

BULL (C. S.)

Purulent inflammation  
of the eye ball &





PURULENT INFLAMMATION OF THE EYEBALL AND  
ORBITAL TISSUE, AND PARALYSIS OF THE  
OCULAR MUSCLES AS POSSIBLE COM-  
PLICATIONS OR SEQUELÆ OF  
INFLUENZA.

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IN discussing the localized complications of any general systemic disease, and especially of any infectious disease, we should beware of regarding all that follows a disease as its direct effect. This is particularly true of the complex of symptoms which we call influenza, and the French "la grippe." Many of those attacked and weakened by influenza become, in consequence of this weakness, the victims of diseases which have no connection with the original cause of the weakness. The more closely we observe this disorder the more convinced we become that the sequelæ of influenza bear no relation to the severity of the primary disease. Another fact which has been made clear by the study and observations of cases of influenza is that the general number of eye diseases is not increased during the prevailing epidemic.

So far as we know there is no ocular complication or sequela of influenza which is at all characteristic of the disease. Affections of the eyes in influenza are relatively not infrequent. They are polymorphous, of multiple variety, and many of them slight in nature and easily relieved.

I think that it may be stated positively that no one specific infecting agent has been with certainty found in all cases of influenza. Among the bacteria found in the circulation, secretions or tissues of patients affected with influenza may be mentioned three varieties which are important from their consequences, viz: The diplococcus, streptococcus and staphylococcus pyogenes. All

*Presented by the author -*



these may induce embolic and thrombotic processes in any part of the body, and also give rise to toxic products which poison all the functions.

It scarcely seems necessary to call in question the credibility of the belief that purulent processes occurring in the eye are dependent upon the toxic products of influenza. The question, very naturally, however, arises: is the connection between the diseases of the eye and influenza direct or indirect, primary or secondary. Do toxic influences play the main rôle or do they merely lower the general health and thus pave the way for eye troubles?

The connection probably varies with different forms of eye disease. We start with the generally recognized assertion that influenza is an infectious disease in which capillary thrombosis have often been found. Emboli have been met with which are either infectious, or consist of simple clots. If they are infectious the streptococcus or the diplococcus or the staphylococcus pyogenes will be found. Many such cases have been reported in detail by the most careful observers, and there seems to be no reasonable doubt that purulent processes in the eye, the result in most cases of infectious embolism or thrombosis, are by no means infrequent complications or sequelæ of influenza. Of these the most important and the most disastrous in its consequences is the septic choroiditis or irido-choroiditis.

The most frequent purulent processes in the eye which accompany or follow influenza seem to be entirely external and are located in the lids, conjunctiva or cornea. In these cases Jaccourd has advanced the theory that the infection is intrinsic; that is, the numerous microbes of the conjunctiva, inoffensive when the patient is in good health, become noxious by the invasion of influenza. Fage, (*Archiv. d'ophtal.*, 1890, p. 316, et seq.), has reported cases of purulent dacryocystitis and abscess of the cornea with hypopyon. Landolt, (*Rec. d'Ophtal.*, 1890), has reported a case of abscess of the lid. Hosch, (*Correspondenzbl. f. Schweizer Aerzte*, 1890), reports a case of purulent irido-choroiditis with hypopyon. Eversbusch, (*Münch. Med. Woch.*, 1890), reports in detail an extremely interesting case of purulent choroiditis occurring on the ninth day of the influenza and ending in panophthalmitis and perforation. The staphylococcus pyogenes aureus was found in large numbers in the secretion, and infectious emboli were found in several of the blood vessels of the uveal tract. Fuchs, (*Wien. Kl. Woch.*, 1890), reports a case of purulent inflammation of the capsule of Tenon, beginning on the

