ALBUMINURIC RETINITIS IN ONE EYE, EMBOLISM OF THE CENTRAL RETINAL ARTERY IN THE OTHER.

BY

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CASES of monocular albuminuric retinitis, with no sign of involvement of the other eye up to the time of death, have not been very frequently reported, and we are indebted almost entirely to American, French, and German sources for literature on the subject. But nowhere can I find any reference to the effect of a pre-existing disease of the retina in the case of a patient suffering from nephritis. For this reason the following fragmentary notes, however incomplete, seem to be of sufficient interest to record.

T. H., aged 37, consulted me on November 19th, 1918, because, twelve days previously, he had suddenly become blind in the right eye. He had had a transient attack of dimness in that eye a month earlier. He could just count fingers, but with the other eye he read 6/6. The right pupil hardly reacted to light, but responded consensually. Ophthalmoscopically the picture was that significant of embolism of the central artery of the retina. The external half of the retina was very anaemic, and the vessels were reduced in calibre and appeared as mere threads through the gloomy media. In the macular region a "cherry-red" spot was dimly visible.

On November 27th there was less haze, and between the cherry-red spot and the disc there were four small haemorrhages. He had no perception of light in the eye. On December 18th the cherry-red spot was smaller, and between it and the very white disc were a number of glistening white spots.

On January 14th, 1919, there was advanced atrophy of the disc and the glistening spots had disappeared. On March 25th there was pigmentation around the disc, and the contrast with the white nerve head was very noticeable. The report of his doctor that there was no evidence of cardiac or renal disease was confirmed. His Wassermann reaction was negative.

I did not see him again for six years, when he came to me on March 10th, 1925, with a diagnosis of Bright's disease associated with right total and left partial loss of sight. In the latter eye the dimness had been coming on for several months. On examining the right eye the disc was found to be absolutely white and there were only to be seen a few threads which had once been arteries. The condition of the eye was consistent with the history. There was no retinitis. The left eye showed an intense neuro-retinitis with white patches of exudation covering the retina, and there were two haemorrhages below the disc. The vessels were small when they could be seen, but they were mostly hidden by the exudation. There was no stellate figure. He was very restless and had other signs of an approaching collapse. The urine showed albumin and casts, and the specific gravity varied daily between 1016 and 1020. Towards the end of his life it dropped to 1010, and there was only a trace of albumin and no casts. He had very little oedema of the body or limbs, and it was not more marked on one side than on the other. Death occurred on May 1st without any sign of retinitis in the right eye, the last examination having been made the day previous to his death.

I am much indebted to Colonel J. Cowan for the report of the *post-mortem* examination and for his help with the pathology.

The heart weighed 571 grams (about 20 ounces). On the right side there was marked hypertrophy of the ventricle. There was stenosis of the mitral valve (it admitted the forefinger up to the first joint only). The cusps were thickened and rigid; no recent vegetations. No atheroma in the aorta. Coronary arteries patent, but probably somewhat sclerosed. Both kidneys were present and were equally affected. Each weighed 107 grams (about two-thirds of the normal)—chronic granular contracted (small red) kidneys. There was profuse cystic degeneration of the cortex of each kidney. The cause of death was returned as (1) chronic nephritis, (2) uraemia and failure of the right heart.

Post-mortem examinations of patients who have had monocular albuminuric retinitis at the time of death have not often been reported, and it seems probable that such cases are extremely rare. Nevertheless there is divergence of opinion regarding the binary frequency of albuminuric retinitis, as the following selection of authorities will show:

Parsons: "The condition is almost always bilateral."¹

Knies: "Usually bilateral, though it does not always begin at the same time. Unilateral cases are not very rare."²

Sym: "Always bilateral."³

Meyer: "The disease generally affects both eyes, but in different degrees."⁴

Noyes: "It is highly exceptional to have but one eye involved; frequently one eye is more involved than the other."⁵

Berry: "Almost invariably both eyes are affected at or about the same time."⁶

de Schweinitz: "Almost invariably both eyes are involved, but in rare instances the affection has been monocular." This author has observed one such case.⁷

de Wecker: "While in simple apoplectiform retinitis cases were not infrequent in which the affection was limited to one eye, or did not attack the second until late, nephritic retinitis generally commences simultaneously or within a short interval in both eyes."⁸

Swanzy: "Both eyes are as a rule affected, though often not equally so. A few cases are recorded in which only one eye was attacked, and in several of them it was found that but one kidney was present."⁹

Yvert: "Has seen it once affecting one eye only out of eighty-one cases."¹⁰

Juler: "Both eyes are always affected."¹¹

The first monocular case appears to have been published by Kirsch in 1870,¹² and since then others have been reported. In Yvert's case¹³ the *post-mortem* examination showed that the patient had only one kidney and that the missing one was from the same side as that on which the eye was unaffected. The absence of the kidney had apparently saved the sight.

