

iritic tubercle collected by Graefe, in only two was there no proof of syphilitic infection.¹

Such evidence as this, from such a source, must be considered almost conclusive that there is a specific form of iritis differing from that of the idiopathic form, although such has been denied. So far as my own personal experience goes, I have never seen a case of "condyloma" of the iris which could not be traced to a syphilitic source. I have, however, seen one case in a non-syphilitic subject which might have been, and indeed was taken for a "tubercle." The trouble began and continued in its course precisely like a "tubercle," with all the signs and symptoms of iritis, until it had reached a certain stage, when it ruptured, sending out into the anterior chamber a feathery, purulent exudation, like the tail of a comet. After a careful consideration and observation of the case, I could attribute the appearance only to a papule in the tissues of the iris. Dr. Kipp has also reported a similar case in a syphilitic person.

When syphilitic iritis is early and successfully treated, the iris resumes its normal mobility and color, and the eye is restored to its original integrity. But in weak and cachectic subjects, and in the absence of appropriate treatment, the changes which take place are more or less permanent. The tubercles are absorbed, but the iris never regains its original color and consistency; it is thinned and friable; and its adhesions to the capsule, unless stretched or broken by the persevering use of mydriatics, permanently impede the motions of the pupil. As a general rule, the pain and photophobia in syphilitic iritis are much less than in the other forms of the disease. The patient may merely complain of a sense of fulness and uneasiness in the globe, and shrink from exposure to a strong light only. In other cases, severe pain is felt in the ball of the eye, and in the temporal and supra-orbital regions, when the least ray of light causes the most intense suffering; the variations between these two extremes are numerous. There is almost invariably some dimness of vision, which is due not only to the changes in the capsule of the lens, but also to those in the deeper structures of the eye, which are always involved to a greater or less extent.

Iritis usually presents such marked symptoms that it is easily recognized by any competent person; and yet every ophthalmic surgeon must have met with not unfrequent instances in which through carelessness or ignorance it has been mistaken for simple conjunctivitis, and treated solely with collyria of nitrate of silver, sulphate of zinc, etc. A few cases, however, are met with in which the most experienced surgeon may for a day or two fail to make a diagnosis. This generally occurs at the commencement of the disease, before any marked changes have taken place in the iris, and especially when the conjunctival vessels have been congested by the application of poultices. Impairment of vision will afford valuable aid to the diagnosis, and the instillation of a drop of a solution of atropine will soon decide

¹ Notes of Graefe's Lectures, for which I am indebted to Dr. Noyes.

the question, by showing irregularity of the pupil if the case be one of iritis.

It is well in these doubtful cases to use a very weak solution, as then the inconvenience of a lengthy mydriasis is avoided, in case the trouble should prove to be conjunctivitis and not iritis. One of Moore and Savory's atropine wafers, divided into two or even four pieces, each piece then equalling only $\frac{1}{80000}$ of a grain, is sufficient. If the iris is not the seat of the trouble, it will dilate in less than an hour, and the next day the dilatation will have passed off. In place of a wafer, a solution may be used which can be readily made by putting one drop of the ordinary solution (gr. ij to ℥j) into half an ounce of water. One drop of this equals $\frac{1}{80000}$ of a grain.

I have already remarked that the diagnosis of syphilitic iritis, although rendered highly probable by the absence of severe pain and photophobia, and the presence of tubercles upon the iris, can only be satisfactorily established by the history of the case, or the coexistence of undoubted syphilitic symptoms. I would also add that the presence of any general eruption upon the body leaves scarcely room to doubt that a coexisting iritis is of specific origin, since this disease, when due to other causes, is very rarely accompanied by affections of the skin. The practical surgeon, when called to treat a case of iritis, almost instinctively turns to the arms, chest, and abdomen, to look for traces of one of the syphilides, to the throat for mucous patches, and to the neck for engorged ganglia. As noticed by Carmichael, the accompanying eruption is in most cases papular.

