But, without going so far back as the well-known traveller I have mentioned; even passing over Lord Valentia's and Salt's unpleasant experiences of the inhabitants of that inhospitable coast, we find all modern travellers—even Mr. Plowden, our late Consul at that port—all complaining of the rapacious character of the natives, and of the covert hostility of the Turkish authorities of the island of Massawah.

On the arrival at that port, in July, 1864, of Mr. Rassam and myself, aware of the difficulties, to say the least, which the authorities always placed in the way of travellers desirous of proceeding into the interior of Abyssinia, we were not without some fears that our mission would experience there its first troubles. However, the very wise precautions taken by the English envoy, his great knowledge of Eastern races, his timely presents, his perfect tact in dealing with those curious specimens of politicals, at once smoothed the way; and from the Pacha's divan, to the grass hut of the Naib of Arkeeko, only words of praise proclaimed the advent of the English Effendi. But at the same time, although I would fain not speak of myself, there is no doubt that this good understanding was also greatly influenced by the practice of medicine, and that Mr. Rassam's companion, in his more humble sphere, had also his share, not merely on that occasion only, but many times afterwards, in winning the confidence, and, in some degree, the affection, of the natives. A *knowledge of medicine* is, in those Eastern lands, *after money*, the most useful of passports; and I was not many days at Massawah before high and low, rich and poor, claimed my medical attendance.

Massawah is, for an European (taking the expression in its widest sense), if not a deadly place, at least one where his chances of life are limited indeed; not that any serious endemic disease usually prevails there—on the contrary, so far the locality might be considered healthy. Fever, it is true, now and then makes its appearance after a shower of rain, and occasionally assumes, in the half-starved native, a pernicious character. During our stay at the coast (about thirteen months), we ourselves never suffered from it; but a few cases broke out amongst our followers, affecting a mild remittent or intermittent type, and quickly yielded to treatment. The danger lies in the oppressive and constant heat of the weather; not only this elevated temperature predisposes to tropical affections, but so weakens the body, so exhausts the frame, that a state of utter prostration is at last brought on, that nothing, except an immediate change to a more temperate clime, can avert an almost certain death. We had ourselves suffered to some extent from that influence: we disliked, on the whole, the place so much, that I doubt whether, if the option had been given to us, we would not have preferred to dwell fettered prisoners in the highlands, rather than free