Influenced by this case Yvert advanced the theory that an irritation is capable of reacting by means of the sympathetic nervous ganglia upon the whole capillary system of the corresponding side, thus causing disturbance of the circulation, both in the retina and in the limb on the corresponding side. This view, he considered, was supported by the cases published by Potain,¹⁴ in which a blow on the loins was followed by anasarca limited to, or more pronounced on, the injured side. In a case of Eales's¹⁵ an alcoholic man fell and injured his left loin. The next day he was found to have loss of sight in the left eye. Three weeks later a retinal haemorrhage and retinitis were discovered in that eye only. There was a slight quantity of albumin in the urine, the specific gravity of which was 1014. Eventually the retinitis cleared up, but some atrophied patches remained. The man appears to have recovered his health but not his vision. The case is recorded as one of "supposed unilateral albuminuric retinitis," but the non-fatal end throws a grave doubt on the albuminuric cause of the retinitis, for had it been of that nature death would almost certainly have followed.

In a case reported by Brunnet¹⁶ there was retinitis in the right eye only and marked oedema in the right leg and arm.

With the exception of Yvert's, I cannot find other cases in which there was reported to be only one kidney, and until further support is forthcoming I think that his theory of irritation of the sympathetic cannot be accepted.

The following is a list of other reporters of unilateral albuminuric retinitis, but it is probably incomplete: Leber,¹⁷ Magnus (two cases),¹⁸ Plenk,¹⁹ Cheatham,²⁰ Moore,²¹ Weeks,²² Bull,²³ Marple,²⁴ Pyle,²⁵ and H. J. Cowan.²⁶ My patient controverts the necessity for an absent kidney, and also negatives the intervention of trauma of the sympathetic. The premisses were exceptional, different incomparably from all the others in that the retina was immunized by the pre-existing disease. A retina which has been to some extent converted into fibrous tissue is not likely to take on the orthodox appearance of albuminuric retinitis.

As the central is a terminal artery the part supplied by it will be completely cut off from nourishment, and will therefore undergo necrosis when embolism of the artery occurs. The condition will be eventually analogous to infarction of the brain. Owing to the situation of the retina sloughing of the necrosed tissue will not occur, but assuming that there is no infection, an attempt at absorption will follow. Leucocytes from the adjacent vessels will form a zone around and migrate into the dead tissue. New vessels will penetrate the necrosed part, the dead tissue being more or less absorbed and replaced by fibrous tissue. It would therefore be possible for such a necrosed area to become inflamed when this healing process has taken place. Nevertheless it is to be expected that a profound modification would take place in the eye which had previously suffered from embolism. The inflammatory process, if it occurred at all, would probably show a very different picture from that seen in an eye which had been previously the seat of an embolism.

That one cannot generalize from a single case is a law which applies equally to Yvert's and to mine; in his the suggestion is the absence of a kidney, in mine the presence of a retinal atrophy.

Embolism of the retina is not a very rare misfortune, and, by the unvarying law of chance, a certain percentage of cases end later by Bright's disease. Examination of a number of these might throw light on the etiology of monocular retinitis.

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THE ANTIGEN TREATMENT OF PNEUMONIA IN INFANCY AND CHILDHOOD.

BY

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ECTO-ANTIGENS or immunogens have recently been introduced into biological therapy; the theoretical basis and experimental work on which their manufacture is based have been described by Sir Thomas Horder,¹ and by Ferry and Fisher.^{2,3} This type of vaccine is probably less toxic than the older types, so permitting much larger quantities of the specific antigen to be administered without deleterious effects. In the autumn of 1926 I began using immunogen as a routine treatment in all cases of pneumonia and bronchopneumonia, and have compared the results obtained with those of the previous nine months.

