**Hydrocephalic amaurosis / by Jabez Hogg. Amaurosis and strabismus from ascaris lumbricoides.**

[Reprinted from the Medical Press and Circular, August 1st, 1888.]



# HYDROCEPHALIC AMAUROSIS.

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In young children hydrocephalus is either acute or chronic. The ophthalmic surgeon is seldom called upon to treat either form of disease, indeed, it is only when blindness supervenes that he is likely to be consulted in any case. Hydrocephalic amaurosis is usually classed among the rarer affections of childhood. I have seen cases of blindness in the acute stage of hydrocephalus, as well as in the chronic and where there is every reason to believe that the accumulation of fluid has been going on for some time; as a sequelæ of acute meningitis and of scarlet fever.

A child making a tardy recovery from a smart attack of rubeola (scarlatina) is incautiously exposed to a chill, and in the course of a few days albuminuric symptoms will show themselves. If, however, it should so happen that the albuminuria is overlooked, then convulsions, blindness and coma will surely follow. In such a case, the blindness will, in all probability, be attributed to one of two causes, either to the sudden effusion of fluid pressing on the chiasma, or to a meningitis. Cases of the kind have been repeatedly reported in the medical journals. I have had the advantage, one that rarely falls to a consultant, of following up a complicated case of infantile hydrocephalic amaurosis, and which was associated throughout its earlier stages with a number of other acute diseases, any one of which might have proved fatal

to a child otherwise in the enjoyment of fairly good health. The history of the case is as follows :—

E. L., the first-born of a young mother inheriting rheumatic gout through two or three generations, from a slight attack of which she became a sufferer before convalescence. Before the child was three months old it was generally remarked that it "had an unusually large head, and that its eyes wandered vacantly." During the next month or two there could be no doubt whatever that the head had increased in size. The alarm of the mother was however mostly confined to vision, her little one she observed "in no way seemed to return her caresses as did other peoples' children of the same age." The eyes were clear, the irides being of a bright blue colour, so that there was no visible difference to an ordinary observer. The family medical attendant was of opinion that the child could not see, and this he thought might be due to the pressure of fluid. It was at this time, and when the child was six months old, that I was consulted in the case. Its body appeared to me not at all well nourished; feeding by bottle having taken the place of the breast. The head was certainly very large; on the nurse changing its position the little fellow uttered a pitiful cry. The shape of the head was irregular, it bulged out anteriorly and a little more to the left-side than to the right. The anterior fontanel was more open than usual, and on pressure a distinct fluctuation was felt. The veins crossing the forehead were prominent; the eyes having a smaller appearance from the projection of the forehead; there was convergent strabismus of the left eye in particular. Under very considerable disadvantages I attempted an ophthalmoscopic examination but unsuccessfully: at a later date, however, and by good management I succeeded in determining that the discs had a "choked" appearance. My prognosis was not only a guarded one but a very unfavourable one. I saw little or no hope of either the restoration of the sight or of the intellect of the child, which at this time was but feebly developed. I prescribed the syrup of the iodide of iron and cod-liver oil, and as the milk was not properly digested, produced some irritation of the bowels, I recommended a trial of finely minced raw beef-steak. A couple of months passed away before I again saw the child, when a very manifest improvement had taken place.

There was a perceptible diminution in the size of the head, the patient had gained flesh and strength, was much less fretful, the minced beef was relished, and altogether the case presented a more hopeful appearance. Teething was now proceeding at an unusually rapid pace; eight teeth were cut before the end of the tenth month, and the whole of the milk teeth before the fifteenth. Further improvement was for a time seriously impeded by diphtheritic inflammation of the throat, which placed the child's life in the greatest possible jeopardy. Three months passed away before convalescence was established. A change to the seaside was deemed advisable; here he resumed his iron and cod-liver oil, and a turn for the better took place. The head had much diminished in size; by the aid of supports and the judicious application of splints to the legs the child was able to remain for an hour or more in the upright position, and what was far more cheering, he began to take some notice of objects and of persons. There was also some attempt to imitate musical sounds, which was a source of unmixed satisfaction to the mother, and a proof that her child's hearing was in no way defective.

