I.—FEBRILE HERPES OF THE CORNEA


Gruter, in 1913, reported the fact that herpetic keratitis of man could be inoculated on the cornea of the rabbit. Löwenstein later repeated Gruter's experiments, using various kinds of herpetic vesicles. He found that such inoculations in rabbits succeeded every time, whatever the form of febrile herpes, but did not succeed in herpes zoster. He also found that the different varieties of febrile herpes produce immunity in rabbits, and that the immunity is equal, in such a way that any kind of herpes immunizes against any of the other kinds. Experiments made with pemphigus, eczema, etc., were negative, and Löwenstein concluded that herpes febrilis is caused by a special virus belonging to the group of dermotropic excitants (excitants dermatropes). Microscopically the results were uncertain.

Dörr and Vöchting have further studied this question. Their experiments are of great interest, and may here be summarized.

Of six experiments to prove the transmissibility of herpes from man to rabbit, four were positive and two negative. The two failures are attributed to the transference being made too late in the evolution of the human herpes. The authors conclude that the evolution is very rapid. Experiments were then made from rabbit to rabbit, and these all succeeded provided the inoculation was made early, one or two days after the commencement. Further, an erosion of the cornea is not essential. If the transference is made into the conjunctival sac only, the incubation is longer, and, mainly, the resulting infection is of the conjunctiva. On the other hand, the attempt to transfer the herpes from the cornea of the rabbit to other parts, such as the lip and nostril, did not succeed.

A very curious fact is that when the virus is injected into the anterior chamber or vitreous, the result is corneal herpes, not an intraocular infection. The result stated by Gins, that vaccinia injected into the blood stream can be produced in the cornea merely by scratching it with a sterile needle, cannot be reproduced for herpes. The authors conclude that the herpetic virus has the character of a parasite which attacks the epithelium, to a much higher degree than that of vaccinia. Dealing with regional immunity, which was asserted by Löwenstein to take place in rabbits, the authors have found, in spite of the fact that regional immunity
SQUINT, MANCINISM, AND TUBERCLE

certainly does not occur in herpes febrilis of the human subject, either of the cornea or of the lip, that Löwenstein is right in his statement for rabbits. Further, herpetic infection of one eye alters the strength of the reaction of the other eye: the length of the incubation period is prolonged, and the herpes is frequently of such a benign form that one has to inoculate a healthy eye of another individual in order to make sure that the reaction has been positive.

The final paragraph of this article appears to the reviewer to be of very great interest: “The importance of regional immunity in the diagnosis of the herpetic virus, and in its differentiation from other viruses with identical action on the eye of the rabbit, does not require to be much enlarged upon. If one inoculates the cornea of a rabbit with a mixture of herpetic virus and vaccinia, the two infections are produced simultaneously. One can also produce herpetic keratitis on a cornea infected with vaccinia keratitis, and vice versa. It is easy to isolate the components of a mixture of virus by inoculating them upon corneas immunised against herpes or against vaccinia, and thus without difficulty to make a differential diagnosis.”

Ernest Thomson.

II.—SQUINT, MANCINISM, AND TUBERCLE


Rivers, in his recently published book, maintained that squint was about three times commoner in consumptives, and probably also in consumptives' parents, than in the non-tuberculous; that such squint seemed to favour the left eye; and that tuberculous squinters were left-handed, and gave a family history of left-handedness oftener than did non-squinters. Rivers, in the present article enlarges on this theme as the result of the examination of more extensive material. The article is choked with statistical statements in the text which make it extremely difficult to follow. One may be content to transcribe some of the statements and make some obvious comments on them.

“Not stopping then to do more than note the apparently new fact that squint is greatly commoner in children than in adults, we reach the first conclusion that in the subjects of some forms of tubercle squint is as much as twice or thrice as frequent as in normal persons.”

It is, surely, not a new fact that squint is commoner in children...
than in adults. The spontaneous or therapeutic "cure" of squint in children is one considerable cause of this.

"It seems fair then to conclude that squint is excessive in lung tubercle and in lymphatic gland tubercle, but not in bone and joint tubercle."

"Squint is excessive amongst the clinically non-tuberculous mothers (at any rate) of non-squinting consumptives."

