

conjunctival zone into the cornea, and from time to time these vessels become much congested, the hyperæmia lasts for a month or two and then subsides; but after each attack of this kind the opacity of the cornea increases both in extent and density, and so the patient's sight is slowly but surely lost for all practical purposes.* Changes in the transparency of the cornea such as I have above described, are due to the growth of leprous elements in the tissue of the cornea, and consequently we can only hope to influence the condition of the eye by acting on the primary cause of the disease. I have seen so many leprous patients improve under a long continued course of tonics, combined with arsenic, change of climate, and a generous dietary, that I am by no means disposed to abandon cases of leprous opacity of the cornea to their fate. We cannot cure the disease, but I am persuaded we can often stop its progress for years, if not for life, and thus preserve the eye among other organs of the body from destruction.

Leprous tubers of the cornea are seldom met with unless similar growths are seen springing from the iris. They commence as small pale elevations situated on the margin of the cornea; as the little tuber grows it becomes vascular, and gradually extends itself over the surface of the cornea. Both eyes are, as a rule, attacked, and the tubers are placed symmetrically on corresponding spots of the cornea. The tubers take years to grow, but nevertheless they surely and gradually increase in size until they may entirely cover the cornea. As far as my experience goes treatment is of little avail in this form of leprosy; an eye once affected by tuberos growths will, in spite of all we can do, gradually be destroyed. Nor is it of any advantage to excise these leprous tubers—they are certain to grow again, even if the base of the excised tuber is freely attacked with chloride of lime. Leprous tuber of the iris and cornea is, without exception, one of the least hopeful affections of the eye we have to deal with; the only consolation in cases of the kind is, that the progress of the malady is a very protracted one.

* Some years since, I sent a patient suffering from leprous disease of the cornea to Mr. J. Hutchinson, and from this patient Plate XXIX. was drawn of the series of Chromolithographs of Diseases of the Skin, published by the New Sydenham Society.

CHAPTER IX.

DISEASES OF THE IRIS.

Hyperæmia—Plastic, serous, parenchymatous Iritis—Treatment—Corelysis in Synechia—Traumatic Iritis—Wounds of the iris—Detachment—Tumours—Mydriasis—Myosis—Tremulous iris—Hippus—Artificial pupil—Excision of iris—Iridesis—Iridectomy—Changes in the aqueous—Foreign bodies in the anterior chamber—Irido-choroiditis.

HYPERÆMIA AND INFLAMMATION.

In commencing the consideration of the diseases of the iris, it may be well briefly to recall the different elements of its healthy structure, which may severally become the subjects of pathological change.

The colour of the iris, depending as it does upon the amount and tint of the particles contained in its pigment cells, naturally varies in different individuals. As a general rule, the irides are of the same colour, but we occasionally meet with instances of a congenital difference in this respect, although they may be otherwise perfectly healthy.

Whatever the colour of the healthy iris, it has a brilliant, shining, fibrous aspect, and any alterations in its textural character are symptomatic of disease, although the change may be so slight, that it can only be appreciated by comparing the diseased with the healthy eye.

The state of the pupil, again, is an important element for consideration in diseases of the iris and deeper structures. In the healthy eye the surfaces of the iris and its pupillary margin are quite free in the aqueous humour; the pupil has a circular form and a wide range of motion, quickly responding to every change in the degree of illumination (see p. 18); but it frequently happens that, from inflammatory or other causes, adhesions form among the fibres of the iris, or

Colour of healthy iris.

Its texture.

Form and mobility of pupil.

How impaired in disease.

between it and the capsule of the lens. Under these circumstances the action of its contractile elements is mechanically impeded, the mobility of the pupil impaired, and its circular form distorted.

But defective action of the pupil may arise from faulty innervation. Thus, affections of the retina, or of the choroid by involving the long ciliary nerves, will influence the sensibility of the iris. Alterations, therefore, in the activity of the pupil, are not necessarily pathognomonic of disease of the fibrous structures of the iris, for they may depend upon more remote influences, into which it would be foreign to my purpose to inquire at present.

HYPER-EMIA

rarely idiopathic.

HYPERÆMIA OF THE IRIS is the first departure from the healthy state which requires our attention, when occupied with the pathology of the iris; not that it often occurs as an independent affection, but it is a sufficiently constant feature of several maladies to deserve consideration. Thus, hyperæmia is occasionally met with as a result of injuries or wounds involving the cornea; but it is more often seen in the early stages of iritis, or congestion of the choroid; and is not unfrequently described as chronic iritis.