During the cold weather of the following winter an attack of ringworm gave considerable trouble, and a little later on the child caught varicella (chicken-pox), which tried every one and left him very weak and debilitated. Ernest L. was now four years old. The commencement of the winter of 1883 he took cold, which was the forerunner of a severe diffuse interstitial keratitis; and once more he was threatened with loss of sight, which at this time was becoming useful. The acute stage of the affection, lasting upwards of two months, passed into an obstinate chronic condition, leaving behind dense corneal opacities. In the right eye at the present time a nebula much obstructs vision. During the greater part of the next year the throat again gave a good deal of anxiety and trouble. An attack of tonsillitis proved for a time intractable, and ultimately abscission of the tonsils was obliged to be resorted to before permanent relief was obtained. For the greater part of the time over which this part of my report extends, that is up to the eighth year, iron in various forms and combinations, with, or without cod-liver oil, were constantly given. But what in my opinion was of more value than remedies was the

good nursing, the ever watchful care, night and day, bestowed by the loving hand of a mother. Education, I need hardly say, was next to impossible, but here again by the mother's persevering efforts more progress was made than might have been expected. By dictation, object lessons, and so forth, whenever an opportunity offered, a good deal of useful knowledge was imparted. My patient is now a fine grown lad of thirteen, and decidedly above the average height (stands 5 ft. $5\frac{3}{4}$ in.) of boys of his age. He enjoys fairly good health and fully enters into the pleasures of his younger brothers and sister. He has developed a somewhat remarkable musical talent, plays upon one or more instruments, and what will perhaps prove of some value in his work is that he correctly harmonises by ear, and a composition once heard is soon impressed upon his memory. His sight is still of too imperfect a nature to enable him to read without glasses. The chief impediments to very useful vision, are as follows,—the nebulous opacity spoken of, a pernicious myopia from arrested development, the disturbance of nutrition of the membranes of the eye, and the conformation of the cranium due to the effused fluid during the early and active hydrocephalic state. Myopia it should be stated is hereditary in the family on the mother's side. By the aid of appropriate glasses he is able to read ordinary music with tolerable ease and comfort. He has made his *debut* as a composer, so that ere long, it is believed, he will have a useful musical career before him.

[Reprinted from the British Medical Journal of July, 1888]

# AMAUROSIS AND STRABISMUS FROM ASCARIS LUMBRICOIDES.

From a record of cases, carefully tabulated and extending over many years, I find that strabismus in young children is more frequently due to the irritation of intestinal worms than is generally supposed or stated in our manuals of eye diseases. It is, however, quite an uncommon occurrence to find reflex amaurosis and strabismus associated in one and the same person, and arising from the same cause—the presence of worms. In the case I am about to narrate there is one other feature that renders it of more than ordinary interest. My little patient, Ethel D., barely three years old, was, when she came under my care, the intermediary hostess of three kinds of entozoa—namely: oxyurides (the little thread-worm), tænia (tape-worm), and ascaris lumbricoides (round worm). On searching through the medical journals, I have not met with a parallel case, and I have discovered only a very few cases of reflex amaurosis from worms, one of which, narrated by Dr. Burgers, was published in the *British Medical Journal* of 1862. A still smaller number of cases have been reported in which, it is said, death has resulted from perforation of the intestines by ascaris lumbricoides. It has been stated that the three kinds of worms named above will not exist together. Be this as it may, it would be difficult enough to account for their presence in the intestine of so young a child, and belonging as she did to the middle class of society. Polluted drinking-water is the carrier of filariæ, and infected water is often unwittingly used in households. It is known, too, that the ova and embryos of parasitic