In regard to the particular period of the general trouble in which specific iritis makes its appearance, no precise rule can be laid down; still, the form which is most common and most worthy of our attention is to be ranked among the secondary symptoms of syphilis. Without being able to furnish any statistics from which the exact time of its development may be determined, yet I have often been struck with the fact that, when no mercury had been administered, this occurred from four to six months after contagion. In a number of instances, iritis has been the first general symptom which has induced patients to seek surgical advice, but careful inquiry has never failed to show that other symptoms, as alopecia, engorgement of the cervical ganglia, mucous patches, erythema, or papules, had preceded it, although regarded at the time as of no importance.

Wecker observes¹ that the specific form of iritis occurs more frequently when the disease has been a long time in developing itself, than when it has pursued a rapid course.

There is, however, another form of iritis which is met with chiefly as a symptom of tertiary syphilis, and differs from the preceding mostly by the insidious manner in which it attacks the eye, and by its greater persistency. There is almost a complete absence of pain and photophobia; the iris becomes infiltrated and covered with exudation, having a peculiar swollen and velvety appearance; numerous adhesions take place between its pupillary margin and the capsule of

¹ Études ophth., t. i., p. 394.

the lens; and the irregular pupil is blocked up with an effusion of lymph, upon which small, black, uveal deposits may often be detected. The eyes are generally attacked in succession; the disease is exceedingly persistent, and with difficulty controlled by treatment; the danger of complete loss of sight from obstruction of the pupil being very great. The deeper structures of the eye appear to be implicated to a less extent than in the acute form.

Among the absurdities of medical belief that have had their day is to be reckoned the idea that mercury may give rise to iritis—a disease which is often met with when no specific remedy has been employed, and which can in no way be better controlled than by the judicious use of mercurials; indeed, the surgeon rarely has an opportunity of witnessing a more remarkable effect of treatment than is seen in the absorption of lymph, the disappearance of the abnormal injection, and the restoration of the iris to its original condition, which take place under the administration of mercury in acute syphilitic iritis. It is hardly necessary to say that an agent of so much good is capable of doing a great amount of harm, and that I am here speaking of its use and not of its abuse.

The plan of treatment of the acute form of iritis which I have found almost uniformly successful, has, for its objects:

1. To bring the system under the influence of mercurials as speedily as possible without injury to the general health, and without inducing salivation.
2. In a depressed state of the system, to combine tonics with mercurials, or to employ the former in connection with iodide of potassium instead of the latter.
3. To keep the pupil constantly dilated by means of atropine, and thus prevent adhesions between the iris and capsule of the lens.
4. To relieve pain, and regulate the general hygienic management of the case.

The subjects of these different heads will be somewhat briefly considered, in view of the fact that most of them have been included in what has been said of the general treatment of syphilis.

In persons of a fair state of health, no form of mercurial is preferable to the ordinary pill of calomel and opium (one grain of the former to a quarter or half a grain of the latter) administered three times a day—an hour after meals. When the general condition of the system is depressed, a tonic should be combined with the mercurial; and the following formulæ are very serviceable, especially when the patients are of the poorer class, and under unfavorable hygienic influences:

R. Hydrargyri cum Cretâ, gr. ij	12
Quiniæ Sulphat., gr. j	06
M. et ft. plv.	
R. Hydrargyri cum Cretâ, gr. ij	12
Quiniæ Sulphatis, gr. j	06
Pulveris Doveri, gr. ij	18
M. et ft. plv.	

The latter formula containing Dover's powder is to be preferred

when the pain is severe. The frequency of the administration of these powders is to be determined by the strength and general condition of the patient. Under ordinary circumstances, one may be given three times a day; or, when the system is much depressed, one morning and night, with one or two grains of quinine in addition twice during the day; and when thus guarded by quinine, mercury may be employed in nearly every case of this disease. It is well to prolong the use of this remedy until evidence of its action upon the mouth is perceptible, but not to continue it until salivation is produced. So soon as the gums are in the slightest degree affected, the mercurial should be suspended, and chlorate of potash employed, while at the same time the tonic may be continued.