Symptoms.—This condition of hyperæmia, from whatever cause it arises, is always characterized by the appearance of a rosy zone of finely injected vessels, at the junction of the cornea and sclerotic; the extent and depth of coloration of this zone vary with the progress of the disease. It is important to notice that in these cases the cornea remains perfectly transparent, so that there can be no mistaking this sclerotic or subconjunctival zone of small parallel vessels, in hyperæmia of the iris, for a symptom of keratitis.

"Sclerotic zone,"

Congestion of iris.

On examining the hyperæmic iris by transmitted light, we shall be able distinctly to trace the distended vessels coursing over its surface. The fibrous elements of the iris remain, as a rule, unaltered in colour. In some few instances, however, after long-continued hyperæmia, changes take place in the pigment-cells of the iris, similar to those noticed under analogous circumstances in the choroid; they become of a darker colour and shrink up. These alterations usually commence at the margin of the pupil, in the uvea covering the contractile fibres of the iris, which then pre-

Colour rarely altered.

sent an uneven and spotted appearance, small dark excrescences projecting from them into the pupil. The pupil responds but slowly to the stimulus of light or to weak mydriatics; but even after long-continued hyperæmia, the contractile elements of the iris seldom become disorganized; and no sooner does the congestion subside, than it again actively performs its functions.

Pupil sluggish.

The patient seldom complains of pain in the eye, but of more or less dimness of vision, which is most marked after sunset. This symptom of hyperæmia of the iris depends on the impairment of its functions, caused by the pressure of its congested vessels on the contractile and nervous elements of the iris, the consequence of which is, that the pupil fails to dilate after nightfall, thus preventing a sufficiency of light from reaching the retina to produce distinct vision. During the day the patient sees tolerably well, for these cases of hyperæmia differ from iritis, in that there is no turbidity of the aqueous.

Vision dim after sunset.

Congestion of the iris is so frequently associated with, or merges into iritis, that I shall describe the treatment to be adopted in this form of disease when considering that of inflammation of the iris.

Passes into iritis.

IRITIS, OR INFLAMMATION OF THE IRIS.—I propose describing iritis under three heads: first, the simple or plastic iritis; secondly, the serous; and lastly, the parenchymatous or suppurative iritis.* Inflammation of the iris is accompanied by certain symptoms common to all forms of the disease, and which it will be convenient to describe under distinct headings, so as to save the necessity for recapitulation when giving the characteristic features of each variety.

Symptoms common to all forms.

Pain in the affected eye is a constant symptom of

* I have adopted this nomenclature, because it seems to me, on pathological grounds, to be sounder than that employed by some English surgeons, such as rheumatic iritis, syphilitic, and so on. But beyond this, the nomenclature is that of M. Wecker, Von Graefe, and the leading Continental authorities; and it is desirable to promote as much unanimity as possible in the profession on these matters. Lastly, so far from sacrificing principles or views which I deem to be important, I feel that my subject is simplified and best explained by the arrangement here employed.

Pain constant, severity variable;

Intermittent.

Zone of sclerotic vessels.

Dim vision, from turbid aqueous

and post-corneal haze.

iritis, but varies considerably in degree in different cases. In many instances the patient complains of only slight uneasiness, extending from the eye over the corresponding side of the forehead, whereas in others the pain is excruciating, and of a throbbing, lancinating character, involving not only the affected eye, but the side of the head and face. Under any circumstances the pain is intermittent, usually increasing towards evening, and gradually growing worse as the night advances. In other cases, in which the iris is not much swollen, nor the intra-ocular pressure greatly increased, the patient will hardly notice this symptom; it is always, however, increased when pressure is made on the eyeball.

Sclerotic Zone.—A rosy zone of parallel congested subconjunctival vessels, invariably surrounds the junction of the cornea and sclerotic in this disease; hyperæmia of the iris must in fact exist in instances of iritis, and consequently congestion of this subconjunctival zone of vessels, since they anastomose with those of the iris and choroid. The amount of the subconjunctival congestion will of course vary with the severity and stage of the inflammation, and in some cases may be concealed to a great extent by the injected and chemosed conjunctiva. Ultimately, as the iritis passes off, and the balance of the circulation is restored, the zone of vessels gradually disappears, and the sclerotic assumes its normal appearance.