"I have now particulars of 65 phthisical squinters; 48 of these squinted with the left eye. As to the normal lateral distribution of squint, the text-books appear to be silent . . . . . . It would appear quite likely that left-eyed preference is a characteristic of squint generally, not only of squint in the tuberculous."

The reviewer has brought out this same predominance of left squints in school children in an article published in the British Journal of Ophthalmology, July, 1919, and more completely in the Annual Reports of the Education Authority of the County of Lanark, 1914-15, and 1916-17 (Statistical Tables).

The author's statistics of the association of left eye squint with mancinism (left-handedness) are interesting, and he concludes regarding this that "whether in phthisical or in non-tuberculous subjects, left-eyed concomitant strabismus is somewhat associated with mancinism and with a family history of mancinism."

What then do we gather to be the author's point regarding squint and consumption? It seems to amount to this, that the development of clinical tuberculosis is favourer by an abnormal constitution, of which squint is a sign. Squint is "a mark of general tendency to abnormality." Mancinism has been reckoned among the stigmata of degeneracy. And we have the association of left-eye squint with mancinism.

The reviewer cannot help thinking that some of the author's arguments are unduly stressed. If he is going to associate concomitant squint with tubercle the association ought to be between tubercle and the optical conditions which most of us think have something to do with squint. Squint is unusual in emmetropes. Ought he not to begin at the beginning and seek to know why because, say, one cornea has a curvature somewhat different from the other, this, with the resulting visual confusion and the ultimate squint, should be a sign of abnormality; and why, if associated with left-handedness, a left-eye squint (that is, in effect, a left-eye optically inferior to the right) is to contribute to the signs of degeneracy? Should he not also seek to explain why eyes which exhibit extremely high hypermetropia, and which on that account might themselves with some show of reason be considered "abnormal," and possibly even "degenerate," so frequently do not squint?

Again, let us examine the following startling statement: "Take
only the significant phenomenon of squint being much commoner in ordinary school children than in ordinary adults. It might have been predicted; we know from school medical officers that very few working class children get cured of squint, but we also know that an undue proportion of these squinters are destined to find the asylum and the prison. What use does preventive medicine make of that knowledge? Now add that an undue proportion will also become tuberculous or the mothers of the tuberculous, and that into the bargain there is probably a considerably higher general mortality amongst them than amongst their school fellows. The neglect becomes serious.” The author does not specifically refer us to authorities for these statements, unless they are contained somewhere in the 25 items of the bibliography.

Can we, ophthalmologists, believe that a child with a squint has, because of the squint itself, a better chance of going to prison, going to an asylum, or dying young, than a child who does not squint? One is not justified in disputing statistics, but only in questioning the interpretation of them. Is not the difference in the percentage of squinters between the juvenile and the adult population more rationally explained, as a whole, by spontaneous or therapeutic “cure” than by suggesting that it is largely due to so many of the juvenile squinters ending in the prison or the asylum? May it not also be the case that the people who reach these institutions are just the people whose parents neglect the eyesight of the children? With regard to tuberculosis, with regard to excessive mortality, what is the connection between these and the optical conditions which are associated with squint? If Dr. Rivers were to take 100 non-squinting children at random, and bandage their left eyes for a week or two (a procedure which cannot be advised) he would assuredly produce a percentage of left-eye squints. Would each of these squints be “a mark of a general tendency to abnormality,” and would one be obliged to consider that the expectation of life of these children who squinted because of the bandaging had been reduced?

Further, does the school medical officer know anything about the future of individuals between the time of leaving school and full adult life? In any case, what is meant by the “cure” of squint? If a squinting child becomes a non-squinting adult—not such an uncommon occurrence after all—his optical defect, in all probability, has not been removed. His corneal curvature remains the same. Everything remains the same except the position of the eye. Yet, whether through the natural growth of his orbits or as a result of optical or other treatment, the individual would have passed out of the valley of the shadow, of death, tuberculosis, the prison, or the asylum. That is, of course a reductio ad absurdum.

The reviewer is persuaded that concomitant squint is largely a
preventable accident, preventable if we knew the optical condition of every young child. He is totally unable to see how ordinary concomitant squint or its causative factors, factors which, be it noted, do not come into action as a rule for several years after birth, can be regarded as a mark of a general tendency to abnormality, any more than refractive errors in general can be so regarded, and considers that the author should seek for some different interpretation of the statistics which he has collected.

Ernest Thomson.