All the patients were under 14 years of age, many of the infants suffered to some degree from rickets, a few from severe malnutrition, and in a few the pneumonia was terminal or complicated by severe enteritis. Cases of lobar pneumonia and bronchopneumonia are included, the majority being of the latter type. I have attempted to keep the standard of diagnosis uniform; all patients who showed evidence of pulmonary consolidation and symptoms of toxæmia were diagnosed as cases of lobar pneumonia or broncho-pneumonia, even though the disease was of brief duration. Some of these cases would doubtless have been regarded by others as capillary bronchitis or pulmonary congestion.

It is difficult to estimate the value of any specific therapy in the pneumonias of childhood. In the present series of cases some of the patients who had been ill only a few days, and who on admission showed signs and symptoms of bronchopneumonia, recovered in a few days after one injection of immunogen; but others with similar histories, signs, and symptoms recovered as rapidly without it. The combined pneumococcus immunogen of Parke, Davis and Co. was used; it is an extract of types 1, 2, and 3 of the *Diplococcus pneumoniae* together with an extract of haemolytic and non-haemolytic streptococci. Immunogen was injected as soon as a patient was admitted or as soon as the disease was diagnosed in a patient already in hospital. The dose varied from an initial injection of 5 minims in infants to 10 minims in older children. The injections were usually repeated on alternate days in increasing doses; six injections was the maximum number given in any one case; all were given subcutaneously by nurses; in no case did an abscess form, nor were any ill effects noticed.

From December, 1925, to September, 1926, fifty-five cases of lobar pneumonia and bronchopneumonia were treated without immunogen. From September, 1926, to February, 1927, fifty-six cases were given immunogen, but otherwise were treated in a manner similar to the earlier group.

Cases Treated without Immunogen.

Age.	No. of Cases.	Recovered.		Died.	
		Cases.	Per Cent.	Cases.	Per Cent.
Under 2 years ...	18	7	38.8	11	61.2
Over 2 years ...	37	30	81.0	7	19.0
Totals ...	55	37	67.2	18	32.7

Cases Treated with Immunogen.

Age.	No. of Cases.	Recovered.		Died.	
		Cases.	Per Cent.	Cases.	Per Cent.
Under 2 years ...	15	10	62.5	6	37.5
Over 2 years ...	40	40	100.0	0	—
Totals ...	56	50	89.3	6	10.7

The favourable results in the group of cases treated with immunogen were so marked that the records were examined again and cases in which the pneumonia was a terminal condition or had been complicated by some other disease were excluded; but the resulting figures were even more strongly in favour of immunogen, for three of the deaths occurring in infants under 2 years of age who had been treated with immunogen occurred respectively in a marasmic infant, in an infant already moribund at the time of injection, and in an infant who recovered from the pneumonia but who died a few days later from enteritis.

The number of cases is too small to warrant any dogmatic statement, but it would seem that the immunogen had a favourable effect; the duration of the disease did not appear to be shortened, but the mortality rate was reduced.

I wish to thank Lieut.-Colonel P. Macdiarmid, O.B.E., M.D., the medical superintendent of Alder Hey Hospital, for permitting me to publish this note.

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ZINC IONIZATION IN THE TREATMENT OF SUPPURATIVE OTITIS MEDIA.

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THE results of the treatment by ionization of chronic suppurative otitis media at Alder Hey Children's Hospital have been so successful that it has been adopted as a routine. Over 300 children have been treated in two years, and nearly all these have been discharged. They ranged in age from 1 to 16 years. In some there was a history of long-standing otorrhoea, and in others the condition developed whilst the patient was in hospital, frequently as a sequel to bronchopneumonia. Otitis is a frequent complication of pneumonia in infants, and explains the cerebral symptoms observed in many cases.

On the occasion of first attendance at the ear clinic a thorough examination is made in order to find out the exact conditions present, with a view to establishing the cause of the chronicity, and Friel's method of classification is followed.

Where otorrhoea is combined with infection of the nose and throat, these complications are first dealt with; if granulations are present an attempt is made to destroy them by electrolysis; if, on the other hand, the case is one of simple tympanic sepsis zinc ionization is instituted.

Method of Treatment.

The object of ionization is to render the tympanic cavity sterile, the method adopted being the passage of an electric current through a solution of zinc, utilizing the coagulation.