Dimness of sight is another symptom of iritis; it depends in the first instance upon turbidity of the aqueous, more than on alterations in the iris. Another cause of the haziness of vision consists in the changes which take place in the epithelium of the posterior elastic lamina of the cornea, and which are best detected by the lateral method of examination. These cells often present a hazy appearance, similar to that of the anterior layers of the cornea in keratitis. In instances of this kind, flakes of degenerated and detached epithelium may by means of transmitted light sometimes be seen floating about in the aqueous. In the further progress of iritis, bands of adhesion form between the iris and the capsule of the lens, giving rise to the condition known as synechia. In this way the pupil is sometimes closed, and the sight is consequently very imperfect. If, however, the

patient's vision is much affected and the pupil is not closed, we may with reason suspect that the ciliary body and vitreous have become involved; in instances of this description there is usually tenderness on pressure made over the region of the ciliary body; and the power of accommodation is also affected.

Changes in the Colour and Texture of the Iris are noticeable in all cases of iritis; a blue or grey iris becoming more or less greenish, a green iris yellowish green, and a dark brown iris of a reddish hue. Its brilliant fibrous aspect is also destroyed, being exchanged for a confused and muddy appearance. These alterations are rendered more apparent by comparing the diseased with the healthy eye (provided only one eye is affected); but under any circumstances, the change in the colour and brilliancy of the iris is unmistakable in all instances of inflammation, and is due partly to alteration in the fibrous structure of the iris, and partly to turbidity of the aqueous humour.

Alteration in the Mobility and Form of the Pupil.—The congested state of the vessels, together with the serous effusion that occurs in the early stages of inflammation of the iris, necessarily impair the functions of the contractile elements of the iris, and consequently its mobility; hence a defective response of the iris to the stimulus of light is an early symptom of iritis. Subsequently, as adhesions form between the iris and the lens, they not only impede the action of the former, but, when under the influence of atropine, the pupil assumes an irregular figure, or, it may be, is unable to dilate at all, being completely closed by organized bands of neo-plastic tissue. From the commencement, therefore, and throughout the course of an attack of inflammation, the iris responds but slowly and imperfectly to the stimulus of light or to mydriatics.

Intolerance of light and Lachrymation are symptoms so frequently met with in iritis, that they may be considered as being common to all its forms. In chronic or subacute cases, they may be hardly noticeable, whereas in the active stages of the more acute forms of the disease, the patient complains bitterly of the exacerbation of pain which he experiences the instant he approaches the light, and is perpetually

Change of colour in iris.

Pupil sluggish,

or irregular from synechia.

Intolerance of light.

engaged in wiping away the tears that flow down over his cheek.

Congested conjunctiva.

Congestion of the conjunctiva is always present to some extent in iritis, and in many instances its vessels are so deeply injected, that it is well nigh impossible to distinguish the sclerotic zone surrounding the cornea. In these cases, if the posterior layers of the cornea are also affected, the condition of the iris, which is the real centre of disease, is apt to be overlooked. Any doubts that may exist as to the nature of the affection may be at once cleared up by applying a few drops of solution of atropine to the eye; the irregular way in which the pupil dilates will then be apparent.

Atropine as a test.

Increased tension.

Increased Tension of the eyeball is present in the serous form of iritis, and is one of the chief causes of the pain from which many patients suffer; for no sooner is the intra-ocular pressure removed by puncturing the cornea, and allowing the aqueous to escape, than the patient experiences instantaneous relief.

Fever.

Constitutional Symptoms.—Complications of this kind are sometimes met with in cases of iritis, the patient complaining of feverishness, and very rarely of troublesome vomiting, the result of sympathetic irritation. Many instances of iritis, however, run their course without the manifestation of any such symptoms, and under any circumstances they are of trivial importance in comparison with the state of the eye.

PLASTIC IRITIS.

SIMPLE OR PLASTIC IRITIS.—(Fig. 2, Plate III.)—This form of inflammation is marked by new formations in the iris; proliferation commences in the connective tissue cells of its stroma, and this increased cell formation, together with that arising from elements directly emanating from the blood, cause the iris to swell; this swelling of the iris is increased by serous effusion into its tissue. The characteristic feature of simple or plastic iritis is, that the neo-plastic elements produced, both on the surface and in the substance of the iris, tend to become developed into a kind of pseudo-membrane; bands of adhesion are thus formed between the iris and capsule of the lens (*synechia*), and in the contractile tissue of the iris itself.

