Observations on the
Puerulent Ophthalmia of Infants
and
the Mephitous Ophthalmia
by
Alexander Robertson
1850
Purulent Ophthalmia of Infants.

The ophthalmia neonatorum, or the purulent ophthalmia of infants, prevails to a great extent among the lower classes of this country; indeed, Mr. Mackenzie states, that there is more blindness produced by this disease, than by any other. That this should be the case is not surprising, when we consider its very insidious nature, occurring at a period, when the sufferer is unable to complain—progressing under the lids and concealing the state of the globe, until sight is irreparably destroyed. The disease generally commences from three days after birth, up to as many weeks. The first symptoms are l-
Slight redness of the conjunctiva is especially of the eyelids, especially about the inner canthi; attended with a whitish secretion, which glues the eyelids together. The edges of the lids also appear redder than natural, and the child shuts its eyes when exposed to the light. The eyelids gradually become swollen and become inflamed to such an extent as to produce photophobia; and this is in general the first symptom, that attracts the notice of the attendant to the state of the eye. The discharge increases in quantity and becomes gradually chlorinated in quality, escapes from between the lids, and discolors the cheeks. Inflammation rapidly extends to the part of the conjunctiva reflected on the eyeball, the anterior blood circumfering to it a bright red colour; so intense indeed is the vascularity that single vessels are
not perceptible. Both the palpebral and ocular portions of the conjunctiva became swollen and present a villous appearance. As the disease advanced, portions of the cornea assume a dusky appearance; effusion of serum or lymph takes place beneath the conjunctiva (forming what is termed chemoysis) this effusion passing up on the vessels of the cornea produces petechiae, ulceration and sloughing. When the sloughs are thrown off, an ulcer of a greyish color with floridulent edges is left, the base of which appears to be covered with a brownish matter. Occasionally the whole corneal sloughs at once, when the inflammation is of a very acute character. The disease proceeds by this process of sloughing and ulceration of the cornea, enter the anterior chamber of the eye, thus forming an opening through which the aqueous humour
escapes and the iris is protruded.
The ulcer continues to extend more
and more of the iris is protruded
which in its turn elevates, the lens
and vitreous humour are discharged,
and thus sight is destroyed.
This is the course of this disease when
it is allowed to run on unchecked,
or when it has been badly treated;
but when seen in time and proper-
ly treated such results as have been
described are almost never seen.
This is one feature in which this dis-
ase differs remarkably from that
some forms of it with which we
meet in the adult; that while in
the one case we are almost always
able to subdue the inflammation,
by the proper local and constitutio-
al remedies, in the other it often
runs its course in spite of our
best directed efforts to check it.
The prognosis must depend en-
tirely upon the stage, on which
we see the disease. If the cornea is healthy, the prognosis is always favorable, but if it has begun to assume a dusky aspect, it must be less so. If again ulceration or sloughing has commenced, opacity of the cornea will necessarily be produced, and all that can be hoped for in that case is, to prevent the ulcer extending, and occasioning total loss of sight.