worms will occasionally undergo a passive migration; that is, direct from intestine to intestine, and without passing through an intermediary host. It is quite possible, therefore, for the embryos to be conveyed in the blood of the mother to the fœtus *in utero*, and not reach their final stage until some months after the birth of the child, that is just about the period of teething, when the reflex irritation of their presence would be a cause of convulsions and strabismus. In this case, however, there was no history of the kind; the mother is quite certain she never was afflicted with worms, but, curiously enough, on going back another generation, the grandmother had passed several tape-worms after she was married. When Mrs. D. consulted me about her child's sight, the ordinary symptoms of worms may be said to be conspicuous by their absence. Sleep was not disturbed; there was no nasal irritation; no craving for food; the child disliked meat, and had a small and capricious appetite; her daily food consisting for the most part of milk and bread, with light sweet puddings. She was spare in body, weak on her legs, and her movements were consequently slow, passing from chair to chair and about the room by touch. This the mother attributed to the loss of sight, which had now persisted for more than a year. Her speech was likewise very defective; her vocabulary consisting of a few unintelligible sounds, just sufficient to make her wants known to the nurse, and no more. When placed in front of a strong light the eyeballs rapidly moved upwards, the irides being entirely concealed by the upper lids. From this cause, and that of the persistent squint, I was quite unable to make any ophthalmoscopic examination. I, nevertheless, came to a conclusion, shared in by no other ophthalmic surgeon who had previously seen the child, that the strabismus at all events was symptomatic of worms. I accordingly prescribed anthelmintics, commencing with scammony and jalap, which, after the administration of a second powder, gave the first intimation of the correctness of my diagnosis, by bringing away a large number of ascarides. My next remedy, filix mas, dislodged a portion only of a tape-worm, eighteen inches long; subsequently other portions came away. I next prescribed three-grain doses of santonin at bedtime, to be followed by a full dose of castor-oil the following morning. This remedy proved

most effectual; the first dose brought away five or six large lumbrici. In the course of the following fortnight, five or six and twenty round worms, measuring from four to eight inches in length, were expelled; the relief obtained by the little patient was most gratifying to behold. Three months have elapsed. She is recovering her sight, and the strabismus has entirely disappeared. Her bodily health is quite changed for the better; she is strong on her feet, can walk a considerable distance, and has gained in intelligence and in speech—is, in fact, an altered child. From the large size and strength of the female lumbrici when first expelled I should not have been surprised if perforation of the intestine, in one so young and delicate, had taken place before I succeeded in dislodging these unwelcome guests.

In the cause of suffering humanity it may be worth while to pursue the natural history of these pests somewhat further; to institute a searching inquiry into the more intimate relations which obtain between them and their intermediary hosts, and the extent of the pathological conditions to which they are likely to give rise in the human being. It is an axiom in medicine that "prevention is better than cure," but herein lies the difficulty, that our ignorance is great on many points, particularly those relating to the development and the mode of life of the different species of internal parasites. We are ignorant of the way in which their ova or larva gain access to their intermediary hosts, and through what instinctive agency they discover a final resting place in the interior of this or that animal body. Many links are missing in the chain of evidence, although it is now generally believed that the larvæ of ascaris are conveyed into the human stomach in polluted drinking water. We have no actual proof of this as we have of the more dangerous and obnoxious parasite *trichina*, which chiefly infests the muscle of the pig; so that pork imperfectly cooked or uncooked, smoked pork, and half-putrid fish, are the cause of a good deal of disease among Germans and Swedes.

The more diligent study of the parasitic diseases of animals has somewhat enlarged our knowledge on some points. By careful observation the intermediary host of the liver-fluke (*fasciola hepatica*) has been positively traced to a widely distributed water snail (*limnæus truncatulus*).

These molluscs leave the water in the early dewy morn, and take to the short grass of the adjacent meadow land, where they are eaten with a keen relish by the sheep. The late Dr. Rolleston believed the intermediary host of ascaris to be the black slug (*limax cineris*). I doubt this, as while in the larval condition their habits are strictly aquatic. The first stage of filarian development takes place in water quite irrespective of whether their final destination is to be rediæ or cercariæ. The portion of their lives spent as free swimmers is a short one; it is, however, long enough to do a great amount of mischief. It is a fact that the dwellers—children and adults—in the valleys of rivers, as those of the Nile valley, for instance, are the greatest sufferers from ascaris lumbricoides. Hence the great importance of strict attention to the quality and purity of the drinking water.

1 Bedford Square,

August 1st, 1888.

T. W. Danks & Co., Steam Printers, Dean Street, Soho Square, W.