Neo-plastic formations.

Plastic iritis is frequently met with among persons

suffering from rheumatism, and consequently it has often been described as rheumatic iritis; this inference, however, is hardly correct, and is likely to lead to errors in practice; for nothing is more common than to meet with instances of this affection occurring among individuals who are perfectly free from rheumatism. In the case of lepers, for instance, plastic iritis is of common occurrence, and also as a result of wounds or injuries of the eye.

Not limited to rheumatic subjects.

Under very favourable circumstances, this form of disease may run its course in from ten to fifteen days, and then gradually disappear. Instances of this kind are, however, exceptional, unless the patient has been brought under treatment at an early stage of the affection. The majority of cases of plastic iritis, if left to nature, terminate in *synechia*: slight adhesions form in the first instance between the pupillary margin of the iris and the lens, which, however, are sufficient to tie the iris firmly down to the capsule at one or more points. Every time that the pupil dilates or contracts, these tags of adhesion pull on the iris, thus keeping up a constant state of irritation and disturbance in the part, which ultimately induces a fresh attack of inflammation: more extensive adhesions then form, until, after repeated attacks of this kind, the iris becomes firmly bound down to the lens. Degenerative changes then take place in the fibrous structure of the iris, which ultimately becomes atrophied. Unfortunately, the mischief that occurs under these circumstances does not stop here; the communication between the anterior and posterior chambers of the eye being closed, an abnormal collection of fluid takes place behind the iris, which exercises, on the deeper structures of the eye, an injurious pressure, too often terminating in atrophy of the globe.*

Synechia and its effects.

Atrophy of iris.

Symptoms.—As a general rule, the zone of subconjunctival vessels surrounding the circumference of the cornea is well marked in cases of plastic iritis, the hyperæmia of the conjunctiva not being sufficiently great to completely hide it. It was formerly supposed that the whitish grey band surrounding the

Pericorneal injection.

* A. Von Graefe, "On Iridectomy in Exclusion of the Pupil," p. 257. (New Sydenham Society.)

"Arthritic ring."

cornea, and situated internally to the zone of subconjunctival vessels, was a characteristic feature of the so-called rheumatic iritis. This band, however, depends simply upon the anatomical relations of the parts, the sclerotic overlapping the bevelled margin of the cornea in this situation: and though well seen in many cases of iritis, is a symptom of no importance.

Mobility of iris impaired.

In the early stages of plastic iritis, the mobility of the iris is affected, its free margin appears to be swollen and thickened, its fibrous structure loses its distinctness, and its colour is likewise altered. The production of neo-plastic formations varies in quantity in different cases: commencing in the stroma of the iris, it may add to the uniformly hazy, swollen condition of that structure, but is otherwise not distinguishable: in other instances the neo-plastic growths form small papillary excrescences on the surface of the iris, particularly at its pupillary margin: if numerous, these run into one another, and reaching over the pupil cover the centre of the capsule with a pseudo-membrane; under any circumstances they are very apt to form adhesions between the margin of the pupil and the capsule of the lens. These papillary excrescences of plastic iritis, are often mere specks which can hardly be seen by the unaided eye, particularly when the iris, as in the case of the natives of India, contains an abundance of pigment cells; so that we may not be able to detect their presence in the living subject by simple inspection, but only by the changes effected in the appearance and activity of the iris, and in this respect the simple form of plastic iritis differs from the parenchymatous variety.

Neo-plastic matter not always obvious.

Pain uncertain.

The amount of pain from which a patient affected with this form of iritis suffers, is by no means constant; in some cases, it is not a prominent symptom, whereas in others it is most excruciating, extending from the affected eye over the temple and side of the face, and almost always increasing in intensity towards evening, and growing gradually worse as the night advances.

SEROUS IRITIS.

