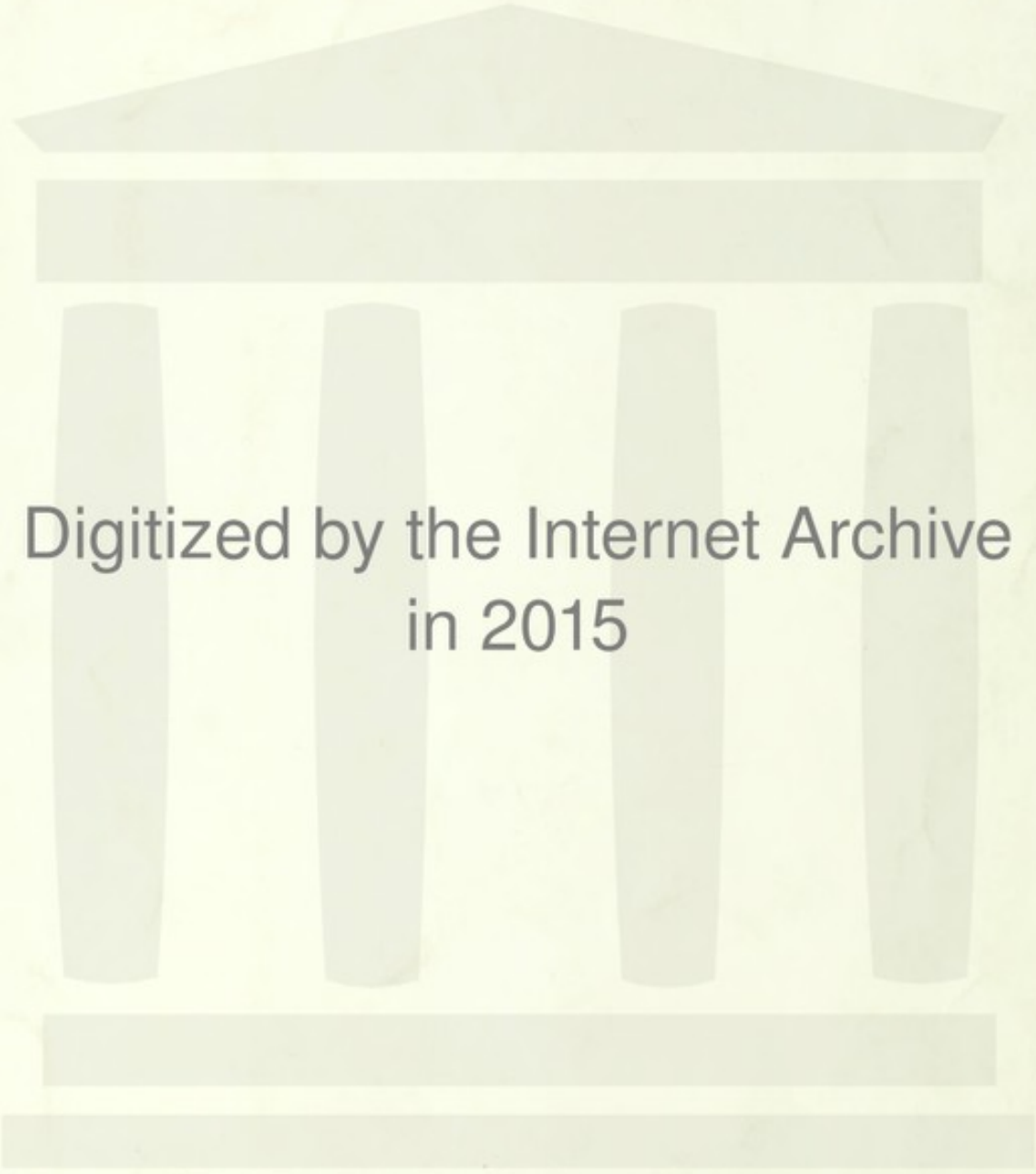
Results of surgical treatment, without antiseptics, in the Kilmarnock Infirmary : being a paper read before the Glasgow Medico-Chirurgical Society / by John C. M'Vail.



