

## THE APPLICATION OF TINCTURE OF IODINE IN SURGERY AND ITS EXPLOITATION BY PHARMACISTS.\*

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Of all the tinctures given a place in the armamentarium of the present-day surgeon, that of iodine holds perhaps the highest position in the esteem of the successful operator. During the past few years, several experimenters have used iodine in some fluid form or other with a view of ascertaining if possible, its disinfecting and antiseptic properties. The success that has crowned their efforts along these lines has established the fact that tincture of iodine is a valuable and indispensable adjunct to the surgical ward. These gratifying results have been the means of creating a sphere of prominence for iodine heretofore unequaled by any other tincture of a similar nature. The extensive datum now at our command, as it pertains to actual results in the field of operative surgery, places iodine as the one tincture par excellence. The variety of uses to which it has been applied with beneficial results, as reports seem to show, has gained for it a standing that perhaps very few of the other elements will ever reach. As a galenical long known to us all, but whose virtues seem to have been so little regarded, it has in a wide measure, made for itself, a new province of usefulness and efficiency in medicine, and as we shall endeavor to elucidate, an equally as good means for deriving a profit to the pharmacist.

In a vague manner, we have known iodine to be possessed of peculiar properties, for some time past, but as to what they were, absolute facts to base our opinions upon, up to a few years ago were lacking. Iodine dissolved in alcohol and called "Tincture of Iodine" has not only been of service to our various Boards of Pharmacy, but it has also been accepted by the laity as a useful servant in eradicating many of the light ailments flesh is heir to. In short it has been largely regarded as a household panacea. Much of this, naturally, was fanciful, but notwithstanding this notion as to its virtues, it did work wonders, but why, no one seemed to know until experimenters began to give some attention to the subject of its hidden properties. Within the last year or so, much has been written extolling in the strongest terms its alleged virtues. One excellent feature about this substance is, in the granted assurance that it will work, in many critical surgical cases, where heretofore, serious results have been the outcome from using other substances in a like manner. This has been largely due to the fact that it fulfills a function that so many other disinfectants cannot begin to do.

By reason of this, it has been the means of developing a new line of procedure in operative technic owing to its manifested virtues, which permits of certain proscribed methods. Facts seem to bear out the statement that as to recent wounds, no matter how unclean they may be, tincture of iodine can be relied upon to prevent secondary conditions. There appears to be a general feeling

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of confidence with medical and surgical exponents, whenever it is applied in cases of this kind.

By the medical fraternity it has come to be considered a *multum in parve*. It appears that the first confirmed reports as to its ascribed virtues, and its demonstration into American surgery, was by Major Frank T. Woodbury of the U. S. A. Medical Corps in 1906, when he used it for its value as an antiseptic and disinfectant in a case of Caesarean section on a patient from the Island of Samar. In this connection Bauman, of New York, also claims to have used it in the emergency wards of the St. Marks Hospital, and Mt. Sinai Hospital Dispensary in the years 1905 and 1907, respectively. The earliest reports in which it was applied in severe cases of flesh wounds was by Prof. Powell at the Rush Medical College in Chicago, during the years 1869 and 1870. He used it in woorarra poisoning. In the year of 1907, Dr. Knowles, of Iowa, applied it in rattle snake bites with excellent results. What controversy there may be on the subject, it is quite true that Major Woodbury is entitled to some credit on the work he has done in this direction. At least his published reports in the N. Y. Medical Journal of May, 1907, and the same journal in December, 1910, holds that he was a pioneer in its use for general surgical purposes. It seems rather strange that it required almost a century for us to determine the peculiar properties iodine held in reserve, for from the time old Courtins in 1811, a renderer of fats and a boiler of soaps, living in Paris at that time, observed the peculiar action of Kelp liquors on his copper boilers, to the discovery by Woodbury, it has required just ninety-five years to produce the evidence. A rather long time beating about for some one to find out its virtues.

In the 1910 report of Major Woodbury, six interesting cases are cited in detail, in which solution of iodine was the only antiseptic and disinfectant used. The case reports are very profusely explained. In this, his conclusions on iodine are so exceptionally good, that the same is well worth the repetition, for the reason, that it conveys a general idea as to the disclosures made by the use of iodine in actual practice.

“\* \* \* Iodine is the long desired ideal disinfectant and antiseptic. It is cheap, easily obtainable, can be carried in small bulk, is efficient in high dilution, does not damage tissue even where its vitality has been much reduced by traumatism or infection, it has been invariably successful as a germicide under all conditions when the drug and the germs have been brought together, and though it has great power of tissue penetration the writer has yet to see a case of poisoning even when it is mopped in full strength on the peritoneum and in the parturient uterus.”

