

LINCOLN (R.P.)

The Use of Pyoctanin, an
Antiseptic, in Diseases of
the Upper Air-passages.

BY

R. P. LINCOLN, M. D.

REPRINTED FROM

The New York Medical Journal
for October 31, 1891.



THE USE OF PYOCTANIN,

AN ANTISEPTIC,

IN DISEASES OF THE UPPER AIR-PASSAGES.*

By R. P. LINCOLN, M. D.

THE question has often been proposed, Why do we find so much more work to do in the nasal passages than formerly? This thought is especially emphasized by inspecting the list of papers offered at this meeting of our association.

It is true we not only attempt, but we accomplish, much more than we thought possible ten or even five years ago. The explanation is not that naso-pharyngeal affections are more common now, not that we did not recognize abnormalities that we now attack with confidence, but it is that we have learned, from our own and the experience of co-laborers in the same field, that we can with impunity almost undertake operations the possible unpleasant consequences of which were greatly magnified and acted to effectively deter us.

We are further encouraged not only by the primary and immediate relief that follows many operations, but also by secondary advantages, sometimes even general, that are often of greater importance than the removal of the local trouble.

The advantage from the use of cocaine has greatly facilitated our operations. But the element that has contributed not the least to our success and to extending our achievements is the discoveries and improvements in antiseptics.

In determining the utility of a drug and defining its uses, we aim not only to restore the ailing, but to fortify our patient against the liability to disease; and it must be remembered that every applica-

* Read before the American Laryngological Association at its thirteenth annual congress.



tion of such knowledge becomes an important experiment, either yielding confirmation of or casting doubt upon some hypothesis not yet crystallized into acknowledged doctrine. Evolution in our art is being rapidly developed. The almost countless new remedies or substances that the diligent chemist or the indefatigable herbalist is constantly presenting to us for testing make it impossible that any one person or school should definitely pass judgment on them all. To prove the cause of an effect in even one instance is a contribution to this end. A contribution toward the solution of any such equation is work in the direction of ameliorating or curing disease. Cherished fallacies that often sway the laity must be guarded against by the investigator; such is the idea, prominent in the public thought, calculated to mislead because not consistently discountenanced by the profession, that remedies heal—that certain atmospheres, for example, heal the diseased mucous membranes.

The healing process is from a higher power and pertains to the germ of our growth, intrinsic. At war with this are extrinsic elements. The air, I repeat, does not heal, but some atmospheres contain fewer disease-promoting germs than others. To destroy those present, to fortify our patient against their deleterious effects, is, then, one of our objects.

Further, we must not lose sight of the fact that man never manufactured living tissue. Our aim must be to assist Nature. This, in surgery, we do in three ways—by co-acting solutions of continuity, by removing obstacles, and by shielding a fresh or granulating surface from bacteria prejudicial to its healthful progress. In nasal surgery unexpected constitutional symptoms occasionally present themselves that we recognize as due to septic poisoning. I think the practice is not yet definitely settled on the point whether the nostrils should be sealed, so to speak, with a pledget of lint after an operation, or whether an effort should be made to keep the passages freely open. Whichever plan is adopted, we must recognize the necessity of an effective antiseptic. We thus see there are so many contingencies that interfere with the theoretical use of remedies, that a true estimate of their value can only be determined by experience, and I apprehend that the efforts of the rhinologist and laryngologist will hereafter find their greatest advantage in studying the action of remedies whose province is chiefly aseptic. There are many that have been used, each with enthusiastic advocates, such as boric acid, antipyrine, bichloride of mercury, iodoform, iodol, aristol, peroxide of hydrogen, and others; but there is one that has been but little

tried, but which, from my present experience, seems destined to become a valuable addition to the list.

With the foregoing plea for investigation in the direction of antiseptic methods, I invite your attention to a remedy that E. Merck, the chemist, has brought forward within a short time. I refer to pyoctanin, the methyl-violet. The efficacy of the remedy seemed so pronounced in the limited number of instances where I have used it that I hope to elicit observations by others and hasten the determination of its place in our pharmacopeia. Whatever be the final verdict, I am convinced it has merit, and I now recognize but one disadvantage.

For the convenience of any that may not be familiar with its attributes, I compile here the essentials of whatever I have been able to find on the subject, and also present some samples. Pyoctanin is a chemical preparation of the class of aniline colors, there being two kinds, the blue and the yellow, the former, according to Pohl,* having the greater germicidal power. It is offered in the market in the form of powders, tablets, and sticks. It is odorless, almost tasteless, non-poisonous, slightly anodyne, and non-irritating. It does not coagulate albumin, has great penetrating and disseminating power, and hence does not form a protecting shield about diseased germs. It destroys bacteria quickly; even a weak solution prevents the development of all micro-organisms. It is freely soluble in water and petroleum products. Its disadvantage is its staining quality, which is an offense to the sight, but which can be avoided on exposed parts by exercising reasonable care.