The opposite eye will sometimes be attacked while the patient is taking mercury for the one first affected, and, in rare instances, even during the existence of ptyalism; just as a new eruption will occasionally appear upon the skin while undergoing treatment for an old one.

It will be observed that the above mode of employing mercury in combination with quinine, as practiced for many years at the New York Eye Infirmary, is widely different from the exclusive use of this mineral, which has been recommended by some authors. It would be out of place in the present work to enter into a discussion of the comparative merits of the two methods, and I must, therefore, content myself with expressing a strong preference for the one here proposed; merely adding, that it is equally as true of iritis, as of other syphilitic manifestations, that the administration of mercury, without regard to the condition of the patient, is quite as likely to do harm as to do good.

It is of the first importance in the treatment of iritis to maintain the pupil in a constant state of dilatation, so as to remove the iris as far as possible from the convex surface of the lens, and prevent adhesions or closure of the pupil with lymph. For this purpose, instillations of a solution of atropine are far preferable to extract of belladonna smeared upon the brow. In addition to its power of dilating the pupil, atropine is a most valuable sedative—a rare combination in the same remedy. Two grains of the neutral sulphate to the ounce of distilled water, is the formula which I commonly employ. This solution is best applied to the inner canthus by means of an eye-pipette or a camel's-hair brush; in default of which, the patient's head may be thrown back, and a small portion of the fluid be poured upon the concavity upon the side of the nose, when some of it may readily be made to flow between the lids. If the case be seen at the outset, before the motions of the iris are impeded by an infiltration of lymph, two or three times a day will be sufficiently often to use the drops. In the acute stage of iritis, some authors advise us entirely to abstain from the use of atropine and belladonna, which have but little power of influencing the pupil after effusion has taken place, and which, it is said, may "irritate and tease the iris, and cause pain."¹ My own

¹ Critchett, Lectures on Diseases of the Eye, London Lancet, Am. ed., March, 1855, p. 216.

experience leads me to believe that these fears are groundless. Instead of aggravating, I believe that atropine greatly relieves, the pain and irritation, and although its immediate action upon the pupil is not perceptible, yet it gradually stretches or breaks down the adhesions already formed, and thus assists the iris in recovering its dilatibility; hence I am in the habit of increasing the frequency of the instillations, during the acute stage, to three or four times a day, and in case the iris is still obstinate in yielding, it is advisable to increase the strength of the solution to four or five grains to the ounce of water, and to instil a drop into the eye every five minutes for twenty minutes or half an hour at a time, repeating this method of application three or four times a day. Care should be taken, however, that the atropine, some of which gains the pharynx through the lachrymal and nasal passages, does not produce its physiological effects upon the general system.

Very recently a new mydriatic, Duboisine, has come into use. It has the same affect as atropine, though it is somewhat more powerful. It is claimed that it is less apt to produce the poisoning of the circum-orbital skin, and that it may be used when this has been occasioned by atropine. My own experience with it, however, does not support this claim, for, in several instances, when the poisoning had been once produced, it was maintained by Duboisine just as it is by atropine. It is well, however, in those cases which promise to be protracted, to use the drugs alternately.

Should the iris refuse to yield even after this vigorous use of atropine, the action of the drug can often be induced by decreasing the tension of the eye, through the application of leeches to the temple, or by the evacuation of the anterior chamber by paracentesis corneæ.

Venesection is never required in syphilitic iritis, though local depletion by means of cups and leeches is often advisable in those cases in robust subjects where the pain is very severe; and when this assumes a neuralgic character, frequent fomentation of the eye and surrounding parts with water, as hot as can be borne, often gives great relief. Here, too, a subcutaneous injection of morphia in the region of the temple often stops at once a paroxysm of pain, which then does not show itself again, or at least not in its former violence. After the acute stage has passed, counter-irritation may be effected by painting the brow with the strong tincture of iodine. This remedy is, however, not as much employed as formerly.

