

On the Use of Gloves in Abdominal Operations.*

By T. B. GRIMSDALE, B.A., M.D.,

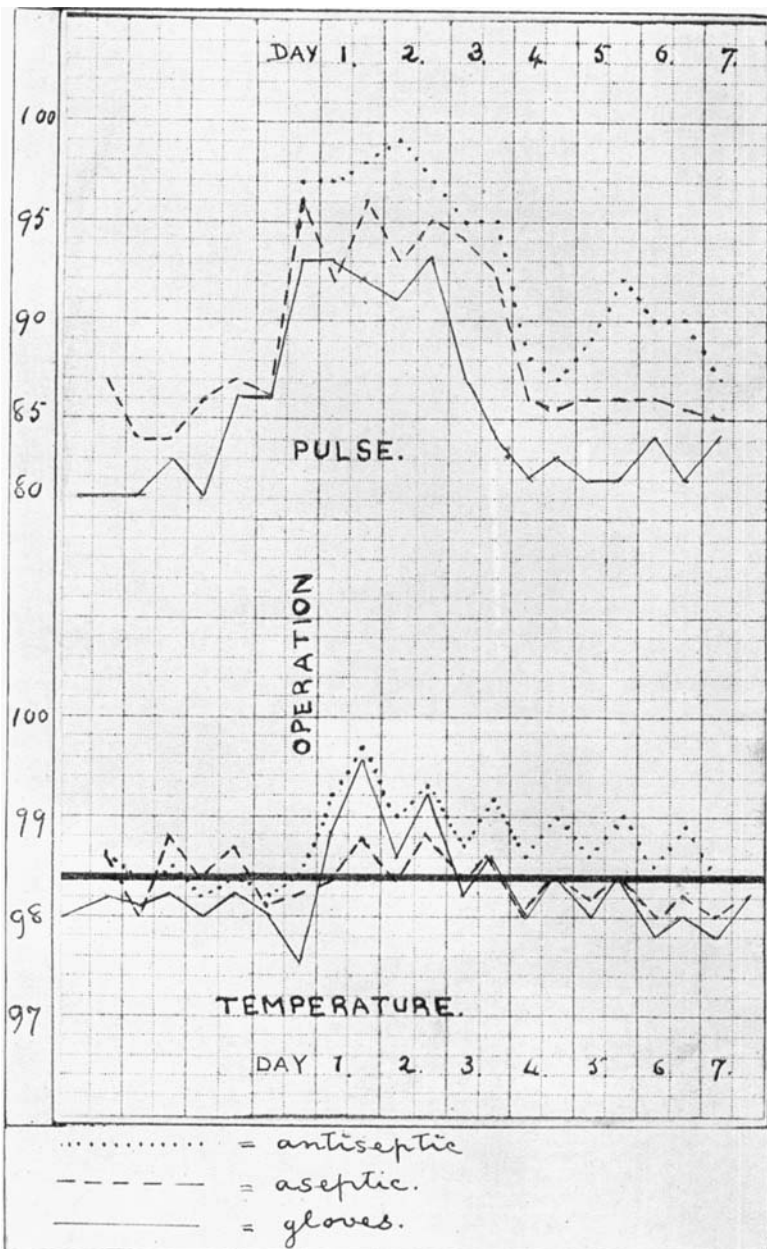
Hon. Gynaecologist, Liverpool Royal Infirmary; Lecturer on Gynaecology, University of Liverpool.

THE results of operations have become so good during the last ten years or so, owing to the improvements in operative technique, that mortality has almost disappeared, and very few patients indeed die even from the most formidable surgical operations; so that the old test of success, the mortality test, is no longer of any value as a delicate test of further improvements in operative methods. The test which is of value, is one which brings out and demonstrates the ease with which a patient recovers after operation. Such a test as this I wish to lay before you to-night so that you may judge whether it is advisable to use gloves during operations or not.