With Dr M'Vail's comp

RESULTS OF

SURGICAL TREATMENT,

WITHOUT ANTISEPTICS,

IN THE

KILMARNOCK INFIRMARY,

BEING

A PAPER READ BEFORE THE GLASGOW MEDICO-CHIRURGICAL SOCIETY.

BY

John C. M'Vail, M.D., Kilmarnock.

Reprinted from the *British Medical Journal* of March 20, 1880.

KILMARNOCK: DUNLOP & DRENNAN, PRINTERS.

RESULTS OF

SURGICAL TREATMENT,

WITHOUT ANTISEPTICS,

IN THE

KILMARNOCK INFIRMARY.

THE important discussions lately published on antiseptic surgery have induced me to collect the chief statistical results of the simple or non-antiseptic treatment practised by Dr. John Borland in the Kilmarnock Infirmary. During the past three years, much fuller tabular statements than formerly have been issued in the annual reports; I therefore confine myself to that period.

The total surgical cases treated to a termination were 543, and Table I. contains a list of the deaths that occurred.

TABLE I.

No.	Nature of case.	Time in Hospital, or after the Operation.	Notes.
1	Railway injury.	4 hours.	All moribund on admission.
2	Extensive burns.	9 hours.	
3	Internal injuries.	5 minutes.	
4	Smashed legs.	2 hours.	
5	Smashed legs.	3 hours.	
6	Fracture of pelvis, etc.	9 hours.	
7	Laceration of lungs from fractured ribs.	13 hours.	
8	Gangrene of feet and legs.	11 days.	Gangrene, caused by exposure to cold, in a tramp, with broken-down constitution.
9	Laceration of legs.	11 days.	Died of tetanus.
10	Disease of knee.	45 days.	A hectic emaciated subject, who lived almost entirely on stimulants. Knee quite disorganised, and discharging from numerous sinuses. A series of abscesses formed along the thigh, a new one appearing every two or three days. Never was fit for operation.
11	Syme's amputation	41 days.	A strumous subject. Stump healed in about twenty-eight days. Patient was taking out-door exercise, and was about to be dismissed, when a very large abscess formed over the sacrum, in 48 hours, and death resulted from pyæmia.
12	Amputation of both legs.	7 days.	Aged 52. Died from gangrene of back (the result of a blow from an engine-buffer) and internal abdominal injuries.
13	Amputation of thigh.	3 days.	Aged 76. Internal injuries caused death.

This gives a death-rate of 2·33 per cent. But if we eliminate the seven cases under twenty-four hours in the wards, the following is the result :—

In 1877, ...	4 deaths in 171 cases, or 2.3 per cent.
In 1878, ...	2 deaths in 167 cases, or 1.1 per cent.
In 1879, ...	0 deaths in 199 cases, or 0.0 per cent.
Total, ...	6 deaths in 537 cases, or 1.1 per cent.

Operations.—In the above 537 cases, 107 operations were performed, of various degrees of importance. The deaths were three—Nos. 11, 12, and 13 in Table I. The rate is therefore 2·8 per cent. The following are the fifty principal cases. Those marked * are included, owing to joints having been opened—the elbow in two, and the wrist in one case.

TABLE II.

Operation.	No.	Deaths.
Amputation of thigh, ...	11	1 (No. 13).
,, both legs, ...	1	1 (No. 12).
,, leg, ...	8	0
,, ankle (Syme), ...	5	1 (No. 11).
,, foot (Chopart, 2 ; Hey, 1), ...	3	0
,, arm, ...	5	0
,, forearm, ...	1	0
Excision of elbow, ...	1	0
* ,, head of radius, ...	1	0
,, mamma, ...	2	0
,, cancer of back, ...	1	0
,, cancer of upper jaw, ...	1	0
,, epithelioma of arm, ...	1	0
,, metacarpal bone, ...	1	0
*Reduction of compound dislocation of elbow, ...	1	0
Removal of sarcoma from head of tibia, ...	1	0
Exposure and stretching of sciatic nerve, ...	4	0
Ligature of superior circumflex artery of humerus, ...	1	0
Extirpation of eyeball, ...	1	0

Of these fifty cases, eleven were primary, with two deaths, and thirty-nine for disease, with one death.