III.—ON THE DEVELOPMENT OF THE FISSURAL REGIONS


This paper deals with the process of closure of the choroidal fissure as observed in chick, mouse, and human embryos.

In the chick, as is well known, the level of attachment of the optic stalk to the developing optic cup alters greatly during development, being at first at the inferior part, and later half way up the posterior surface of the globe. The formation of the lower retinal fields, therefore, occurs by extension of the margins of the cleft. This is not exactly equal on the two sides of the cleft, being slightly greater on the posterior side, since the direction of the fissure alters from a right angle, in early embryos, to $70^\circ$ with the horizontal downwards and forwards, in the adult hen. The fissure closes first in its intermediate portion, leaving a proximal opening for the choroidal vessels, which pass out again at the distal opening of the fissure. This later closes; the vessels are cut off here and become shorter.

Owing apparently to more rapid growth of the inner layer of the optic cup, this layer becomes everted in the upper part of the fissure, so that on the outer surface of the eye a non-pigmented area is visible on either side of the cleft, continuous with the true outer, pigmented layer some little distance from the cleft margins. When closure of the cleft occurs fusion therefore takes place between non-pigmented areas only.

Comparatively large areas of the non-pigmented layer fuse so that the line of the fissure is marked by the heaping up of this layer, which forms two ridges, one (*crista intraocularis*)
Gummatous Ulceration of the Tarsus

projecting into the vitreous, the other on the outside of the globe. In the region above the entering vessels the developing nerve fibres grow into this external projection (since it is in origin directly continuous with the inner fibre-bearing layer of the optic cup) and run up on the outside of the eye to reach the attachment of the optic stalk. These fibres form the cauda of the adult nerve. The fibres of the developing cauda do not reach the cleft by following the inner surface of the retina, but pass deeply into its substance, thus cutting off the cells of the crista intraocularis from the rest of the inner layer. This crest grows into the vitreous, becomes vascularised from below upwards by the proximal ends of the choroidal vessels, develops pigment and becomes folded upon itself, forming the pecten, which is thus seen to be primarily ectodermal in origin. In the adult hen the “roots” of the pecten can be seen to be continuous with the neuroglial septa of the optic nerve.

Below the entering vessels the eversion of the inner layer is not so great, no nerve fibres grow into it and no cauda is formed. The internal ridge also disappears, no sign of the line of the fissure remaining.

In mammals also the eversion of the inner layer in the lips of the fissure occurs. It is very well seen in the mouse. In 13 mm., 15 mm. and 16 mm. human embryos it is present as a small mass of non-pigmented cells continuous with the pigmented layer and situated immediately below the nerve. In man, however, no nerve fibres normally grow into this everted area and so no cauda is formed to the optic nerve.

IV.—GUMMATOUS ULCERATION OF THE TARSUS

Maucione, Dr. L. (Naples)—On gummatous ulceration of the tarsus. (Contributo allo studio delle alterazione gommoso ulcerate del tarso.) Arch. di Ottal., July to September, 1920.

Maucione has had the opportunity of seeing three cases of gummatous ulceration affecting the tarsus. He points out that the disease is of considerable rarity, as he has only been able to find twenty cases recorded, and, in addition, that the differential diagnosis may present a good deal of difficulty.

The first case was that of a man of 27, who had acquired syphilis seven years before the tarsal affection had developed. This was treated with mercurial injections and “J.K.” Seven years later he suffered from severe bone pains and calomel injections were repeated without benefit. The “Pollini” treatment was then tried, but after the sixth dose the right upper eyelid became swollen and some days later an ulcer was noticed on the corresponding part of
the tarsal conjunctiva. This got well under treatment, but relapsed a few months later, and this time remained unaffected by mercurial treatment.

When first seen by Maucione there was a swelling in the right upper lid about the size of a coffee bean. On evertting the lid, which could be done easily and with little pain, there was seen a circular ulcer of about 7 mm. in diameter with sharply defined undermined edge and raised above the surrounding conjunctiva, which was a little hyperaemic. The surface of the ulcer was covered with a whitish adherent exudation, the removal of which caused a slight flow of blood-stained lymph. The Wassermann reaction was strongly positive and the skin reaction to tuberculin was negative. Microscopic examination of the exudation and ulcer fragments gave no positive results. The injection of 60 ctg. of neosalvarsan was followed by a complete cure in ten days. Twenty-two days later a relapse occurred in which all the features already described were reproduced. This was treated by two further injections of neosalvarsan in doses of 45 and 60 ctg. A fortnight later the ulcer had disappeared and the patient has remained well since.