For some years many surgeons have performed all their operations in rubber gloves, whilst others have not considered it at all necessary to do so. Some have laid great stress on the disadvantages of gloves and their inconvenience, and call attention to the impairment of the sense of touch. Others look on gloves as a useful protection for themselves, and use them only in dirty cases. I myself can see no disadvantage in the use of gloves. If the sense of touch is impaired it only means that we must work more by sight. This seeming disadvantage only emphasises the surgical axiom, "See what you are doing." With a very little practice gloves will be found to be no detriment to the operation. The difference of opinion on this question has only been tested, so far as I know, by a statement of general impressions which are of no real value in judging of a method.

Some surgeons may, and do, get very good results without using gloves, better indeed than others who do use gloves, but I think it is certain that these very good results would be improved if these surgeons consistently performed all their operations in gloves. The only fair way in which a comparison can be made on this point is to compare the results of the work of the same man. In order to give you this test and offer you some definite facts and figures, I have made some composite charts of temperatures and pulses recorded during the recovery of patients after abdominal operations, so that you may make a comparison between the different methods used by myself in 120 abdominal operations, divided into three series of

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40 cases in each series.* The three series of cases show the results of the antiseptic, the aseptic and the glove methods.

The operations were all performed by me at the Liverpool Royal Infirmary, and each series was a consecutive series of 40 abdominal operations. These operations were performed for the ordinary run of gynæcological diseases, so that the comparison is as fair as it is possible to make it.

I need not describe in detail the exact methods I adopted in operating in the three series of cases, further than to say that in the antiseptic series antiseptics were used during the operation; the instruments were placed in antiseptic solutions, and antiseptic dressings were used. In the aseptic series no antiseptics were used at the operation. The glove series was exactly like the aseptic series plus the use of gloves.

There is one point I must draw special attention to, and that is that, in the aseptic series, the greatest care was taken in cleaning the hands the permanganate of potash and oxalic acid method being used most religiously, and on various occasions our hands were tested by three different competent bacteriologists, and they invariably declared our hands to be sterile after the most searching examination. Yet in spite of this, our results are improved by using gloves after the same rigorous cleansing of the hands. This rather supports the contention, which I have combatted, that it is impossible to thoroughly sterilise the hands.

The composite charts are made in the following way:—Two observations were taken each day in each case—one at 10 o'clock in the morning, and the other at 6 o'clock in the evening. In the composite charts I show you each reading is the mean of 40 observations. For instance, in the composite pulse chart (Fig. I.), in the day space marked operation the first black dot on the dotted line records 97; that means 97 beats per minute at 6 o'clock on the evening of the day of operation is the average pulse-rate of 40 patients who were operated on by the antiseptic method. Of course this record applies to work done many years ago. The broken line represents the average pulse-rate of 40 patients operated on by a strict aseptic method. The unbroken line represents the average pulse-rate of 40 patients operated on by exactly the same method plus the use of gloves. I think you will see at a glance that the broken line is better than the dotted line, and that the unbroken line is all through the best of all as far as the pulse is concerned.

* In the last series one case is left out. Ruptured uterus: died half an hour after operation.

The temperature charts are much the same for each series. The pulse is evidently a more delicate test than the temperature of the ease of the recovery; with this all will agree. You will notice that on the third day after operation in the glove series (the unbroken line) the pulse-rate has practically returned to normal, whereas the other two series require another day. There is the gain of a day when gloves are used. It is interesting and gratifying, in making these comparisons, to find that there has been a steady improvement in the convalescence of the patients after operation with each change in the method of operating.

As far as I myself are concerned, I am perfectly convinced that by the use of gloves the operative results are very greatly improved, and I hope that by showing you these figures I may likewise prove, to some who do not consider it necessary to use gloves, that their results will be improved if they do use them. It is easy to say, as has often been said to me, that "results are quite good enough without bothering with gloves." There is no doubt in my mind that results will be better with gloves, and it is a pity to be content with anything short of the best you can attain.

To go back to the pulse charts. If you follow the dotted line (the antiseptic series) on the pulse charts I think you will say the results are good; the highest average pulse during the convalescence is only 100, but the other two lines are better. I might say that the number 40 for each series was taken quite arbitrarily. I might have taken 10, 20 or 100 in each series, but the labour entailed in making these average composite charts is considerable. I might remind you that each point on these charts means 40 observations, 40 additions, and a division by 40, and I think that a series of 40 cases is a fair number and sufficient to exclude grave errors.