“It can be used to disinfect the area of operation without previous preparation, to sterilize instruments, suture material, dressings, and the hands of the surgeon, during the time that the patient is going under the anesthetic. \* \* \*”

In another part of his paper he writes interestingly as follows:

“\* \* \* Tincture of iodine is the most valuable drug that railroad and military surgeons can have \* \* \* a good surgeon and tincture of iodine will show as good results as the finest marble lined operating pavilion served by the

most scrupulous followers of Lister. \* \* \*” This paper is full of practical thoughts as regards the application of tincture of iodine in medicine and surgery.

Other references of a more recent nature are as follows:

Merck, in his Annual Report for the year 1911, states: “Although it is questioned by some, whether tincture iodine has a strong bactericidal action, yet painting with iodine is recognized to be one of the best, if not the best method for disinfecting the skin.”

Others are as follows:

Casassorici calls tincture iodine an excellent antiseptic in minor surgery. He painted extremely dirty wounds with it, sutured them, again painted them, and the wounds rapidly healed.

Prof. Reclus prefers it over all other known surgical disinfectants, for wounds on workmen's hands, grimed with filth and dirt.

Hofmann used it in about 100 abdominal cases without one intestinal obstruction.

Mantelli applied it in over 700 operations with excellent results.

Sick, in 150 appendicitis cases had no obstruction by adhesions from its use.

Gilbert recommends it in corneal ulcers with satisfaction.

Schmid suggests its use as he has applied it in all midwifery operations.

Franke extols its virtues in surgical tuberculosis, before and after operation.

Babes, Ferrari and Mario used it largely in erysipelas, while Hildebrand injected it in cases of obstinate infectious urethritis.

Holden experienced wonderful results in luetic conditions, externally and internally. Schantz highly recommends it in all wounds to insure scar production with the least possible danger of disfigurement. Senn, Jewett, Grossich and others have used iodine as a disinfectant of the skin in the area of operation to the exclusion of all others. With Bernucci, he used it entirely for disinfecting the hands prior to operation. In lumbar anaesthesia, Tomaschewski claims that the technic must be done under most extreme asepsis, and to this end he paints the skin with tincture iodine. And thus may the reports be enumerated ad libitum. In most all of the cases thus far reported, tincture iodine was used in from two to ten percent, and in some cases the concentrated tincture made by evaporating one of the above.

Now in the face of all this, of what interest is it to the pharmacist? In this connection the story is a short one. In the first place, to put this matter before the medical contingent of your immediate section, it must be done in such a manner as to enlist interest and attention.

In the second place, you must make certain claims for your product over the ordinary tincture and be prepared to substantiate them.

Thirdly, you should exercise your ability, and get out a nice neat package, something unusual but useful, in conjunction with an entertaining line of talk in booklet form as to its uses and application in medical and surgical proceedings. Much of this information will be found in books, various medical journals and those papers of Major Woodbury.

Next, how can I make my product better than the ordinary tincture which is sold all over the country?

Briefly, any one can make tincture iodine, but not every one knows what that tincture may contain. In this alone you have a means of creating a market. For instance, assay your finished product, assign a date on your package as to the above, note its absolute strength, guarantee its purity, and assure the absence of impurities, by a truthful declaration on the label. As to impurities, we know iodine contains more or less non-volatile matter, poisonous cyanogens, irritating chlorine compounds, and caustic bromine products. By testing for these, eventually removing them if they be present, and giving simple tests whereby the average physician can determine for himself as to whether or not you are telling the truth, would undoubtedly establish your prestige and become a new source of revenue. Two men got rich on making cold cream and selling it to the drug trade. It was not so much that they knew of a better process, as much as it was in the materials which they used in producing it, along with care in its preparation.

As to the introduction of it to the medical profession, every pharmacist will have to adopt such measures as will best suit the needs of the section in which he thrives. Two things, however, are important.

One is, the literature which you send out must be gotten up to attract attention and be of interest, so that it will not go the way many poorly constructed documents have gone. Reliable data, with credit to the investigators, along with other suggestions as to its wide range of application both in medicine and surgery as you know of, should also be given in a neatly arranged brochure. Good literature pays, especially when it is sent to people of a discriminating turn of mind.

Following this is the second thought, and this relates to the container and package. This will also depend entirely upon the tastes of the individual, insofar as it pertains to the package, but as to the container, this will be a more difficult problem. Up to the present we have no suitable iodine receptacle. This is truly manifested in the average physician's grip. If one will but take notice, he will observe that the tincture iodine bottle in the above is the most unsightly one of the whole group. What is needed is a handy, serviceable container.

From the foregoing, I think enough has been stated to prove the efficiency of tincture iodine, especially in surgical practice. Now what remains is, to what extent is the pharmaceutical profession going to put this valued drug before the medical fraternity, and derive a fair profit in so doing?

I can only state in conclusion, that such as it is, it is worthy of a most earnest and sincere trial, for if surgery has reasons to acclaim it one of the most essential things to the operating room, it should of necessity, behoove the pharmacist in consequence thereof, to supply it.