

but, according to *Delasiauve*, there is always a great tendency to relapses.

It has been observed that, the longer the stadium of premonition lasts, the worse is the prognosis. We are justified in the conclusion that, although the cure often appears permanent, a psychological disturbance occurring in childhood is always to be regarded as a very serious disease.

The *treatment* in the paternal house is but very seldom effectual, and hence it is absolutely necessary to have these patients removed to an asylum.

D.—HIGHER ORGANS OF SENSE.

I.—Sight.

Ophthalmology has grown into such a perfect specialty that a general treatise on the diseases of children need not comprise a detailed delineation of the diseases of the eye.

The student may therefore be referred to the works on ophthalmology for information upon this subject, and only the congenital diseases of the eye, and those that occur in infants especially, will here receive a very cursory description.

(1.) EPICANTHUS.—By epicanthus is understood an unsightly gathering of integument in the region of the root of the nose, toward the inner angle of the eye, a semilunar fold covering the angle of the eye in the form of a pocket. The upper point of this crescent is found at the root of the nose; the lower is lost in the integument of the cheek.

The root of the nose is always very flat, and the nasal bones meet each other at an obtuse angle, so that the folds of the integument, elevated by the accumulation of adipose substance, are on a level with the depressed nose.

The pocket never extends so far as to obscure the field of vision, but completely covers the inner angle of the eye, and may reach to the inner margin of the cornea.

The cause of this deformity, according to *V. Ammon*, is a flat dorsum of the nose, and a lax adhesion of the integument to the nasal and lachrymal bones. This etiology, however, is not very satisfactory, for there are also children with depressed noses, and easily displaceable integument, who exhibit no such fold whatever.

Epicanthus is always congenital and bilateral, but it may be larger on one side than upon the other. When the skin on the dorsum of the nose is raised up with two fingers into a fold, the deformity disappears, and this fact suggests the proper operative procedure. As the epicanthus is usually seen in the new-born child, and never in the

adult, it follows that, with increasing growth, it must become smaller and ultimately disappear.

This deformity, where it does not thus disappear early, may be remedied by excising a longitudinal fold of skin from the dorsum of the nose, and uniting the edges of the wound by suture.

(2.) CYCLOPIA—MONOPHTHALMIA.—Total defect of the orbits occurs in monstrosities, the frontal bone continues down into the upper jaw, and in the bone shallow grooves only exist in place of the orbit. In defective formation of the brain (hemicephalia), the bones of the orbit are only rudimentarily formed, and its upper border, in particular, is very much diminished, and very close to the optic foramen.

Cyclopia finally is likewise only possible in defective orbital bones. Here the ethmoid, the lachrymal, and the nasal bones are absent, and the sphenoid bone is also altered in shape. These are mere malformations, met with only in monstrosities incapable of living, and are, clinically, of no interest.

(3.) MALFORMATIONS OF THE EYEBALL.—(a.) *Coloboma iridis s. iridoschisma*, a congenital splitting of the iris, is a condition similar to that of harelip; the fissure in most cases runs downward, and the deformity is more frequently seen in both eyes than in one only. Its edges converge toward the ciliary border, and are but seldom parallel or diverging, so that the pupil mostly assumes the form of a pear, with the base directed downward. In rare instances a fissure in the large circle of the iris alone is observed, so that a normally round pupil, with a peripheral, triangular opening, separated from the pupil by an iris-colored transverse band, is present. By the alternate presence and absence of light in front of a coloboma, its margins may be seen to shorten and elongate like the contractions and dilatations of the pupil, but this closure never is great even under the influence of a strong light.

This condition has often been observed as an hereditary one. The complications occurring with it are: microphthalmus, ovale corneæ, central lenticular cataract, harelip, hypospadias, cerebral defects, and coloboma of the *upper eyelids*.

The latter is only observed on the upper eyelid, and consists in a narrow fissure of the tarsal cartilage, in which the external integument is not correspondingly fissured.

There is no embryological explanation for this malformation, such, for instance, as is readily found for harelip, for the upper eyelid at no time of embryonic life consists of two parts.

(b.) *Irideremia*.—Total or partial congenital absence of the iris is always observed simultaneously on both sides, a single instance

reported by *Morison*, excepted. Either no iris, or but a rudimentary strip only, is seen.