Causes. The precise cause or causes of this disease are still in some degree doubtful. Two opinions are held regarding them—first that the disease is only produced by the direct contact with contagious matter. Second. That it is frequently the result of contagion, but that it is also produced by other causes, as for example, exposure to cold, to strong light, or by a careless examination being made by the accoucheur in face presentations.
That the disease is produced by the contact of gonocoeical and leuconoeical discharges, is generally held by the most celebrated doctors of the present day. The infant, being passive during the 6th or 7th month, is so closely exposed to these discharges, and is it natural to suppose that such an exposure could take place without injury to the eyes of the child? That the disease is the result of the contact with those discharges, is borne out by the fact that the disease appears a few days after birth. Again we know that it prevails much more among the lower classes, many of whom we know are afflicted with leuconoeical, indeed Dr. James states that he believes that one-fifth of the females in the lower walks, have or have had leuconoeical. At the foundling hospitals of Vienna and St. Petersburg a very large proportion of the infants
are the subjects of this disease; that this should be the case is not surprising, considering the probable character of the parents of these children, and the fact adds strength to the supposition that contagion is a frequent, if not the sole cause of the disease. Upon careful observation and inquiry at and about the places of these children who are the unhappy victims of this disease, we are very often able to confirm our suspicions regarding the existence of maternal discharge. In proof of this a medical practitioner informs me, that out of many hundred cases which have come under his own observation, he found upon investigation, that in almost every case, that the mother had vaginal discharge. But if again on the other hand
we can prove, in any one case of the disease, that there was no vaginal discharge, and that the child was not exposed to contagion in any other way, this case is sufficient to prove that contagion is not the sole cause of the disease. Cases of this kind are rare and uncommon, whose origin we must attribute to some other source than that of contagion. Upon the whole, it appears most probable, that though contagion is frequently a cause of the disease, that it may also be produced by exposure to cold, to strong light, and by all those things which increase a depressing influence upon the system.
Treatment. As this disease is generally unattended with any constitutional symptoms farther than what is produced by the local irritation, local treatment is chiefly required. In attempting to expose the globe of the eye, we must be very cautious, as if we use any degree of force and a small ulcer exist on the cornea, the humourous of the eye may escape, and cases are not uncommon to show that this untoward accident has occurred. The fluid which collects about the cornea of the eye should be wiped away with a piece of sponge dipped in tepid water. Great care should be taken that the sponge is used for no other purpose, as the exudant matter is very contagious, and is capable of producing puerulent ophthalmia in the adult, as soon as that
which is produced by the other ordinary causes. This is well shown by the following case related by Mr. Mackenzie. "When fusing the eye of an infant some sparks of matter entered the eye of its grandfather, he says, "Both were so severely affected that the infant had one eye left in a state of total and the other of partial Staphyloma, while in each eye of the old man the greater part of the cornea remained opaque, adhering to the iris." The general opinion is that the eye should be freely and frequently cleansed; but it appears to me that this constant cleansing is productive of more harm than good; we know that the muculent matter serves as a covering to the inflamed parts, and that by con- tionally removing it, we not only jeopardise the fact of its natural
protection but we invitate it and thus keep up that inflammation which we are all the while endeavoring to subdue. No one, for example, thinks of frequently removing the purulent matter from an ulcer on the leg, and why should it be done here on a part so much more sensible to any irritation?

The treatment usually adopted during the acute stage, and when the attack is severe, is to apply a cool cloth over the upper eyelid, as the parts are very vascular, it is not advisable to employ more than one. After the application, the tumefaction in general rapidly disappears, and the infant is able to open its eyes while it may not have been able to do for days before. Although this treatment is very successful, it is open to objection, the quantity of blood that oozes will take some very much some will draw only two stitches,
while others again will draw as much as an ounce: if a small quantity be taken, it will not produce the desired effect, and again a large quantity in so young an infant might prove highly dangerous. These results, however, measures are required, clarification is of great service, and the practice appears to be gaining ground in the profession as a substitute for leaching. Some have argued that it is of no use, as the chamber vessels may soon unite, and the fact remains the same, as before the operation. But this is the case is quite true, but if the solid substance of silver be firmly applied, no such reunion will take place, and the parts will be much benefited by the operation.

The most important part of the treatment is the use of astringents. All are agreed that astringents are very useful, but there is still some difference of opinion regarding the period at which they should be use-
played. Many suppose that they should not be used, until the disease has been
completely, as during the acute stage they would increase the inflammation. This has not however been
found to be the case, but on the contrary, that they are certainly one of the
best means, that we possess of subduing the inflammation and bringing the
disease to a favorable termination.
A large number of patients are treated
anually at the Eye Dispensary here, almost solely by astringents, and with
the best possible success. We know in
the manner that the use of astringents in the inflammatory form of Bright's
Disease, have been often had success
too, and with good success.
Various astringents have been employed
by various oculists. Mr. Thorne of
London uses a solution of Album 4 oz
to the ounce which he states he has
found very useful. Mr. Ware, who was
the first who described the disease,
used a preparation known by the name of Bate's compound elder, which appears to be an unnecessary complicated preparation. Mr. MacKenzie employs a collyrium composed of 1 gr. of corrosive sublimate to eight ounces of water, and along with it a solution of tannin curate 1/2 to the ounce. The astringent which I have been accustomed to be employed is an infusion of oak bark, varying in strength from two ounces to half an ounce to a pound of water.