The *compound fractures* were eight in number, namely, ~~ten~~ one of the thigh, six of the leg, and one of the forearm. All recovered.

Under the name *injuries* are included severe

bruises as well as wounds. On inquiry, however, I find that forty-two wounds, of varying severity, were treated. Of these, one died from tetanus (No. 9, Table I.)

In endeavouring to compare these statistics with Mr. Lister's, I have been unable to obtain his total admissions and total death-rate while in Edinburgh. Placing the figures, however, alongside of those of Dr. Cameron of the Glasgow Royal Infirmary, recently referred to in the BRITISH MEDICAL JOURNAL, I find that his death-rate is 5·1 against Dr. Borland's 2·3 per cent.; and, omitting from Dr. Cameron's cases all deaths under forty-eight hours, his rate is 2·9 ; while Dr. Borland's, with deaths under twenty-four hours left out, is 1·1 per cent.

In the five years and three-quarters chosen by Mr. Lister, the mortality from operations was 4·4 per cent.; Dr. Borland's was 2·8. Mr. Lister had eighty major amputations, with nine deaths, or 11·25 per cent. Dr. Borland had thirty-four, with three deaths, or 8·8 per cent. The former had sixteen primary amputations, with four deaths ; while the latter had eight, with two deaths, so that here the ratio is the same.

Taking major amputations for disease, Mr. Lister's are sixty-four, with five deaths, or 7·8 per cent. Dr. Borland's are twenty-six, with one death, or 3·8 per cent. Mr. Lister very properly excludes

two of the five deaths on the ground of irrelevancy. Even allowing this deduction, the rate is in Dr. Borland's favour, and the two lists are very strictly comparable. It is true that, in the Kilmarnock Infirmary, there were no shoulder amputations; but, on the other hand, no part of the list is made up of one of the safest of the major amputations—that of the forearm. The tables are as follow;—

TABLE III.

	Mr. Lister.				Dr. Borland.		
	No.	Recovered.	Died.		No.	Recovered.	Died.
Thigh, ...	26	25	1	Thigh, ...	9	9	0
Leg, ...	5	5	0	Leg, ...	7	7	0
Ankle, ...	16	15	1	Ankle, ...	5	4	1
Shoulder,	1	0	1	Foot, ...	3	3	0
Arm, ...	6	6	0	Arm, ...	2	2	0
Forearm,	8	8	0	Forearm,	0	0	0
Total, ...	62	59	3	Total, ...	26	25	1
	being 4.8 per cent.				being 3.8 per cent.		

But here, in addition to the two irrelevant deaths entirely omitted from Mr. Lister's table, a process of exclusion is brought to bear on the remaining three. Mr Lister states that two "recovered from the amputation, but died of an independent cause"; and that, in the third case, "the cause of death was wholly independent of the operation." In the same way, I may say that Dr. Borland's case (No. 11, Table I.) "recovered from the amputation, but died of an independent cause." This gives in both lists a clean bill of health. In fact, all who died,

died cured. And what more can be looked for from any system of surgery? One thing more might be looked for—that the recovery which takes place in all cases be a rapid recovery. Here, unfortunately, I am not able to give the results of Mr. Lister's practice. The time between operation and dismissal in Dr. Borland's operations was the following. The cases are those which constitute Table III.

TABLE IV.

