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General Considerations on the
Treatment and Manage-
ment of Ophthalmia
Neonatorum.

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GENERAL CONSIDERATIONS
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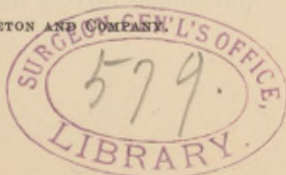
By WILL WALTER, M. D.,
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I TAKE it, pardon should be asked for my presenting the subject of ophthalmia neonatorum, upon which so much has been written, and with which so much has been practically accomplished in recent years.

Though not wishing to burden with reviews of past work, the beneficent influences of the instillation of nitrate of silver and stimulating antiseptics, cleanliness, and all such prophylactic procedures which have had their full and oft-repeated consideration, demand our frequent review lest, unmindful through years of fortunate escape from encounter, some one may be inopportunistly remiss and much suffering, possibly interminable deprivation of a useful, almost essential, sense function result.

However, it is my purpose merely to generalize briefly and to call attention finally to one or two additions to the usual treatment which have been found markedly beneficial, and within measure we refer to the

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even more serious ophthalmia purulenta in the adult in the consideration at hand. And it is the hope that general practitioners, who have not on call a skilled oculist, may find some of the general points in treatment of value in managing their cases.

To bring out the desired view of the subject, the following assertions are made:

First. We are accustomed to look upon ophthalmia neonatorum as present only when the symptoms are intense, and to overlook the possibility that minor affections may be of like ætiologic kind.

Second. Unmindful of these modifications, accoucheurs omit the post-parturition prophylaxis which should be usual where there is the slightest discharge from the canal. Further than this, obstetricians should be less prone to delay the prophylactic treatment till after the opportunity has arisen for the implantation of the germs upon the sensitive and receptive conjunctiva.

Third. Usually, may I say, as ophthalmologists we are localists rather than true specialists, and unwearied of the general treatment of our little patients.

A glimpse of the future of the proved germ theory of disease seems now at hand, and, grantedly infectious in its nature, this disease is governed by the same general laws as have been found to control other infections. And our three considerations are influenced by the laws governing the degrees of susceptibility to the infection on the one hand, and those determining the infecting qualities of the micro-organisms on the other.

As to the first consideration, during the past four years it has been my duty to treat many cases of a mild ophthalmia, varying from a morning agglutination with

a mucoid material mixed with fibrin and epithelium to a distinct muco-purulent discharge accompanied by injection of the tarsal and bulbar conjunctivæ, nearly all presenting follicular enlargement ranging from pin-point elevations to trachomatous prominences, the degree of enlargement depending, it has seemed to me, largely upon the duration, less upon the intensity of the process, the degree of injection depending more upon the intensity.

These suggest the inquiry as to the nature of the ætiologic factors, and leave us in doubt as to whether the variations are due to alterations in susceptibility or in degrees of attenuation of the toxine; for the cases in question are such as had undoubted origin in the maternal vagina with a history of concomitant leucorrhœa.

In one case of muco-purulent discharge of moderate degree, not exciting evident pain, I was able to demonstrate a diplococcus having all the physical characteristics of the gonococcus.

Fuchs, Professor Norris, Dr. Wallace, and others have maintained, with apparently good reasoning and demonstration, that trachoma may be the result of the gonococcus, and we are led to conclude that, whereas a virulent form may cause an intense purulent ophthalmia, a less active form may cause a trachoma, perhaps, may we say, a follicular form be the resultant of an extremely vitiated and weakened colony. *Pari passu*, given an attenuated virus and varying degrees of immunity, it is capable of demonstration that relatively like degrees of ophthalmia may result depending upon the individual resistance. So, if we admit only the diplococcus of gonorrhœa into the ætiological consideration, it would seem we may have any degree of ophthalmia from the relations of the acting and the acted upon.

I am convinced, too, that many of these cases of mild catarrh, especially those which present discharge only after prolonged closure of the eyes, as in sleep, escape observation or excite no therapeutic attention, and come to us in the patient's childhood or youth as well-marked but low-grade follicular conjunctivitis of a kind difficult to permanently relieve, and many such we find whose first effect from eye strain is a foreign-body sensation and a follicular catarrh.