It may be used without unpleasant consequences in any degree of strength, from the pure substance to a weak solution. It can be applied to the part to be treated in the form of a spray, by means of a pledget of lint saturated with a solution, in the form of an ointment, as a powder or by crayon.

Its Method of Action.—W. Pohl,† of Berlin, reports in his inaugural thesis the results of the study of the effect of pyoctanin on different bacteria. Putrefactive ‡ ones showed the greatest resistance. A solution of the strength of 1 in 2,000, however, stopped their evolution, while a solution of 1 in 1,000 killed them in half an hour. It is found by increasing the proportion of the chemical that this action is hastened. The rapidity of this action on all

* W. Pohl, Darmstadt, 1891.

† *Op. cit.*

‡ Stilling. *Anilin. Farbstoffe als Antiseptica.* Strassburg, 1890.

other micro-organisms is much greater. Janicke* showed that a total stoppage of development took place in streptococcus with a solution of 1 to 333,000, whereas a solution of 1 to 5,000 killed it in half a minute.

Professor Stilling, † who appears to have been the first to have introduced and systematically experimented with pyoctanin, applied a strong solution to the eyes of his patients without much discomfort.

Bresgen, ‡ who was the first to systematically use pyoctanin in the nose, noticed a distinctly anodyne faculty on its being applied to the mucous membrane.

Thus we learn that while its effect varies much in degree with the strength of the remedy, we need not be deterred, by fear of pain or too much irritation, from a free use of the substance, undiluted if it seems indicated, when we wish to destroy suppuration or prevent it if impending.

When used in solution it is said that it is best to keep it in colored glass and have it freshly prepared every three or four days. My own observations date from July, 1890. One of my first cases, which was as follows, seemed to me at that time most remarkable:

The patient was a well-nourished single woman, thirty-five years of age. About a year before I had operated upon her for an abscess of the left frontal sinus, the early effect of which trouble had been most serious. At the operation the necrosed outer wall was in large part removed—as much, in fact, as seemed justifiable, yet not completely, so that small pieces were removed with forceps, curette, etc., for a period of several months following. A style was worn for a long time, and injections of various remedies were frequently made through the external opening into the nostril. In fact, the patient herself operated this method successfully. Notwithstanding the many different remedies thus applied for months, after all evidence of necroses or caries had disappeared some suppuration continued, with slight swelling and redness of the upper eyelid. It was not till after I had made a few injections of a ten-per-cent. solution of pyoctanin in water that a new impetus to the healing process began which was speedily completed. In less than three weeks, the strength of the solution being gradually reduced, all discharge, either external or through the nostril, ceased, and the patient was relieved of a trouble that had caused physical and mental distress for nearly two years.

While this patient was under treatment I had an opportunity to use the remedy in a case of suppuration of the antrum with equally

* *Fortschritte der Medicin*, 1890, No. 12, p. 460.

† *Loc. cit.*

‡ *Deutsche med. Woch.*, 1890, No. 24.

gratifying results. Four cases of this disease where the suppuration has been pronounced have been relieved more promptly than ordinarily by other methods.* In cases of suppurative ethmoiditis, where I have been able to reach the parts in consequence of some fortuitous malformation especially, comparatively prompt relief has been secured, unless necrosis existed, in which case, after removal of detritus, the disease was readily corrected. Whenever ulceration of the mucous membrane and suppuration are present, I think the remedy most useful. I have seen several instances where there was erosion and unhealthy granulation on the septum nasi smoothed and healed in a short time. The granulations on the border of a perforated septum cicatrize more readily when kept coated with an ointment of twenty grains of pyoctanin with an ounce of vaseline. Like Bresgen,† I have found it useful after cauterizations, but I am not prepared to say, with my present experience, that it has a great advantage over iodol, iodoform, and some other remedies we are familiar with, except for the fact that septic poisoning has been escaped by patients operated on when I have used it. It quickly heals all aphthous ulcerations in the mouth.

It is useful as a local remedy in all acute follicular inflammations, and especially in those chronic follicular diseases of the tonsils and soft palate where we find inspissated mucus often crowded with micro-organisms, as *Leptothrix buccalis*. The effect of a fifty-per-cent. solution applied in instances of this last-named affection is immediately evident to the observer.