	Time in Days in each case separately.									Average Time.
Amputation of—										
Thigh, ...	28	28	34	27	21	41	38	27	31	30·5 days.
Leg, ...	26	25	21	22	27	26	22			24·1 ,,
Ankle, ...	37	33	64	29						40·7 ,,
Foot, ...	32	51	43							42 ,,
Arm, ...	13	13								13 ,

In a few of these cases, a spot about the size of a pea remained uncicatrised at the date of dismissal. In all others, the cicatrix was complete.

Injuries.—On comparing results in this class, I find that Mr. Lister has seventy-two cases (including compound fractures, wounds of joints, and other severe wounds), with four deaths, or 5·7 per cent. Dr. Borland treated eight compound fractures, with no deaths, and forty-two wounds, with one death (from tetanus)—being a total mortality of 2 per cent. Did one know how many of Mr. Lister's four deaths were from compound fractures, and how many

from wounds, the comparison would be more satisfactory, as in a number of Dr. Borland's cases the wounds were not severe, and "severity" is very much a matter of opinion. But, in order to increase the mortality from 2 to 5·7 per cent., thirty-three of the forty-two wounds would require to be struck off. And I am not aware that simple dressing has any causal connection with tetanus, from which the solitary death occurred.

We come now to the important subject of hospital diseases. Here, if anywhere, the antiseptic method should triumph. Mr. Lister has six deaths from these diseases. His major operations were 725, and the percentage is therefore ·82. But there is no reason why the percentage should be calculated on the major operations. Compound fractures and wounds of all kinds may be followed by blood-poisoning. Therefore, adding the injuries to the total operations, we get six deaths in 917 cases, or ·65 per cent. Dr. Borland has one death in 161 cases, or ·62 per cent. In the Kilmarnock Infirmary, sixty-one abscesses were treated. If these be included, the rate is reduced to ·45 per cent. But, as I have no list of Mr. Lister's abscesses, a comparison cannot be made on this point. But, on Mr. Lister's six deaths, the process of exclusion is again brought to bear. The major operations are divided into antiseptic and septic. The former were

553, with two deaths. The latter were 292, with four deaths; regarding which, Mr. Lister remarks, "the deaths were eight times as numerous. That seems to me very instructive." And it certainly looks bad for the "septic"* treatment. But, as Mr. Lister also says, "cases should be pondered, not numbered." And the result of pondering is as follows. The two deaths in the antiseptic list occurred after removing the breast. The four "septic" were (1) amputation of the penis, (2) a plastic operation on the nose, (3) excision of the tongue, and (4) the opening of a a small abscess of the neck. Now, it is obvious that, under any system of treatment, excision of the mamma is much less likely to be followed by blood-poisoning than the first three of the septic cases. In fact, of all operations, the three are among the most liable to be followed by hospital diseases. And as the list of antiseptic cases may be presumed not to contain any such, and the septic list may include a number which recovered, the two lists are simply not comparable. But the fourth septic case is the opening of a small abscess in the neck. Mr. Lister takes credit for calling all operations resulting in death "major" operations. Therefore the comparatively small list of septic operations is saddled

* Used throughout this Paper as meaning "simple" or "non-antiseptic."

with a death which occurred after opening a small abscess in the neck. And it is to be borne in mind that this death took place in wards where, of all places in the world, the septic cases were sure to enjoy all the advantages which, Mr. Lister says, accrue to septic surgeons whose practice is conducted in the same hospitals where the spray treatment is carried on. "If they do these things in the green tree, what shall be done in the dry?" In other words, what might be looked for in the Kilmarnock Infirmary, where there is no benign influence of a neighbouring Listerite to ameliorate the terrible state of affairs produced by old-fashioned surgery? Surely something worse than a mortality from blood-poisoning of less than a half per cent. in cases liable to hospital diseases.