fourth day of the influenza with exophthalmos, loss of motility, swollen lids, and eventually a discharge of pus by two openings into the orbital tissue, and the pus showed pneumococci. Gazis (*Rec. d'Ophtal.*, 1890) reports a similar case. Ehrlich (*Inaug. Diss. Berlin*, 1892) reports a case of abscess of Tenon's capsule, one of purulent orbital cellulitis, one of abscess of the lid, and one of purulent dacryocystitis. Laqueur (*Berl. Kl. Woch.*, 1890) describes a case of bilateral embolic iridocyclitis which came on suddenly on the eighth day of the disease and ended in complete blindness of both eyes which lasted four days. The patient subsequently regained a vision of one-half. Natanson (*Petersb. Med. Woch.*, 1890) reports a case of influenza with pleuro-pneumonia and bilateral embolic irido-choroiditis ending in total blindness on the third day, and death on the fifth day. Finally in the monograph by Leyden and Guttmann on the influenza epidemic of 1889 and 1890, Horstmann, who wrote the chapter on affections of the eye, refers to cases by Pflueger, Greeff, Lyder-Borthem and himself, showing the great variety of suppurative processes in the eye met with in patients sick with influenza.

Among a number of cases of purulent diseases of the eye in patients suffering from influenza during the last three years which I have seen, the following recent case seems worth reporting in detail, on account of its severity and fatal termination.

On January 28, 1895, a woman, 40 years of age, was brought to me suffering from a very severe type of orbital cellulitis and panophthalmitis, and she gave the following history: The right eye had been blind for many years from a traumatism.

On January 23, she was attacked by many of the symptoms of influenza, coryza, obstinate cough, severe headache, high fever, pain in all her bones, and on the next day the eyelids began to swell and the eye to protrude. These symptoms rapidly grew worse, and when I saw her on the fifth day the eyelids were enormously swollen, the exophthalmos was extreme, the eyeball was very hard and immovable, and the pain was intense. Her temperature was  $103\frac{2}{5}$ ; her cough was violent and the expectoration profuse. She was put to bed, hot bichlorid fomentations were applied, leeches to the temple were ordered, and phenacetin and morphia were given to take down her temperature and allay the pain. The applications were continued for three weeks before the signs of cellulitis and panophthalmitis entirely subsided. As soon as softening began, two incisions were made into the orbital tissue on both sides of the eyeball, and the pus then discharged freely.

The cornea had previously ruptured, and a large amount of detritus and pus was evacuated from the eyeball. After all signs of cellulitis had subsided and pus had ceased to be discharged from the orbital tissue, the eyeball was carefully enucleated, and a clean, apparently healthy cavity was left. On the evening of the second day after the enucleation, the wound appearing perfectly healthy, she began to develop symptoms of meningitis, and she died comatose on the fourth day. The autopsy showed purulent meningitis which involved not only the whole base of the brain, but also the entire convexity as well. The extensive character of the meningeal inflammation led me almost to suspect that the meningitis had begun before the enucleation was done. At the autopsy no pus was found anywhere in the sheath of the optic nerve, but a subsequent microscopic examination may give a different finding. There seems scarcely any doubt that this was an embolic process, whether starting in the cellular tissue of the orbit or in the uveal tract, it would seem impossible to say.

In regard to the affections of the nervous apparatus of the eye which are said to complicate or follow the influenza, including the muscles, the retina and the optic nerve, the cases reported by competent observers are even more numerous than the cases of suppurative disease, and their actual connection with the general disease cannot be denied. The most frequent of these nervous sequelæ is probably a paralysis of accommodation. Here the toxic agent of influenza resembles that of diphtheria. Then we meet, in the order of frequency, with paralysis of the sixth or abducens nerve; paralysis of the motor oculi or third nerve, and paralysis of the trochlearis or fourth nerve. The muscles supplied by the third, fourth or sixth nerves may be individually affected, or there may be complete external and internal ophthalmoplegia, either unilateral or bilateral. The paralysis of accommodation may occur alone without paralysis of the sphincter iridis, and in this peculiar effect the influenza resembles diphtheria. Three such instances have come under my own notice, and all regained the lost power of accommodation.