It is highly important that the patient should obtain sleep, for which purpose ten grains of Dover's powder may be given at bedtime, and repeated if necessary. In many cases, however, frictions upon the brow and temple at bedtime of mercurial ointment, with the addition of powdered opium (ung. hydrarg. \mathfrak{z} j, plv. opii \mathfrak{z} i) will suffice to allay pain and procure sleep.

In this, as in nearly all affections of the eye, the surgeon has to contend with the deeply-rooted prejudices of the masses in favor of

poultices of bread and milk, tea leaves, alum curds, raw oysters, pieces of pork, *et id genus omne*. Not only should all such vile applications be put far away, but the eye should not be tied up with handkerchiefs or cloths in any manner. In women, the best protection against the strong light is a veil; in men, a pasteboard shade will answer the same purpose.

In unfavorable weather, or in unusually severe cases of iritis, the patient should be confined to the house, or even to his room, which should be shaded but not darkened. In most cases, however, when the weather is fair, it is desirable that the patient should pass a portion of the day out of doors, in the early morning or evening, if the intolerance of light be excessive, and with the eye protected in the manner above directed, or better still, by a pair of tinted glasses of the kind which is known to the opticians as "coquilles," the color of which should be some shade of blue or London smoke, never green. Photophobia and irritability of the eye will be aggravated by confinement to a dark room.

The diet must be proportioned to the general condition of the system. Robust subjects should take but a small quantity of light food; while the cachectic require an abundant supply of nourishment, and, it may be, stimulants. Proper attention should also be paid to the digestive organs, and a daily evacuation of the bowels secured.

The chronic form of iritis, met with in tertiary syphilis most frequently, occurs in persons whose constitution is enfeebled, and by whom mercury is poorly tolerated; but when properly guided by tonics, this mineral may still, in many cases, be used with marked benefit; in others we are obliged to resort to iodide of potassium, until by every available means the general health is restored. Mercurial inunction or fumigation may often be employed, when mercury by the mouth cannot be borne. In these cases one-half or even a drachm of the oleate may be rubbed into the soles of the feet alternately, or under the armpits each night.

Such being the therapeutical remedies which experience thus far has shown us to be the most beneficial in the treatment of syphilitic iritis, two others, belonging properly to the domain of surgery, ought to be briefly considered, or at least mentioned, here. I allude to paracentesis corneæ and iridectomy.

If, in spite of all our efforts at medication, the aqueous humor becomes very cloudy, or the pain increases, or the tension of the eyeball becomes augmented, with a corresponding decrease of the amount of vision and contraction of the visual field, or if a considerable collection of pus takes place into the anterior chamber, then a paracentesis should be performed, and repeated several times, if necessary; and especially should this be done in the last-mentioned condition, for of all the remedies which we possess against the formation and increase of hypopyon none is more efficacious than this.

Should, however, the disease still steadily progress, and the above symptoms increase in severity, and give evidence that the inflammatory

action runs in danger of seriously involving the deeper structures of the eye, then an iridectomy should be performed at once, for it often happens that an inflammation which has resisted all other agents quickly subsides after this operation. The above is applicable to all forms of iritis.

For a more detailed description of these two operations, as well as of those intended for the relief of closure of the pupil from the effects of iritis, I must refer the reader to works upon Ophthalmic Surgery, merely remarking that these operations require considerable delicacy of manipulation, and if the general practitioner feels that he does not, from want of practice, possess the requisite technical skill, then it is his duty to obtain the services of some one who has made these matters a special study.

INFANTILE IRITIS.—An extremely interesting form of iritis is met with in infants affected with hereditary syphilis. It is a rare disease, but probably exists in many instances in which it is overlooked.