Here the pupil properly never presents the background of the healthy eye. In certain positions, with reference to the light, they glisten like the eyes of cats. This also happens occasionally in large colobomas. Usually the cornea is not normal, it is oblong, or gradually merges into the sclera, and the lens may likewise be opaque.

Such children naturally are always short-sighted, and, on account of the too great amount of light admitted, constantly contract their eyelids, by which means they obtain a sort of substitute for the deficiency of the pupils.

A constant rolling of the balls (*nystagmus oscillatorius* and *rotatorius*), on account of this incompleteness of the power of vision, also becomes superadded. This malformation, according to *Arlt*, has never led to blindness by paralysis of the retina, but inflammation of the cornea and conjunctiva, and also gradual lenticular opacity, very frequently ensue.

The treatment must be confined to efforts to control the amount of light admitted to the eye, by the use of blue glasses or artificial diaphragms.

(3.) *Hard Cataract*.—*Cataracta nuclearis* is a sharply-defined, grayish-white point, of the size of a poppy-seed, in the centre of the lens, around which a brighter zone is sometimes observed. It is mostly met with in both eyes, and is often complicated with absence of the iris or coloboma.

In addition, white points also develop themselves in children after birth, in the lens or its capsule, and send out white radiating stripes, thereby *obscuring* the vision, but not entirely destroying it, as the opacity of the lens never becomes general.

(d.) *Atresia pupillaris congenita*.—Congenital closure of the pupil is due to an anomalous continuance of the pupillary membrane after birth.

According to *Bischoff*, the *membrana capsulo-pupillaris*, and the *membrana pupillaris* together, form a vasculo-membranous sac, which, issuing from the posterior circumference of the lenticular capsule, extends through the posterior chamber of the eye as far as the iris; here it is connected with the iris by vessels, and by its anterior wall represents the *membrana pupillaris*.

But this sac originally seems to envelop the lens and its capsule only, for the lens at an early period lies closely behind the cornea, and no iris as yet is present. But, when the iris begins to develop itself, it becomes united to the anterior part of this sac, holds the united membrane back as the lens recedes after the formation of the

anterior chamber of the eye, and thus a true membrane originates before the pupil, the *membrana pupillaris*.

This membrane, it is said, begins to disappear from the seventh month, and should be wholly gone at birth, but often it remains as a transparent membrane, with few or no vessels, for a long time yet after birth.

There are a number of cases in which, according to *Stellweg* von *Carion*, the pupillary membrane has been seen in its integrity in newborn children, and even in adults. It is seen as a fine, grayish-white membrane, accurately expanded on a level with the pupil, closing it, thereby destroying the power of sight to some extent, and making the iris immovable. In some instances this membrane is perforated, or a few shreds only hang on the pupillary borders. *Stellweg* warns us against the possibility of confounding this condition with organized exudation and capsular cataract, and considers the prognosis of congenital closure of the pupil as favorable. Nature, in time, makes amends for what it was remiss in at birth. The action of the iris muscle lacerates the membrane, and the torn fragments are gradually absorbed.

The evil, on the whole, is very rare, and many busy oculists have never met with it.

So much in regard to congenital malformation of the eye. The period of infancy is decidedly predisposed to diseases of the eye, and we should have to compile a complete treatise on ophthalmology if all the morbid conditions occurring in it were here to be described.

Two affections of the eye, specially belonging to children, *blepharorrhoea* of the new-born child, and *oedematous conjunctivitis* during dentition, have already been minutely treated of in their appropriate chapters, pages 73 and 110. Scrofulous affections of the eye in children will be described in a future chapter on scrofula.

The other diseases of the eye differ little in any respect from those that occur in the adult, and consequently may be properly omitted here.

It should be observed that, in children, the outer structures generally, and especially the conjunctiva, the lids, and muscular apparatus, become diseased, while adults more frequently suffer from morbid alterations of the inner parts of the eye, the iris, lens, vitreous humor, choroid, and retina.

II.—Hearing.

I.—MALFORMATION OF THE ORGAN OF HEARING.—(a.) *Absence of the Auricles (Ears), Defectus Auriculæ*.—Occasionally an abnormal congenital smallness, shrinking, or a complete absence of the

auricle, upon one or both sides, occurs, and is usually complicated with malformations of other organs.

Aside from the very striking deformity, this defect also causes a detriment to the hearing, although it is but a slight one.