We speak, then, for a broader class of cases than usually called out under the title, and feel justified in calling upon accoucheurs for more frequent application of prophylactic measures, not only subsequent but precedent to parturition. Indeed, in view of the fact that the most potent factor in the production of ophthalmia neonatorum is the gonococcus, whose vitality is often modified in gleet, and which time and science have proved to lurk in urethral abrasions, within or behind strictures, or elsewhere within the genito-urinary tract of him who has once had gonorrhœa, we need always look back of the mother of the child for a possible *prima causa*, and we shall often earn the praise of a grateful husband for removing not only a menace to the vision of an offspring, but to the physical well-being of the future wife and mother. Not that I would make out that this ophthalmia, likewise an infective leucorrhœal discharge, has one only ætiological factor, and that gonorrhœa, near or remote, but that aside from the introduction of infective micro-organisms, of whatever kind, by the hands, the douche, or other means from without, our greatest attention must be to insure first against the introduction of this specific infection through coition.

Regardless of the station of life of the patient, the duty is clear: inquiry or examination should invariably be made to ascertain the exact condition. If vaginal discharge is present, treatment should be instituted early to relieve it; then, even granting the absence of germs at the time of delivery or possible infection, the Credé method is positively harmless, takes but a moment, and should be used. So many cases of the modifications or mild infections have occurred in my experience, and leucorrhœa is so common among women, that it would seem as though the treatment might well be inaugurated into an habitual one. The principal drawback to such a customary use has always been the unstable and cumbersome aqueous solutions. Wood's discs of nitrate of silver, one two hundred and fiftieth of a grain each, prepared by Wyeth & Brother, are stable, compact, and easily applied.

Lastly, the disease established in its intense form and momentarily overshadowing the integrity of the cornea and vision, we are brought to the accumulating evidence that quite as many eyes are lost because of the lowered physical vitality of the patients and lack of attention to rational methods of general treatment as by the excessive virulence of the infective micro-organisms.

We have those who favor the use of strong solutions of nitrate of silver, those who prefer the weak, others who condemn its use in any strength; those who cleanse at intervals of ten or fifteen minutes with water or with antiseptic solution, others who object to such frequent disturbances. All have their quota of failures and their ratio of successes.

Representative of a conservative local treatment may be said to be hourly, thorough cleansing by douch-

ing with boric-acid solution; the application of a ten-grain solution of nitrate of silver to the thoroughly cleansed, everted palpebral conjunctivæ, once or twice daily, after the purulent discharge is established; atropine, in iodoform ointment, when the cornea is involved; canthotomy for threatening pressure effects; eserine, if peripheral perforation threatens; the use of zinc collyria when the acute stage has passed.

It should always be borne in mind, however, and this is one of the greatest points of failure, I believe, that it is difficult to have this treatment carried out properly by those usually in charge of these patients; in fact, nurses, well trained in the handling and care of babies, fall hopelessly short when called upon in this emergency, because of their manifest fear of doing violence in cleansing the eyes and making the applications.

Unless exceeding care is used and actual supervision frequently given, there is little hope that the treatment will be thoroughly carried out, for the skill required is far in excess of that attained by any but specially trained nurses. A full realization of this by ophthalmologists will lead to improved results.

An analysis of this treatment puts it under three heads:

(a) Removing the infective material mechanically and by antiseptics.

(b) Stimulating the circulation, the regeneration of the epithelium, and the secretions—*i. e.*, improving the resistance by increasing the tissue metabolism.

(c) Quieting the pain and immobilizing the iris.

It has been stated that this form of infection is especially virulent upon the conjunctiva because the cells are separated by relatively wide intercellular spaces,

that these spaces are the seat of greatest colonization and development, and in them as in pus masses the germs are quite fortified against the action of antiseptics as they may be applied to the conjunctivæ. Then the palpebral mucosa is thrown into folds which hold germs and toxins not easily reached by the application. Aside from these considerations, the fact that the germs remain virulent and capable of infecting other conjunctivæ, often to the termination of the disease, makes the real issue as to the tissues acquiring and maintaining resistance more than neutralize the effects of the toxins. While nitrate of silver has undoubted antiseptic action, it owes its chief value in this affection to its effect, upon tissue metabolism, as mentioned in "b."

The power of combating the infection *per se* lies then almost entirely within the tissues themselves. Dr. H. V. Würdemann, in a recent article, called attention to some cases where failing general nutrition was the cause of untoward changes even after the severity of the symptoms had apparently subsided, and a few months ago a like case came into my hands with a similar history, cases which well illustrate the points brought out.

Aside from disease, these alterations in metabolism may arise from (1) poor quality of food or defective assimilation of foods or oxygen; (2) deficient elimination through skin, kidney, or bowel; and (3) lack of proper and sufficient rest and exercise; and the guarding of these essentials is to me of equal value with and at times more important than local treatment. They are things which persons inexperienced can well care for, and surely to point them out is our first duty, and to them I desire particularly to call attention.