The second case was that of a man of 24 who had contracted syphilis four years previously. This patient's father had also suffered from syphilis, and of his ten children seven had died in infancy. The treatment adopted in this case was the same as in the first case. Four years after the primary lesion the right superior eyelid became swollen. This subsided without treatment, but a recurrence took place two months later, this time in the right inferior lid, with rapidly increasing ulceration near the free margin. Maucione then saw him and gives a description of the appearance which was practically identical with that observed in the first case. Wassermann reaction positive, tuberculin skin reaction negative. Microscopic examination of scrapings showed nothing of importance. A complete cure followed a single injection of neosalvarsan.

The third case was that of a man of 23. In early youth he had suffered from periostitis of the leg which required scraping and a protracted course of "iodo-iodurate" injections. He contracted syphilis a year before the tarsal affection appeared. When this appeared he was under an intensive mercurial treatment for skin symptoms. When seen by Maucione there was an ulcer in the middle third of the free margin of the right upper lid. When the whitish surface exudate had been removed a cavity appeared which bled readily and extended about 4 mm. within the tarsus involving both the skin and conjunctiva of the free margin of the lid. Wassermann reaction was negative, probably on account of the recent intensive mercurial course, skin reaction to tuberculin was negative. As in the previous cases microscopic examination was of no assistance. Two doses of 45 and 60 ctg. respectively of
neosalvarsan not only caused the ulcer to heal but also cleared up the skin lesions which had not yielded to the previous intensive mercurial treatment.

The paper concludes with some comments on the differential diagnosis, the nature of the lesion, and the value of arsenobenzol preparations in the treatment after the failure of mercurial injections.

Photographs of the first two cases and a bibliography accompany the paper.

E. E. H.

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V.—PRIMARY EPIBULBAR CARCINOMA

Calhoun, Phinizy (Atlanta, Ga.).—Primary epibulbar carcinoma.


Calhoun reports a case of epibulbar carcinoma in a man, aet. 64, which occurred as a rapidly increasing tumour of the lower lid, accompanied by defective vision. Eighteen years before author's examination, the patient had undergone operation for a bulbar growth which had developed at the site of an excised pterygium. This growth had been diagnosed malignant, but there was no recurrence until six weeks before examination by the writer. On examination, the lid tumour was found to be of the size of a hazel nut and firmly adherent to the globe, and encroaching slightly upon the limbus at its lower part. There were old trachomatous scars in the upper lid, and pannus was present. Patient refused enucleation, and the tumour was shelled out. Following confirmation of diagnosis of malignancy by pathologist's report, radium was applied two days later at the site of operation (20 mgm, for 1½ hr. to raw surface). Seen two months later, cornea had cleared, and vision improved. Fundus was normal.

A year later patient sought advice on account of an enlarged gland in the preauricular region. Pannus had returned and a small growth could be made out at the site of the original tumour (the lid being adherent to the globe at this point). Patient again refused enucleation, and the tumour (with the gland) was removed under local anaesthesia.

No recurrence of any kind had taken place when the patient was seen six years after the first operation.

Several photo-micrographs of the tumour and gland tissue are given.

Calhoun, being in some doubt as to the correctness of his diagnosis of malignancy, submitted sections of the tumour and
THE BRITISH JOURNAL OF OPHTHALMOLOGY

332

gland to several pathologists who completely confirmed his opinion.

He alludes to the controversy that obtains in regard to such tumours, some surgeons holding that penetration of the globe rarely takes place, and others—among whom he quotes Parsons and de Schweinitz—considering that penetration is frequent.

Calhoun accepts the teaching that if the tumour be small and at the limbus, a deep excision may be made and developments carefully watched, but that if the growth be at a distance from the limbus, even if of larger size, it may be excised with confidence in the result.

[Radium treatment in the present case may have played a considerable part in the cure of the condition, even accepting the diagnosis of malignancy as established.]