If any treatment to mask the deformity is to be instituted, the first measure should be properly shaping the hair so as to cover the ear. If for any reason this be not available, there will be no other resource than to wear artificial ears. Artificial ears are made either from papier-maché, pressed leather, or cast metal, painted in oil-colors, and attached to the rudimentary auricles by the aid of a clamp, or, when no point of attachment at all exists, by a spring, passing over the top of the head, which is hidden by the hair. This, naturally, is only applicable to older and controllable children. Otoplastic surgery, the formation of ears from adjacent integuments, has never, according to *Rau*, succeeded in producing a structure at all resembling auricles, and hence, on account of the painfulness of the operation, and the impossibility of preventing cicatrices, should be abandoned entirely.

Aside from the absence of the auricle, a faulty position of this structure is also met with. It either lies very close against the cranial bones, *auricula adpressa*, or it stands off at a right angle from the skull.

The first deformity rarely calls for any surgical interference, although the fineness of hearing is somewhat weakened, but in the latter we are often applied to for the purpose of improving the appearance. In new-born children very prominent ears may readily be brought into a proper permanent position by means of strips of adhesive plaster which are applied for several weeks. A child was once brought to me with one auricle perfectly normal, while the other was bent forward or rather deflected to such a degree that its posterior surface only was seen, completely covering the meatus.

Even this marked deformity was permanently relieved by the application of strips of adhesive plaster for several weeks.

(b.) *Closure of the Meatus Auditorius, Atresia, sive Obliteratio, sive Imperforatio Meatus Auditorii.*—It sometimes certainly happens that the osseous canal, in consequence of abnormalities in the bones, is entirely absent; generally, however, it is normally present, and its mouth is only closed by a membrane.

With this condition, a defect or deformity of the auricle becomes associated as a complication.

The aperture of the canal is either indicated by a small depression, or the closing membrane is so smoothly expanded over it that the bony orifice cannot be detected with certainty either by the touch

or sight. This pseudo-membrane is seldom seen to dip so far inward as to represent the canal as a short *cul-de-sac*.

This membrane is distinguished from the membrana tympani by its superficial position, and by its insensibility when touched with the probe.

The hearing is almost entirely abolished by this condition; fortunately, however, the malformation occurs only in one ear. This membranous closure must also be distinguished from mechanical occlusion of the meatus by vernix caseosa, or, in older children, by filth and foreign bodies of all kinds.

The occlusion of the ear often remains undetected for a long time when the auricle is well formed, and is discovered by the children themselves in the course of years, and as they gain in observation.

Treatment.—This defect can only be relieved by an operation. This consists in making a crucial incision into the membrane, which is expanded over the orifice; the flaps are seized by a fine, hooked forceps, and are snipped off with a curved scissors.

The after-treatment is the most difficult part of the operation, for there is always a great tendency to reclosure, which must be overcome by the introduction of pledgets of lint, sponge-tents, and subsequently a silver tube.

The meatus, notwithstanding all this, sometimes closes again after many months.

In bony occlusion, which scarcely ever occurs without other remote malformations, hemicephalia, etc., nothing of course is to be hoped for from an operation.

(2.) **SIMPLE INFLAMMATION OF THE MEATUS AUDITORIUS (*Otitis Externa*).**—We omit the inflammations and other alterations of the auricle, which, like any other part of the corporeal surface, may be attacked by various cutaneous diseases, and apply ourselves directly to *otitis externa, acuta, et chronica*.

Symptoms.—The meatus represents a *cul-de-sac*, the bottom of which is formed by the membrana tympani. Its anterior part is provided with sebaceous glands, its posterior, corresponding to the bony canal, with ceruminous glands. Although its lining membrane, as far as the sebaceous glands extend, is analogous to the external integuments, still the characters of the membrane lining the osseous canal are altogether different.

The denomination mucous membrane is not at all appropriate, for, in the physiological state, it is arranged for the secretion of the cerumen, which has not the least resemblance to mucus.

In the inflammatory processes the secretion certainly becomes muco-purulent, and, with the exception of its smell, is not distinguish-

able from that of an ozæna, and then it may indeed be assumed that the membrane so diseased has assumed the properties of a mucous membrane. When this metamorphosis takes place, the ceruminous glands cease to perform their function; the reappearance of this cerumen may therefore be looked upon as a sign of commencing improvement.

In the inflammation of the meatus we may distinguish an erythematous and a catarrhal form.