I have known this to arrest the disease when all other astringents have failed, and I should be inclined to employ it as being the most simple, and at the same time the most effectual. When the disease has become chronic great advantage will be derived from counter-irritation, always taking care that it is not pursued in too long a time, as anything too long can be disastrous to young children. The eyes are apt to be degenerated.
together, this is best remedied by the application of any antiseptic matter to the edges of the lobe. When the means already mentioned have failed, some have advocated the use of mercury. I have not had any opportunity of using its employment, but I should think that it would be rarely required, and that its use would be dangerous to an infant of only a few days old, even supposing that its therapeutic action could be induced in time to be of any more. The constant application of cold water has been lately recommended by a famous occulist. I have not tried this plan of treatment, and therefore can say nothing of its merits.

The only constitutional remedies which are employed are light narcotics, a mixture of two of castor oil with a grain of calomel answers very well. When the canna has subsided and the little patient is left in an indolent and weak condition, tonic.Should
be given. The sulphate of quinine is perhaps the best tonic that we can employ, not least the advantage of being very taken, and is very effective in invigorating the weakened forces of the system. McClean recommends the quinine extract, "broken down and blended with milk," in the dose of from four to ten grains every six hours.
Scarcehulous Ophthalmia

Perhaps there is no mark of the scarcehulous diathesis, which is so often present and which is so much to be depended upon, as that peculiar inflammation of the eye which, I am about to describe. It is stated (and I believe with truth) that out of a 100 cases of inflammation of the eye in young subjects, 90 are of this kind. Its occurrence, therefore, should put the practitioner on his guard, against these other not so scarcehulous affections which are so apt to supernice.

The disease generally occurs, from one month before to 2 years of age, but is almost never seen in adults, unless they have been the subject of it in
Early years.
The symptoms are in general well marked and it is not likely to be mistaken for any other disease.
At first, the redness of the conjunctiva is generally slight, and sometimes exists only under the eyelids. A few vessels are seen in the canthus generally in groups; the redness however may be general, but this is more characteristic of the advanced stages of the disease. Great difficulty is experienced in attempting to expose the globe of the eye, in consequence of the great intolerance of light. So painful, indeed, is the impression produced by exposure to even a moderate light, that the child seeks the darkest corner of the room, holds down its head apparently involuntarily, thus tending to aggravate the complaint by causing a dilatation of blood to the head. This markedly increased sensibility is not the result of
inflammation of the retina, for we find it existing when the eye is perfectly natural; it is in fact a mere sympathetic affection, for the child lies as well on the dark as when the eye is not affected.

The most singular phenomenon of the affection, is the presence of numerous small specks or phlyctenæ upon the cornea, chiefly upon the edge. These phlyctenæ vary in number and in size, occasionally only one exists, while again in other cases a great number may be observed; they are also in general more minute, when they exist upon the cornea than upon the other parts. If we regard the mucous membrane as only a prolongation of the skin over the eye this appearance is easily explained. And we may class it among the other eruptive diseases.

The most prominent symptom, is the greatly increased flow of
tears. Upon opening the lids, a gush of
these tears takes place, they penetrate
the nostrils and excite a violent sneezing.
Their continued flow produces
reddness of the lids, together with
swelling and oozing of the skin over
which they pass. The child by con-
tinuously rubbing the parts, excites
inflammation of the skin, small
yellow punctures form, discharge and
form an exudation which has been
turned "crustea lactea", very much
resembling impetigo. The edges of
the lids become redder and more
swollen, the mucous membrane of
the nostrils forming thereby an
Acid secretion. This disease is very
capricious, at one time it suddenly
vanishes and again at another
time it as suddenly reappears, with
out any assignable cause. The bowels
are much disarranged, there is consti-
tion or what is more common loosenes-
and sometimes even more chronic.
Cholera, along with fever of the breath, foul tongue and a distended abdomen. The affection of the digestive organs is almost an invariable concomitant, and it is reasonable to suppose, that this should be the case from the great sympathy that exists between all the mucous membranes of the body. But we believe that a more intimate connection exists between them than this, for we shall afterwards find, that the affection mainly depends upon the arrangement of the digestive organs.