SEROUS IRITIS.*—In place of the neuro-plastic forma-

* Formerly described as "aquo-capsulitis." One form of aquo-capsulitis, in which the pathological changes are most apparent on the posterior surface of the cornea, has been already

tions which characterize the last described form of iritis, in that now under consideration a serous exudation takes place from the vessels of the iris, which, accumulating in the anterior chamber, pushes the iris backwards; so that in well-marked cases of serous iritis, the iris appears to be further away from the cornea than in health, the depth of the anterior chamber being apparently increased. The functions of the iris are impaired, and it responds but slowly to the stimulus of light; except in some chronic cases, however, the pupil, when it dilates, does so regularly, there being no synechia in serous iritis to impede the action of its contractile fibres. In this respect, therefore, there is a marked difference between serous and plastic iritis. In the more advanced stages of the disease, the accumulation of serous fluid in the chambers of the eye causes such an amount of increased intra-ocular pressure, that its effects begin to tell on the choroid and long ciliary nerves; and the innervation of the iris being thus impaired, it not only ceases to respond to the stimulus of light, but the most powerful mydriatics may be unable to effect it.

Serous effusion into ant. chamber.

Pupil slow, but regular.

No synechia.

Inactive at last.

Symptoms.—Serous iritis excites no urgent symptom in its early stages; the zone of sclerotic vessels may be only slightly injected, and the conjunctiva unaffected; the disease is not unlikely, therefore, to be disregarded until it has effected irreparable changes in the deeper structures of the eye, or has merged into a combined form of serous and plastic iritis of a very dangerous character. In the latter case, the neo-plastic formations binding the iris down to the lens, effectually retain the serous effusion poured out into the posterior chamber, which is certain, in its turn, to induce changes in the retina and choroid.

Symptoms obscure in early stages.

Attacks of serous iritis are apt to recur: at first they are but slight, and of comparatively short duration, lasting probably from three weeks to a month, and then gradually passing away; and it may be some time before another attack, generally of increased severity, comes on.

Recurring attacks.

The intra-ocular pressure, which is hardly augmented in the early stages of the disease, becomes a more pro-

described under keratitis punctata. In that now referred to the iris is principally affected.

Slow increase of tension.

minent feature in each successive attack; the tension of the eyeball, however, increases so gradually, that the parts have time to adapt themselves to the distending force, and consequently the pain, though often severe, is not of so excruciating a character as that noticed in instances of acute glaucoma.

Dim vision.

Dimness of vision is always an early complication of serous iritis,* and depends on turbidity of the aqueous, which frequently assumes an appearance as though small particles of finely powdered chalk had been suspended in it, and of course prevents many of the rays of light, which would otherwise reach the retina, from arriving at their destination. This state of things is augmented by a semi-opaque condition of the epithelial cells, lining the posterior elastic lamina of the cornea; we have, in fact, very much the condition of the parts described in keratitis punctata, or mottled cornea, in the last chapter, with the serious addition of iritis. The diseased epithelial cells drop off from the cornea after a time, and may then be seen as small white particles floating about in the turbid aqueous. The corneal haze and muddy aqueous, which are thus produced, tend to conceal the condition of the iris, and render the diagnosis of this affection in its early stages somewhat obscure.

Posterior keratitis.

Turbid aqueous.

PARENCHYMATOUS IRITIS.

Neo-plastic out-growths.

PARENCHYMATOUS IRITIS.—The characteristic feature of this form of inflammation is, that the morbid action going on in the part leads to the formation of well-defined nodular masses, consisting of a finely granular or striated matrix, containing elementary capillaries, and nuclei in abundance, and often much pigment;† they occupy the surface of the iris at one or more points. These excrescences vary in size, in some instances being as small as a pin's head: whereas in others they cover the greater portion of the iris, and bulge forwards, so as to touch the cornea. In the early stages of the disease, they are usually of a reddish-brown colour, subsequently they assume a yellowish tinge, and then look very like collections of pus. They may either become absorbed or suppurate: in

* "Iconographie Ophthalmologique," par J. Sichel, p. 12.
† "Archiv f. Ophth.," Bd. viii. p. 288.

the former case the iris may return to its normal condition, its contractile tissue being apparently uninjured; but we seldom meet with a case of this kind: more often cicatrices form in the iris, and extensive synechia is the result of this form of inflammation. On the other hand, should the new formations of parenchymatous iritis suppurate, the pus, gravitating to the lower part of the anterior chamber, forms an *hypopion*.
Hypopion.

The breaking down of the nodular masses is not, however, the exclusive source of pus-like matter in iritis: sometimes the products of cell proliferation on the surface of the iris have from the first the characters of pus. In other cases, the posterior elastic lamina of the cornea contributes to its formation; and, indeed, hypopion is more often the result of corneal than iritic affections.