Turning to the antiseptic operations, we find that Mr. Lister explains one of the two deaths after excision of the mamma by the fact that he observed the spray not playing on the axilla during the removal of a drainage-tube. To one who has, over and over again, seen the raw surface of an amputated thigh exposed freely to the air of a small operating theatre, separated only by the width of a narrow passage from wards occupied by septic cases of all kinds, and who has seen the patient leaving the hospital entirely cured three or four weeks afterwards, it is difficult to imagine

that the momentary absence of carbolic spray could result in such sudden and fatal erysipelas. The explanation is, however, quite consistent with the germ-theory, and no fault can be found with it on that score. But it at once raises the question, Is this the only case in which the spray failed for one moment to play on some corner of the wound-surfaces in these 553 operations? Besides, there are the minor operations, and the seventy-seven injuries. When one recollects how long these cases were in the wards, how often they may have been dressed, and how long each surface remained uncovered at every dressing, it seems almost certain that, in some cases, at some moment or moments in the course of treatment, the spray would be diverted from its proper direction, and the cases thus placed on a par with the incision of the mamma. The accident did take place in one case, and was observed. May it not have taken place unobserved in many cases? If so, seeing that the death in question is attributed to septic causes, should the cures be set down to antiseptic treatment? It is quite impossible, of course, to say how many such occurred, or even that any occurred; but it is equally impossible to say that there were none, and the doubt vitiates, to some extent, the value of the whole statistics.

But. in regard to hospital diseases, and, in fact,

to these statistics in general, I may be met by the criticism that no fair comparison can be made between the results of a small hospital like the Kilmarnock Infirmary, and those of such institutions as the Glasgow or Edinburgh Royal Infirmaries. To this argument, I will allow Mr. Lister himself to reply. He says (in the discussion at St. Thomas's Hospital), regarding Mr. Savory's statistics: "..... We cannot regard these statistics, excellent as they are, as statistics of a hospital where no antiseptic treatment is adopted..... Even if Mr. Savory had used no antiseptic means whatever, he would, nevertheless, have benefitted by the antiseptic practice of his colleagues." Further on he says: "..... The effect of strict antiseptic treatment by three surgeons, and non-antiseptic by the fourth, is simply to convert a large hospital into a small one, with reference to the question of hospital disease." Now, it is an obvious deduction that, if the benefits to the septic wards are so great as to make them practically similar to a small hospital, the ward or wards of any one of the antiseptic surgeons must enjoy even greater advantages. Hence, on the whole, the Kilmarnock figures are very fairly comparable with Dr. Cameron's. And if the not very great amount of antiseptic treatment in St. Bartholomew's were of so much benefit to Mr. Savory, the greater amount

in the Edinburgh Infirmary would be of still greater benefit to Mr. Lister's wards, and to the septic cases treated in them. Therefore, Dr. Borland's ·45 per cent. of blood-poisoning is obtained in, perhaps, as unfavourable surrounding conditions as Mr. Lister's 1·3 per cent.—three times that of Dr. Borland—in the 292 septic operations. In fact, the pretensions of antiseptic surgery are so great that, instead of septic surgeons requiring to produce long lists of the most "tremendous" operations, the burden of proof lies with those who practise the new treatment. They ought to be able to show not merely equal, nor even slightly better results, but statistics as much superior to those of simple surgery as the claims of the new system are superior to those of the old.

I may state that the Kilmarnock Fever Hospital and Infirmary is capable of containing 120 beds. The main building is arranged for 106 beds. It is a three-storey structure. The upper storey contains the fever-wards; in the mid-flat, ordinary medical cases are treated; and on the ground flat is the surgical department. The number of cubic feet to each bed is a little over 800. The surgical wards are small, containing from six to ten beds each; and, when patients are few, one or two of the wards are kept closed, so that the inmates do not get full advantage of the extra air-space.

In conclusion, I agree with the opinion that the value of statistics may very easily be over estimated. But that they have a value, and a considerable value, cannot be denied. And the fact that the discussion of the rival merits of the two systems of surgery has lately taken a statistical form, is a sufficient reason for publishing an account of the work done in the Kilmarnock Hospital by an old surgeon, working according to the old methods.

Dunlop & Drennan, Printers, Kilmarnock.