Schirmer (*Klin. Mon. f. Aug.*, 1890) reports a case of right unilateral complete ophthalmoplegia, coming on during the height of an attack of influenza. There was loss of sensibility on the right side of the face and scalp, with paresis of the right masseter and temporalis muscles, and also of the muscles of the tongue on the same side. As there was paralysis of the third, fourth, fifth, sixth and seventh nerves, the lesion must have been

central, and was possibly a hemorrhage at the base of the skull, in or near the middle fossa. It is a well-known fact that in many cases of influenza there is a strong tendency to hemorrhage in various regions of the body.

Affections of the retina and optic nerve have been found to be almost as frequent complications of influenza as are paralyzes of the ocular muscles, but they seem to be divided into two classes; one which accompanies the attack of influenza, and another which is a pure sequela, coming on several weeks after the onset of the disease. It is more obstinate in resisting treatment and leaves more disastrous results as to vision than the first class, because there is not only inflammation of the sheath of the optic nerve, but also acute degeneration of the nerve fibers. The papillitis or retrobulbar neuritis met with during or after the attack of influenza resemble the same conditions met with in the course of other infectious diseases. Two interesting cases are reported by Landsberg (*Centralbl. f. prakt. Aug.*, 1890). The first was a man, who, on the fourteenth day of the influenza, suddenly lost the sight of his left eye, without any ophthalmoscopic evidence of disease. He could count fingers at two feet, had a very narrow field with total color-blindness, and regained his vision after eleven daily injections of pilocarpin. The other case was a woman who, during convalescence from influenza, had a sudden failure of vision of the left eye, with a central scotoma, proving the presence of a neuritis of the macular fibers, as the ophthalmoscopic examination was negative. She recovered under the administration of strychnia.

Ehrlich (*Inaug. Diss.*, Berlin, 1892) reports cases of retrobulbar neuritis and papillitis, and Antonelli (*Annali di Ottal.*, XXI, p. 119) the same. Snell (*Trans. Ophthal. Soc. United Kingdom*, 1892) describes cases of optic neuritis ending in atrophy. Hart-ridge (*idem*, 1892) reports a case of bilateral neuro-retinitis, and Métaxas (*Annales d'Oc.*, May, 1892) a case of retrobulbar neuritis, with hemeralopia, ending in atrophy.

Remak (*Centralbl. f. prakt. Aug.*, 1890) reports a case of a man, with a severe catarrhal form of influenza, who, on the fourth day had a series of four convulsions within one hour, followed by loss of vision and atrophy of the optic nerves.

Bergmeister reports cases of simple and inflammatory atrophy of the optic nerve, with concentric limitation of the field of vision and loss of the color sense.

Graddy (*Ophth. Rec.*, June, 1892) reports an interesting case of a woman who had a severe attack of influenza with pulmonary complications, and in the third week became suddenly blind, with a very small area of central vision for light. From this condition there was a slow improvement, followed again on the twelfth day by sudden failure of the vision, and right bilateral hemianopsia, which remained permanently.

Gifford (*Ophth. Rec.*, 1892) reports the case of a man who, during a severe attack of influenza, suddenly had an onset of violent pain in the occipital region, followed by bilateral right-sided hemianopsia. In each eye the line of demarcation followed the vertical meridian accurately and remained unchanged for nearly three years.

The writer has recently had under his care the following case: A gentleman, 62 years of age, a literary man, badly nourished, and a victim for many years to intestinal catarrh, on the fourth day of a severe attack of influenza, suddenly noticed an obscuration of the vision of the right eye. I saw him within a few hours of the occurrence, found a central scotoma, positive in character, with a diameter of about  $30^{\circ}$  in all directions from the center of the field. Within the limits of the scotoma vision was absolutely lost. The ophthalmoscopic examination was entirely negative and has remained so. The scotoma for form gradually grew smaller and eventually disappeared, but the sense for color is still absent within the limits of the original scotoma. There was no pain caused by movements of the eye in the orbit, but considerable pain was produced by pressing the eye backwards into the orbit. He recovered under the use of strychnia and pilocarpin administered hypodermatically. This was undoubtedly a case of retrobulbar neuritis, the fibers going to the region of the macula being involved.