Mr. Hutchinson deduces the following conclusions from a series of 21 cases:¹

1. That the subjects of infantile iritis are much more frequently of the female than the male sex.
2. That syphilitic infants are most liable to suffer from iritis at about the age of five months.
3. That syphilitic iritis in infants is often symmetrical, but quite as frequently not so.
4. That iritis, as it occurs in infants, is seldom complicated, and is attended by but few of the more severe symptoms which characterize the disease in the adult. Haziness of the cornea and photophobia, which are common in adults, are rare in infants, in whom there is also but little pain and sclerotic injection.
5. Notwithstanding the ill-characterized phenomena of acute inflammation, the effusion of lymph is usually very free, and the danger of occlusion of the pupil great.
6. Mercurial treatment is most signally efficacious in curing the disease, and if recent, in procuring the complete absorption of the effused lymph.
7. Mercurial treatment previously adopted does not prevent the occurrence of this form of iritis.
8. The subjects of infantile iritis, though often puny and cachectic, are also often apparently in good health.
9. Infants suffering from iritis almost always show one or another of the well-recognized symptoms of hereditary taint.
10. Most of those who suffer from syphilitic iritis are infants born within a short period of the date of the primary disease in their parents. This accords with what is observed in the iritis of adults,

¹ Med. Times and Gaz., July 14, 1860; also Ophthalmic Hospital Reports, vol. viii., p. 217, 1875.

which, in a great majority of instances, is a secondary, and not a tertiary, symptom.

I have seen only one instance of this affection in an infant at the Infirmary, who was not brought a second time, and whose case I was therefore unable to follow out. I once had under my charge a case of double chronic iritis in a boy aged 10, affected also with engorgement of the cervical ganglia, who, as reported by his father, was said, by the attending physician (Dr. G. L. Bedford), to have contracted syphilis from his wet-nurse. I may mention incidentally that his teeth were generally misshapen, and that one of his upper incisors was completely perforated by a small hole about one-third of its length from the lower margin.

SPONGY IRITIS.—Under this title some ophthalmologists have of late years described a form of iritis which consists of a gelatinous, spongy exudation into the anterior chamber from the surface of the iris. This has been claimed to be due to syphilis. It has, however, no pathognomonic significance, and may occur in the idiopathic form, or from simple traumatism.¹ The manner in which it is formed, and the appearance which it presents, have already been described at length in speaking of episcleritis.

AFFECTIONS OF THE LENS.

So far the lens has never been observed to be primarily the seat of any syphilitic inflammation or product. Secondary changes in the capsule and lenticular substance, in which the lens becomes either partially or wholly cataractous, are common enough. The only relief from these is surgical, and may consist either in the formation of a new pupil or extraction, and I am inclined to believe from my own experience, that these cases of cataract with numerous adhesions, even to the extent of total synechia, do not offer so bad a prognosis as is commonly supposed.

AFFECTIONS OF THE CILIARY BODY.

Inflammations of the ciliary body, or cyclitis, which are not due to extension of the morbid process from the iris on the one hand, and the choroid on the other, are extremely rare. Syphilitic cyclitis, like the non-specific, shows itself by a deep-lying, partial or total, pericorneal injection, of a livid color, which is usually more intense in one particular spot, and, as a rule, at the upper portion, though it may be in any part, of the scleral zone. Sometimes more than one of these foci exist at the same time. There is usually a peculiar retraction of the iris opposite the inflammatory centre or centres, which is then useful as a diagnostic mark of the trouble being limited to the ciliary body, for, if the iris is implicated, the contraction of the pupil conceals this peculiarity in the shape of the iris. Here, as elsewhere in the areal tract, the only distinctive mark of the syphilitic taint is the characteristic gummata. The manner in which these are formed has

¹ Dr. Gruening, Archiv. Ophth. and Otol. vol. iii., p. 1, 1873.