I have applied the remedy in but two cases of unquestionable diphtheria. Both recovered without sequelæ. One case was very severe and one only moderately so. In the former, a little girl five years old, the disease began in the right nostril, extended to the left, the membrane gradually involving a part of the pharynx, the whole of the right tonsil and part of the left. Before I used pyoctanin, besides administering internally tonics and chlorate of potassium, I had used locally in the nostrils, one after another, sprays every two or three hours of bichloride of mercury, benzoate of sodium and wine of pepsin, chlorate of potassium, and iodoform. The same had

* In the *Journal of Laryngology and Rhinology* for September, 1891, I find, in the report of the May and June meetings of the Berlin Laryngological Society, that Cholewa recommends pyoctanin for diseases of the frontal sinus, and Meyer reports two cases of antrum disease improved. In the same report Scheinmann says it can only help when combined with other remedies, and Katzenstein and Herzfeld never saw any effect from it.

† *Loc. cit.*

been used in the throat, and here, in addition, a mixture of compound tincture of iodine and carbolic acid. There was great physical depression, but no albumin in the urine. The disease, which must have been present three or four days before I saw the child, continued to increase and extend for three days, when I determined to leave in the nostrils through the night rolls of absorbent cotton saturated with a ten-per-cent. solution of pyoctanin. So much improvement was found the following morning that the remedy was used more freely, and its use extended to all parts involved, with the result that in forty-eight hours all trace of the membrane had disappeared. The other case was an adult, when a strong application started an improvement at once.

Three cases of diphtheria were treated in the early summer and encourage me to give the remedy further trial.* Its effect on a single instance of membranous rhinitis was, as should be expected, prompt and salutary, the plastic deposit being quickly destroyed and not reproduced after three or four applications. My experience with the remedy in laryngeal phthisis does not cover a period sufficient to justify me in expressing a conclusive opinion, but I note † that Dr. Capart, of Brussels, presented at the Annual Assembly of Belgian Laryngologists, May, 1891, a case of ulceration and perforation of the soft palate, occurring after an ulceration of the tonsil, in which Koch's bacilli were found, healed rapidly under pyoctanin. He also exhibited two patients with laryngeal tuberculosis in whom the ulcerations had improved under pyoctanin. I have used pyoctanin with most satisfactory effect in both syphilitic and non-syphilitic ozæna. At the present time a child, three years old, with a very offensive, non-specific ozæna, having much tumescence of the nose and frequent epistaxis, is markedly improved after only a week's treatment. Peterson ‡ reports cases of syphilitic ozæna deodorized and cured in a short time by a one-per-cent. solution.

* Pohl reports nine cases of diphtheria, not selected, treated successfully.

† *Journal of Laryngology and Rhinology*, August, 1891, p. 343.

‡ *St. Petersburg medicin. Woch.* 1890, No. 24.



REASONS WHY

Physicians Should Subscribe

FOR

The New York Medical Journal,

EDITED BY FRANK P. FOSTER, M. D.,¹

Published by D. APPLETON & CO., 1, 3, & 5 Bond St.

1. **BECAUSE** : It is the *LEADING JOURNAL* of America, and contains more reading-matter than any other journal of its class.
2. **BECAUSE** : It is the exponent of the most advanced scientific medical thought.
3. **BECAUSE** : Its contributors are among the most learned medical men of this country.
4. **BECAUSE** : Its "Original Articles" are the results of scientific observation and research, and are of infinite practical value to the general practitioner.
5. **BECAUSE** : The "Reports on the Progress of Medicine," which are published from time to time, contain the most recent discoveries in the various departments of medicine, and are written by practitioners especially qualified for the purpose.
6. **BECAUSE** : The column devoted in each number to "Therapeutic Notes" contains a *résumé* of the practical application of the most recent therapeutic novelties.
7. **BECAUSE** : The Society Proceedings, of which each number contains one or more, are reports of the practical experience of prominent physicians who thus give to the profession the results of certain modes of treatment in given cases.
8. **BECAUSE** : The Editorial Columns are controlled only by the desire to promote the welfare, honor, and advancement of the science of medicine, as viewed from a standpoint looking to the best interests of the profession.
9. **BECAUSE** : Nothing is admitted to its columns that has not some bearing on medicine, or is not possessed of some practical value.
10. **BECAUSE** : It is published solely in the interests of medicine, and for the upholding of the elevated position occupied by the profession of America.

Subscription Price, \$5.00 per Annum. Volumes begin in January and July.