Parenchymatous iritis may often be traced to the effects of either primary or inherited syphilis; syphilitic iritis is, in fact, the most familiar variety of the parenchymatous affection. In the hereditary form the disease usually manifests itself before the little patient is more than a few months old.*
Often syphilitic;

In all instances in which parenchymatous iritis arises from syphilis, we may expect to find the cellular excrescences particularly well defined. The nodules observed on the iris under these circumstances are neither more nor less than "gummy tumours," similar to those met with in other parts of the body, as a result of syphilis.† Our diagnosis will of course be confirmed, in instances of this description, by the history of the case and the existence of constitutional symptoms, but still the condition of the iris alone will lead us at once to entertain suspicions as to the origin of the disease.

It does not follow, however, that parenchymatous iritis may not result from other causes than syphilis. In fact, we meet with cases of the kind arising from operations or injuries involving the iris, and from ill-defined causes. Moreover, a syphilitic taint may,
Other causes.

* "Syphilitic Diseases of the Eye and Ear," by J. Hutchinson. p. 18.

† The gummy nature of these nodules, at first conjectured by Virchow, has been confirmed by the observations of Colberg. Arch. für Augenheilk., t. viii. A. 1, p. 288.

without doubt, induce the plastic or serous form of inflammation, as well as the parenchymatous. It is a matter of some importance, therefore, to be careful how we employ the term syphilitic iritis, as it is apt to give rise to errors in regard to the treatment of the disease. The syphilitic character of an iritis can only be determined from the positive proof of the existence of constitutional syphilis.*

Symptoms acute, with few exceptions.

The *Symptoms* which I have enumerated as common to inflammation of the iris are usually intensified in the affection now under our consideration. To this rule there are exceptions. Thus we occasionally see parenchymatous iritis, especially among syphilitic patients, run a chronic or subacute course, without inducing any very prominent symptoms; but being attended by nodular formations, it may end in extensive synechia. These, however, are exceptional instances of the disease: the symptoms generally present in parenchymatous iritis are more acute than in any other form of inflammation of the iris. The vessels of the iris, more particularly those covering the excrescences and surrounding their base, are engorged with blood, and the subconjunctival zone of vessels is proportionably congested; the conjunctiva is often deeply injected, and considerable chemosis may exist. The aqueous is remarkably turbid, and flaky fragments of the neoplasms may often be seen floating about in it.

Vascular injection great.

Aqueous turbid.

Post. corneal haze.

In many cases, the posterior elastic lamina of the cornea becomes hazy; its epithelial cells, undergoing fatty degeneration, become white and opaque, presenting a spotted appearance. The brilliant fibrous aspect of the iris is destroyed, and its colour, as seen through the hazy cornea and muddy aqueous, is strikingly altered. One or more nodular excrescences will be observed on the iris; they vary in size and colour, as before described. The pupil is insensible to the stimulus of light, and if dilatable by the aid of mydriatics, it assumes an irregular shape; the functions of the nerves, vessels, and contractile fibres of the iris being impaired by the abnormal action going on in it, or from the presence of synechia which ties it down to the lens or cornea.

Pupil inactive.

* Stellwag von Carion, American edition, p. 185.

The patient usually complains of pain in the eye and forehead from the commencement of the disease, subsequently the pain extends to the head and side of the face, and is often most excruciating, generally lessening during the day, but increasing in intensity as the night advances. Intolerance of light and increased lachrymation are also symptoms from which the patient suffers very considerably, a gush of tears pouring out of the eye the instant the eyelids are opened. Pain severe.

The symptoms above enumerated necessarily differ in different instances, and in the several stages of the disease; but though cases of parenchymatous iritis thus vary in intensity, they terminate but too constantly in irreparable damage to the eye. This may take place in different ways: the fibro-cellular excrescences may degenerate into pus, and give rise to an abscess of the iris, the result of which is the formation of a cicatrix of greater or less extent in the connective tissue of the part. In other instances posterior synechia appears, which tends to keep up irritation and excite fresh inflammation in the iris, ultimately leading to complete closure of the pupil. Lastly, the outgrowths from the iris may reach forwards as far as the cornea, and adhesions form between the two, giving rise to anterior synechia. Too often ends in abscess or adhesions.

Prognosis in the Various forms of Iritis.—We may now proceed to consider the data, upon which a prognosis is to be based in cases of inflammation of the iris generally. And in the first place, the type of the disease, and the progress it has already made, must be considered; for iritis presents not only different stages, but the disease is met with of very different degrees of severity. In slight, and recent cases, complete restoration may be predicted; in more serious cases, the improvement can only be partial; in severe and neglected cases, it is but too often evident that we can hold out but slender hopes of recovery. Prognosis in iritis.