Effects. Serious changes may be produced in the course, although the external tendency may not be great. The punctures on the tongue may disappear and leave a thin film which afterwards is gradually removed. More generally, however, they take on the ulcerative process, then ulcers break & ragged and incre-
ular appearance and occasion great suffering to the patient, more especi- 
tially when any attempt is made to open the eyes. The ulcers may 
extend along the cornea, or they may extend inwards, so far as to 
perforate the cornea and produce prolapse of the iris. Several philo-
tines may aggregate together and unite, the prevalent matter they 
contain is infiltrated between the 
layers of the cornea and an opaque 
layer formed. When the patient has 
had some and repeated attacks, it 
has been stated that the sclerotic and 
internal parts of the eye become af-
fected, an increased of the humour 
taking place and thus constituting 
what is termed hydrophthalmia, 
this known as a case termination. 
The prognosis is in general favourable. If superficial opacity remains, 
that will, through the course of time, 
disappear. Elevation must occur...
only leave behind an opacity, but if it is not to any great extent, and not opposite the papillæ, vision will not be much impaired. If anterior general opacity precedes the cornea and deep extensive ulceration has taken place, the prognosis in all such cases must be unfavourable. Causes. The predisposing cause of the Herpeticous Ophthalmia is the scrofulous diathesis, from which the disease takes its name. That peculiar condition of the system, termed scrofulous, the nature of which we have as yet been unable to discover, and which is only known by its peculiar effects when the system is attacked. The term scrofulous is applied both to the predisposition existing within the system or to express the existence of a disease which presents certain peculiar and specific characters. Of the primary cause of the scrofulous diathesis, little is known, the
prevailing opinion is, that the cause of the serousness consists in there being a deficiency of fluid in the blood, which produces a languid flow of the capillary circulation, allowing the serous portion of the blood to circulate through the vessels, which forms masses of albumen incapable of organization. All inflammations occurring in a serousphulous constitution are marked by the subacute form, which they assume. The pain and heat are slight, the colour is little affected, and the suppuration is marked by a mucous discharge mixed with flecks of a "creamy matter," and little tendency to heal. The characteristic feature of the serousphulous habit are a peculiar softness and flaccidity of the skin, coupled with an unusual feebleness of temperament, a paleness, luster of the eyes with tears in the eyes and a tymid abdomen.
The senses are generally fine, the mind active, and the intellect precocious. Very often we are able to trace its footprints in slight affections, as enlargement of the glands of the neck, chronic inflammation of the nostrils, and strumous affections. The exciting cause of strumous affections are principally cold in conjunction with moisture. Of the efficacy of this cause, we have a sufficient proof in the frequency with which we see the cases of strachula in our own country, when compared with other countries less visible in their climate than our own. The strumous habit prevails also to a great extent at Vienna. Benoist states "that nine tenths of the ophthalmic inflammations are strumous." Strumous affections are also observed to be more frequent in the spring and winter than in the summer. But we know also
that excessive heat, may create and aggravate the sycophantic habit.

The causes next in importance are low, irregular, and unwholesome diet, coupled with bad lodging, bad clothing, and an unwholesome atmosphere. The efticae of these causes are amply shown in the much greater mortality which prevails in our towns than in the country. These causes, acting on the system, are not only sufficient in themselves to injure, but to create the sycophantic habit. And how often do we find, when closely examining patients laboring under sycophantic complaints, that they have been exposed to all of these causes, and that they can distinctly date their first illness —position, to that period when they were first exposed to them! The want of due exercise is also a frequent cause; we find this acting where the others are wanting, in the higher
walks of life, while parents sacrifice the accomplishment of health to the
enrichment of their minds, depriving them of the necessary relaxation
which health demands.

Treatment. The most important
part of the treatment of Humours
Ophthalmia consists in paying the
strictest attention to the state of the
digestive organs, until we succeed
in bringing them into a healthy and
working condition, all other local or
constitutional treatment will be em-
ployed in vain. This holds good,
equally in the treatment of all Humour
affections - we know that in all of
them there is a marked deficiency
of the vital powers of the System.
And how can we expect to remedy
this but by improving the condition of
the "prima vis", and thus improving
the assimilating process.