1. Probably no one thing is more potent in pro-

ducing disturbances of the *primæ viæ* of these patients than the fears of the nursing mother for her offspring. The effects of emotion upon the breast secretion are too well known to demand repeating, and we can do no better for our patient than not only to guard against undue fear on the part of the mother, but to regulate carefully her diet and habits during the critical period. Regularity of feeding is necessary to perfect assimilation. Far more outdoor air and sunshine should be allowed than are usually allotted them during the course of the disease. I can see no objection to "airing" these babies as much as consistent with the treatment with the same precautions as with well infants, and only the additional care in protecting the eyes from light.

2. Among the higher classes there is usually little need for calling attention to the necessity of daily bathing in health, but during such illnesses and among the lower classes there is. For some unaccountable reason the belief is common that water externally applied is harmful to sick babies. Bathing is necessary for these patients, and the morning tepid bath, followed by friction, is not only apparently more refreshing but is more invigorating than the evening warm bath. Warm water enemata are best for constipated conditions in the crisis, and pure water should be frequently offered for its flushing effect upon the emunctories of the body.

3. It has been the custom, and still is among general practitioners in many localities and with some oculists, to aim to induce rest by the use of paregoric or similar anodynes. Recognizing the necessities of rest, its efficacy may well be doubted if it is attained at the expense of the two other desiderata, efficient assimilation and elimination. Effective in producing quiet and anti-

phlogistic while it lasts, the anodyne effect of opium can only be maintained and disastrous reaction forestalled by repeated dosing. In my case above referred to, there is no doubt that failure in nutrition was due directly to ill after-effects of this drug, and two opaque corneæ with adherent irides remain. That hyperæsthesia and increased congestion follow as a reaction is apparent on observation, and this means increased restlessness and subsequent difficulty in manipulation. Better means remain, and unnecessary opiates are harmful and their use should be condemned.

The use of cold compresses early in the affection has had well-deserved consideration at the hands of able writers. To be effective they must be continuously applied, and changed as often as necessary to maintain a low temperature.

The most menacing cases are those of such rapidly developing severity that time is not given for the reaction of the organism and the development of anti-phlogistic forces. Cold, by retarding germ growth, affords the best means of a tentative nature. This treatment is rendered more efficacious, however, by immersing the feet and legs in warm water at intervals of four to six hours for ten to fifteen minutes at a time, keeping the parts in flannels in the interim. If immersion is impracticable, the fomentations mentioned below are easily applied by wrapping and quite effective. If nervousness, sleeplessness, or restlessness is present, there is no more effective way of quieting the patient, and if this fails cold compresses to the head will add quickly to the effect. By these means a very mild diaphoresis is also effected, the patient is refreshed, and the tone improved.

If, however, there is threatened corneal involvement,

cold must be replaced by hot fomentations at intervals corresponding to the immersion of the lower extremities. I make use of a fomentation made by a soft woolen cloth wrung out in boiling water, quickly folded in a similar dry piece and applied, and left one or two minutes, the process being repeated three or four times; the relaxing effect upon the surface vessels is aided by passing ice over the skin or wiping with cold water between the applications.

These hydrotherapeutic measures should be kept up throughout the disease, the only change being the substitution of the fomentations for the compresses when the cornea is involved; and if opacities remain the daily use of the latter is still a most valuable aid.

It is important to bear in mind that the use of heat in the former instance is as a detergent, while in the second it is as a stimulant to prevent stasis and passive congestion. For this reason it is important that the temperature of the water in the leg bath should not be over 100° F., since, as has been shown by Dr. George Oliver in a Croonian lecture recently, hot baths at 100° to 105° F., while leading to immediate increase in the volume of the limb, are followed by a reaction, though, it should be stated, not to the initial volume—warm immersions, water at 96° to 100°, producing enlargement of the main arteries primarily, followed by a relaxation and filling of the peripheral system. This, I have found, the flannels will maintain for several hours.

Finally, I would speak of the great value of daily mild massage, especially kneading and spiral movements upward and passive joint movements, with babies whose peripheral circulation is sluggish, and I think, as a rule, this is the condition in these cases. It is sur-

prising and gratifying to see the beneficent effects of passive exercise upon these infants.

We have in ophthalmia neonatorum a disease whose crisis is indefinite in its oncoming, an affection intense while it endures and destructive in its results; it is essential, therefore, that we devote all our energies and apply all expedients possible during the short time it lasts; and among them these attentions to general tone building take precedence, and this method of contra-congestion by hydropathic measures not only is an important adjuvant to this, but takes first rank in the local treatment by building up tissue resistance.

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