In erythematous otitis, the meatus, when closely examined by the aid of the speculum, is seen to be reddened, and a brownish cerumen, somewhat increased in quantity, is found. After several days, the whole meatus desquamates in large or small scales, the large quantity of cerumen dries into a crumbling crust, which falls out when the patient lies on the affected side, or is washed out by injections. This very frequent disease is almost painless; the auricle may be pressed and pulled in every direction, without causing any pain. The general state of the system remains undisturbed, and, in children, its presence is usually accidentally detected in the examination for other diseases.

Catarrhal otitis produces more significant local and general symptoms than the erythematous.

The invasion of the disease is attended first by an itching, then by actual pains, which, without any other alterations, may last for several days, when a yellowish-white, purely fluid or flocculent fluid discharge appears. This, at first, is nearly odorless, but at a later date assumes an intensely sour odor, or like that of rancid fat. The discharge is not always equally profuse, and its quantity is best estimated by the stains which are found in the morning on the child's pillow.

In a profuse otorrhœa, these stains cover the pillow with patches the size of half of the palm of the hand. After a few days or weeks the discharge in the simple otitis externa ceases; it becomes cheesy, and the ceruminous secretion reappears. The deafness that existed during the otorrhœa also passes off. Generally, the secretion poured out dries in part in the auricle, and by the irritation it causes produces erosions and superficial ulcers, which extend to the lobe and adjacent parts, and are much disposed to bleed. At the same time the membrane lining the meatus swells up to such a degree that the walls almost touch each other, so that the tympanum cannot be seen, not even after a thorough cleansing, nor by the aid of the best light.

The examination with the speculum is exceedingly painful, and when attempted produces hæmorrhage, which still more obscures the parts and counteracts the little benefit that might otherwise be derived from it, and therefore may be entirely omitted.

In cachectic, and especially in scrofulous children, otorrhœa easily

becomes chronic. It is often absent for months in the warm season of the year, and returns in winter with renewed severity.

Sometimes the secretion is a glairy mucus, sometimes again purulent, and usually erodes the lobe of the ear. The mucous membrane is less infiltrated than in the acute form, but, when the disease has existed for a long time, polypoid excrescences will form upon it, causing a decided aggravation of the deafness.

A chronic otorrhœa can never be regarded as cured, even when the discharge has stopped completely, so long as no cerumen, but a cheesy, sneary, fetid mass is found deep in the ear. This is always proof that the membrane has not yet assumed its normal function, and that the purulent secretion is but temporarily suspended. So long as the cerumen is not found in considerable quantities, no complete recovery can be assumed to have taken place. Chronic otorrhœa seldom attacks both ears at the same time, and with the same degree of severity, but an alternating condition usually takes place.

The prognosis depends upon the state of the membrane lining the meatus, and upon the constitution of the child. The degree of the swelling of the membrane and of the excoriation, the amount of granulations, the presence of polypoid growths, are all points which enter into the prognosis, which must be favorable or otherwise according to the degree and extent of these complications. In scrofulous children it is likewise very difficult to effect a cure, and the disease returns after every exposure to cold and after every indisposition.

According to *Rau* and *Wilde*, the much-dreaded results, perforation of the tympanum, secondary periostitis, and diseases of the brain, never occur as effects of simple external catarrhal otitis. This view is said to have originated from inaccurate diagnosis, which is certainly by no means inexcusable, from the fact that, notwithstanding repeated injections, the meatus cannot be properly inspected for many weeks, particularly if the swelling be at all severe.

Etiology.—There is an intimate connection, in many children, between affections of the mouth and of the ear, as may, in fact, be readily divined from the anatomical contiguity of the parts.

Thus there are certain children who, at the cutting of every tooth in the first as well as in the second dentition, are attacked by otalgia and an otorrhœa, of a longer or shorter duration. This affection occurs as a sequela of scarlatina and measles extremely often, and is associated with scrofulous eruptions of the head, which extend into the meatus. Generally, the otorrhœa in young atrophic infants is not the simple external form, but the inflammation extends to the middle ear, and will hereafter be described.