J. HAMILTON McILROY.

VI.—CONGENITAL WORD BLINDNESS


Macleod gives notes of three cases of congenital word blindness observed by him in the same family. He points out the difficulty of training such patients to earn their living, and that, in consequence of their failure to do so, the burden falls on the public purse. While two of his patients were mentally deficient in other respects, one of them was said to have possessed average intelligence and an exceptionally good memory. So good was his memory that his defect was not at first discovered, as he appeared to read from memory of what the teacher had said. As a result of being taken away from school at ten, he had, four years later, degenerated and appeared weak-minded. All three were sent for six months to a lunatic asylum as they were difficult to manage at home, but no benefit followed. There was no hereditary history, and the other five children were all normal. Macleod gives an account of Gaskell's theories of nervous reflexes, and suggests that the development of fresh collaterals by education might have possibilities in these cases. He was also much struck by an account of Pavlov's experiments on the acquirement of cerebral reflexes by the lower animals, and considers that the same principles might be used in the education of the human defective. "The patient should be kept in a room by himself and the reflex between the word and the utterance of a sound slowly brought about without the presence of any adventitious noise, words of encourage-
ment, evidence of impatience or unnecessary stimuli falling on the eye or ear. Every avenue of approach to the cortical cells may and should be brought into requisition, as the larger the number of associations the more easily, and perhaps at the same time the more vividly, would the impression be recalled."

E. E. H.

VII.—HUMAN MYIASIS.


Wright's patient was a Hindu woman of 30, whose supra-orbital and inter-orbital regions were alive with maggots; the bones had been extensively attacked; the surrounding sinuses were freely involved; the dura was not exposed. The eyeballs were exposed, proptosed, and pushed outwards; the cornea of one of them was ulcerated. There was marked oedema and a foul discharge. The cavity was irrigated with permanganate solution, and turpentine applications were made; 50 maggots were removed the first day and 30 the next. Chlorine solution was substituted for the permanganate and iodoform packing adopted. The prognosis is stated to be good for life, but poor for sight. The extrinsic muscles of the eyes had been extensively destroyed. Patton identified the maggots as the mature larvae of *Chrysomyia bezziana* Villeneuve, the specific-myiasis producing Calliphorine of India, which deposits its eggs only in the diseased tissues of man and animals. He states that it is clear that the eggs were laid directly on an ulcerated surface, resulting from the lancing of an abscess on the patient's eyebrow, and not within the nose. At the same time a nasal discharge, such as the patient had, serves to attract the female *bezziana* to oviposit inside the nostrils, the larvae then penetrating into the sinuses connected with the nose. He asserts that these larvae do not penetrate bone or cartilage, and that the destruction of these hard tissues, as seen in this case, is brought about by dissolution through the action of bacterial ferments. All muscid larvae confine themselves to fluid food, the substances on which they feed being dissolved by salivary and bacterial ferments. The patient had noticed the larvae for three days, and the eggs must have been laid ten days earlier.

R. H. Elliot.
VIII.—HEREDITARY POSTERIOR POLAR CATARACT


(7) Aprobos of the explanation of hereditary cataract, Ziegler and Griscom point out there are two schools: the one believing that the cause is toxic, and the other believing that it represents an arrest in development of the lens, due to some inherent abnormality in the germ-cell. There is strong evidence in support of both theories. But it is probable that neither one singly explains every case of congenital cataract, while in some instances both may be active factors.

In the cases reported the opacity was situated on the posterior capsule of the lens, and varied from a small round dot at the posterior pole to a dense circular disc covering the central third of the posterior capsule.

The original member of this family came to the United States from France about 1810, but nothing is known concerning the condition of his eyes. The first member of the family known to have congenital cataracts was a son of this original settler. In the second generation there were nine members, of whom six were affected. The third generation contained thirty-one members, of whom ten were affected. The fourth generation contained twenty-three members, of whom seven were affected. A study of the pedigree showed that there were sixty-four members in the four generations, of whom twenty-four (37 per cent.) had congenital cataracts. Of those affected, 43 per cent. were females and 34 per cent. males. The rule of “once free always free” was followed, since in no instance did normal parents produce affected children.

Charles B. Davenport reported concerning the pedigree that the cataract in this family behaved as dominant. So long as these people with early cataract married, they were bound to perpetuate their trait in half their descendants. Normals, on the other hand, need have no fear of marrying and having children.

S. S.

BOOK NOTICES


We welcome the fifth edition of Worth’s book on Squint. In