It is, however, to the presence and extent of the synechia already formed that we should principally direct our attention, in endeavouring to form a prognosis. If bands of adhesion exist between the iris and lens, they too often lead to repeated attacks of inflammation of the iris, terminating in occlusion of the pupil. And even supposing the synechia does not so From type, and progress.

Look to synechia.

directly cause loss of sight, it may keep up irritation in the part, and thus induce congestion of the choroid, followed by degenerative changes in the vitreous, lens, or retina.

Danger of sympathetic irritation.

I am aware that many surgeons do not believe in the injurious influence which an eye, undergoing such changes as those I have now described, may exercise over the other one. It is certain, however, in my opinion, that the integrity of the healthy eye is thus endangered; and we are bound, under these circumstances, not only to give an unfavourable prognosis as regards the diseased eye, but to warn the patient of the danger he runs of losing the sight of the other eye, unless the source of irritation subsides.

In serous form, prognosis mostly favourable.

Synechia being less frequently met with in the early stages of serous than in the other forms of iritis, it follows, that in this variety we may reasonably expect to save our patient's sight, if the case is brought sufficiently early under treatment. We must bear in mind that vision is apt to remain confused and hazy for some time after an attack of this form of iritis, on account of the opaque condition of the posterior layers of the cornea, which, as I have before stated, is generally considerable. But provided the pupil dilates regularly under the influence of a weak solution of atropine, we may assure the patient that this haziness will soon pass off, more particularly if there be no contraction of the field of vision. On the other hand, serous iritis, if allowed to run its course, may induce increased intra-ocular pressure, more particularly when the diseased action extends to the choroid; it then becomes a serious affection, its danger being in proportion to the augmentation of the tension of the eyeball.

In plastic, favourable, if synechia slight.

In plastic iritis, if the adhesions are slight, or have only been recently formed, so that they can be broken through by dilating the pupil with atropine, we may form a favourable prognosis, although the patient's sight for a time may be impaired by patches of uvea which remain adherent to the capsule of the lens, and from opacities of the posterior lamina of the cornea. It may be necessary to search carefully for the deposits of uvea before they can be recognised in cases of this kind; the pupil must be dilated as much as possible, and the lateral method of examination employed; or

the deposits of uvea on the capsules of the lens may be overlooked, they may be seen with facility by the aid of the ophthalmoscope. If the synechia cannot be torn down by the action of mydriatics, much may still be done to improve the condition of the patient by breaking through the bands of adhesion between the iris and lens, by means of an instrument introduced into the eye through the cornea, or by iridectomy, but our prognosis must, under these circumstances, be guarded: the patient's sight is never likely to be perfectly restored, and in too many instances will have been absolutely destroyed for all practical purposes.

In parenchymatous iritis, our prognosis, as a general rule, will be still more unfavourable, unless the disease be brought under treatment before it has made any great progress. It is true, some cases run a subacute course, giving the patient but little inconvenience, and leaving apparently no bad results behind them, but this is unusual; unless judiciously treated, the disease more commonly leads to multiple synechia and closed pupil. If, however, at any stage of the affection, we can dilate the pupil with atropine, we may with confidence expect a favourable issue, as we can then prevent the formation of synechia, and in all probability the further progress of the disease.

In Parenchymatous, unfavourable.

unless pupil dilatable.

In forming our prognosis, we should never lose sight of the fact that in all cases of iritis there is a tendency for the disease to recur, and that each successive attack is usually more severe than its predecessor, and more likely, therefore, to spread to the choroid, or leave its mark behind in the form of fresh synechia.

There is a deceptive condition of the eye, the result of iritis, in which the patient's sight remains good, although the iris is closely bound down to the lens by synechia. This arises from the fact, that a small but clear opening remains through the pupil, and the rays of light reach the retina without hindrance; nevertheless, the sight is endangered from the closure of the communication between the chambers of the eye. Cases of this kind are but rarely met with in practice; we far more frequently see instances of closed pupil and extensive synechia, where the patient may have sufficient sight left to find his way about, but is unable to read or write with the diseased eye. If, under these

Sight may be clear, yet synechia complete.

Mischief from closed pupil.