To fulfill this indication, gentte
Laxatives should first be employed; jalap combined with calomel, or moderate doses of castor oil answer very well. It is not however sufficient, that these should be used once, they must be repeated on several times until the intestinal canal is completely cleared of the hard, sebaceous matter of feculent matter, and the most healthy locations. After this has been accomplished, the child will often experience great relief, and the "pruna vie" will be prepared for the exhibition of the other remedies. A mild course of attraction will be found of great service in improving the state of the digestive organs; the best we can employ the small doses of calomel in combination with a few grains of chlorate, when acidity is present the hydrochlorite is best effect in removing it. Such conditions as these, should be exhibited every two or three days, until the object is accomplished.
The most indication, is to improve the strength of the patient. In this respect, various tonics and remedies are in use, of these the quinine is certain of the best: at the Eye Dispensary here, it has been found very efficacious. Dr. Mackenzie, in speaking of it says, "After a trial of numerous and various internal remedies in this disease, I have found none so useful as the sulphate of quinia. It possesses a remarkable power over the constitutional disorder which attends the chloasma, and thereby cure the local complaint." It should be given in doses varying from half a grain to a grain, according to the age of the patient. Seen may be exhibited, if its preparations the gum tanninatum, is perhaps preferable, as children take it more readily from its less unpleasant taste. The ecstasiol of late years been much employed, not the treatment of all tumours affections, and very deservedly so.
During its exhibition the most marked improvement is observed to take place — the fever, emaciated, emphysemous subject rapidly grows plump and fat, and all the organs of the system are much improved. As this aphtho-emaciation depends upon the stonious habit, the cod liver oil is of great service in improving the constitution of the patient, and thus by removing the cause, promoting the cure. It should be administered to children in doses varying from one to three drachms, three times a day, always taking care not to injure the digestion by too large doses.

There is, perhaps, no other class of disease where so much depends upon a properly regulated diet, as the emphysemous, unless this is attended to, remedies will be of no avail. It is the practice of some to give stimulating diet and drinks, supposing that this is indicated.
from the great ability of the nation. I think Mr. Lawrence may partly depreciate this practice. The ability does not result from a deficiency of food, but from a deficiency in the power of assimilation of the nutritive material taken into the system. How there can be hope to remedy this, by giving animal food in large quantities and fermented liquors? Will such a diet not rather tend to disorder the digestive powers, and thus to weaken, harm to improve them, and thus to strengthen? The diet should consist of a due proportion of animal and vegetable food, all fermented liquors should be strictly forbidden. The diet in short, should be the most nutritious and the least stimulating. Last, a Linden in the country, and the enjoyment of pure air and exercise will often do a great deal towards effecting a
complete and permanent cure.

Local Treatment. The most important part of the local treatment is the application of tonics. But we note that they may be beneficial, they must be judiciously chosen and applied at the proper time. In these affections, which are attended by the retention of foreulent matter, astringents may be used in the most acute stage of the disease, but in this affection we must only employ them in the chronic stage, and when little irritative agents. Various astringents are employed by various occultists. Mr. Macknight uses a solution of the extract of silver 4 gr. to the ounce. The common brick punch introduced by Mr. War is much recommending. A solution of the sulphate of alumina 4 gr. to the ounce is very generally used; it is the compound and quite as efficacious as long we could employ. After the use of any of these astringents
a great improvement in the state of the eye may be observed—the vascularity of the conjunctiva is much diminished, the subcutaneous, conjunctival veins and vessels in the cornea become white absorbed, the intolerance of light is also much less, and the child is able to open its eyes in a moderately strong light with very little discomfort. These effects are mainly produced by the astringents causing contraction of the vessels and thus diminishing the flow of blood to the front. Occasionally there is redness and some pain of the parts worse es specially at the commencement of an attack. This is best treated by the application of leeches, or, if the patient be about the age of puberty, by cupping of the temple. When the eye is an irritable condition, the patient will experience great relief from the application of a solution of opium, Mr. Jameson
Recommends a solution of the Balsam of Peru as a local application. He advises employing the Balsam of Peru, he says, it alleviates the most painful feature of the complaint - the insensibility of light. The only other local remedy we have to mention is that of Balsam of Peru. This remedy is very useful, the last proof of which is that it is used and recommended for all; it is an imitation of nature - the imitation of one discharge for another. We must bear in mind, however, that caution in their application is required, as they may cause danger or even death in those young and unhealthy subjects. The cure - those exudate matter may be applied behind the ears, but the latter is - more convenient. Used into the neck is a safer and more manageable application.
It appears, then, that the constitutional treatment is by far the most important, and that any local treatment we can em-
ploy is only of use in alleviating the various distressing symptoms that occur during the course of the disease. That in order to offer a permanant cure, we must bear in mind, that first principles of Medicine are, to treat the cause.