Therapeutics.—Simple external otitis terminates favorably even

without any treatment, and there is therefore no necessity to torture the patient with the vesicants and pustulating ointments so much in vogue, by which an additional disease is produced without palliating the original one. At first, two or three injections of tepid water, daily, and stuffing the ear with charpie, is all that is requisite. If the pain is intense, causing sleeplessness, one to four drops of laudanum, according to the age of the child, may be given in the evening. Astringent injections in the first days of the discharge are totally useless, and in most instances they cause intense pains and an augmentation of the discharge, on account of which it is best to confine the treatment for the first eight days to injections of simple warm water. Of all the astringents, I consider a solution of alum (ʒj to water ʒj) the best and simplest, a few drops of which are dropped into the ear morning and evening, after the ear has been syringed with warm water and wiped dry. This solution is as efficacious an astringent as nitrate of silver, and has the important advantage that it neither stains the linen nor discolors the skin. After several weeks the discharge ceases entirely. If no cerumen appears, a few drops of cod-liver oil with iodine (gr. j to ʒj) should be dropped into the ear. This will cause some itching for a time, and will be followed by a return of the normal secretion. In scrofulous children, a general treatment with cod-liver oil, iron, baths, gymnastics, etc., may always be instituted with advantage, as will be more minutely discussed in the chapter on scrofula.

(3.) ABSCESSSES IN THE MEATUS (*Otitis Externa Phlegmonosa*).—The symptoms of phlegmonous otitis, with suppuration, are much more violent than those of the previous form. Abscesses can only occur in the anterior and easily-accessible parts; for only this, the cartilaginous portion, contains a layer of cellular tissue, while, in the osseous, the periosteum and lining membrane are intimately united. The pain, at first, is bearable, and nothing but a general redness and slight tumefaction are observed; but, after twenty-four to forty-eight hours, the pain becomes aggravated to an excruciating intensity; the child cries night and day without ceasing, is unable to sleep, and every motion of the lower jaw increases the pain. On this account these patients speak indistinctly, and swallow with the utmost caution. Even young infants, but a few months old, are liable to be attacked by this affection, and indicate to their attendants the site of the disease by frequently pulling at the ear. After these pains have continued for two or three days with uniform severity, they then become throbbing, and can only be alleviated by comparatively large doses of morphine. The meatus, in the mean time, has become completely closed by swelling, and, if examined with a probe, it will be found that the swelling is not uniform, but that one part of the meatus, generally the lower, is ele-

vated into a small fluctuating abscess of the size of a pea. A few drops of pus and blood escape when this abscess is opened, or when it bursts spontaneously, and the pain then instantly subsides, but the little abscess still suppurates for a few days, then becomes completely closed, the adjacent redness and swelling also decline, and the whole disease in a few days entirely disappears, leaving scarcely a trace behind.

I am not aware of any positively certain cause for it. Abscesses of the ear occur as well in healthy as in scrofulous children, but are especially frequent in children who are teething. The prognosis is extremely favorable, a fact that does not always seem probable to the less experienced, on account of the violent symptoms which usher in the affection. Induration or ulceration, with exfoliation of the cartilage and bones, scarcely ever ensues. Periostitis of the external meatus is very rare in young children; on the other hand, however, there are several diseases following, and frequently due to periostitis of the middle ear.

Therapeutics.—The principal object is the speedy mitigation of the extremely torturing pains, which may be accomplished by a cautious administration of opium or morphine, they being the most efficient remedies. It is also very important that the patients should use a firm horse-hair pillow, by means of which the internal ear is less liable to be compressed. Topically, it is best to inject warm water, and conduct the steam from hot chamomile-tea upon the abscess. The application of poultices invariably causes pain, and they do not perceptibly promote suppuration. The only means by which we can afford the patient immediate relief is to open the abscess as early as possible, for which a simple incision suffices. The injections of tepid water should then be continued for a few days, when the whole difficulty will entirely disappear.

(4.) INFLAMMATION OF THE MIDDLE EAR (*Otitis Interna*).—In inflammation of the middle ear, either that of the mucous membrane alone, or, conjointly with it, of the periosteum and bone, may occur, and, for this reason, we have to discriminate between (1) a catarrhus and (2) a periostitis auris mediæ.

(a.) *Catarrhus Auris Mediæ*.—This disease must be regarded as the most frequent cause of the deafness which attends inflammation of the ear, and because it usually occurs in both ears at the same time. The catarrh is probably propagated from the Eustachian tube to the tympanum, and the mucous membrane of the tympanum, when once inflamed, behaves like other chronically-affected mucous membranes. Hence we see improvement, soon followed by exacerbations. These children suffer most from deafness in damp weather, or when affected