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CASE OF
CYSTICERCUS CELLULOSÆ

IN THE
ANTERIOR CHAMBER OF THE HUMAN EYE.

BY WILLIAM MACKENZIE, M.D.,
SURGEON-OCULIST IN SCOTLAND IN ORDINARY TO HER MAJESTY THE QUEEN.

Received Oct. 24th.—Read Nov. 28th, 1848.

ELIZABETH GORDON, aged 16 years, applied at the Glasgow Eye Infirmary, on the 26th September, 1848, on account of obscurity of vision in her left eye. In the anterior chamber, close in front of the pupil, which, in a bright light, it completely covered, lay a spherical body, about one eighth of an inch in diameter, semi-transparent, and having a good deal the appearance, at first view, of the nucleus of the crystalline lens. On observing it for some little time it was evident that it was a vesicle, changing occasionally its form and position, and protruding by times from its lower edge an opaque white filament. The part first mentioned was, in fact, the tail-vesicle of a cysticercus cellulosæ, and the latter its body and head. The head was seen to be occasionally thrust down nearly to the bottom of the anterior chamber, and then drawn up completely into the tail-vesicle.

The patient stated, that about the middle of June the left eye had been affected with inflammation, which continued for about three weeks, and was removed after the application of a poultice of rotten apples, immediately after which the hydatid was noticed.

She seemed in good health, but stated that she had never been robust, and when a child had been troubled with ascarides and lumbrici.

Objects placed in a direct line before the eye, or below it, she saw very indistinctly; but when the light was moderated, the upper part of the pupil expanded past the obstruction of the hydatid, leaving the two lower thirds still covered, and then she saw distinctly objects held above the level of the eye.

From the 1st till the 14th of October, the hydatid was an object of curiosity to numerous visitors, both lay and medical.

Sometimes it was found with its head pointed directly towards the cornea, sometimes with it turned back into the pupil. In both positions the opaque white colour of the body contrasted strikingly with the semi-pellucid tail-vesicle. I tried to make it revolve in the anterior chamber, by leaning back the patient's head, but did not succeed. Its movements were observed to be most lively in the morning, or when the patient was warm. When the patient became chilled, it moved little, and retracted its body into the tail-vesicle. The extensibility of its body, neck, and four lateral suckers, was very great, so that it not only reached completely to the bottom of the anterior chamber, but bent its head to one or other side for a considerable way between the circumference of the iris and that of the cornea. With a lens of half-inch focus the suckers were seen elongated and retracted by turns. The rostellum, or middle member of the head, was also distinct, but the corona of claws which surrounds this part could not be made out.

In general the patient made no complaint of pain. Of the motions of the hydatid she was quite unconscious. Once or twice she complained of pain in the eye, but I attributed this rather to the frequent microscopic examinations to which the eye had been subjected, than to the presence of the cysticercus.

Seeing, however, that vision was so much obstructed by it, and aware that its presence in the eye would ultimately bring on disorganization of the textures with which it was in contact, it was resolved that it should be extracted.

On the 14th of October, the patient lying supine, and her

left eyelids being retracted by the fingers of the assistant and the operator, I made a puncture with Beer's pyramidal knife, at the temporal edge of the cornea, to the extent of $\frac{3}{30}$ of an inch. A little of the aqueous humour escaping as I withdrew the knife, the tail-vesicle of the hydatid became flattened and much expanded between the iris and cornea. I immediately passed Schlagintweit's hook through the wound, seized the body of the hydatid with it, and easily withdrew the animal entire. The iris protruded somewhat through the wound, but was readily reduced by friction through the medium of the upper eyelid, so that the pupil resumed its natural form and place. The patient was sent to bed, and ordered to keep her eyes shut, and the left eye covered with a wet rag.

The hydatid was received into a teaspoonful of warm blood-serum, but this probably restrained its movements, which grew more lively on its being transferred into tepid water. It continued to move for fully forty minutes after being extracted from the eye, but very feebly for the latter half of that time. Viewed through the compound microscope, the transparent corona of claws surrounding the rostellum was seen distinctly. The corpuscles scattered over its neck, and which are supposed to be ova, were very distinct, as well as the four lateral suckers, which appeared as if covered, each of them, with a minute enchased cornea, darkened with pigmentous matter.

Next day the patient felt quite well; the eye appeared natural, and she said she saw as well with it as the other. No reaction followed, and she was dismissed on the 21st October.

As this is only the fifth instance of a cysticercus cellulosa in the anterior chamber of the human eye, the particulars of which have been recorded, I may perhaps be allowed to add a few remarks on it.

In the first place, there can be little doubt that the attack of ophthalmia in June, immediately preceding the appearance of the hydatid, was owing to the development of its ovum in one of the blood-vessels of the iris or choroid;

and that the inflammation ceased suddenly as soon as the hydatid dropped into the anterior chamber, where it lived at its ease, amply furnished with sustenance from the aqueous humour, and unrestrained by any external cyst, such as that which surrounds the same entozoon when lodged among the muscles.

2d. As it was resolved to extract the hydatid by an incision through the cornea, I tried no application to the eye with the view of killing it, such as the vapour of hydrocyanic acid, lest the entozoon being killed might excite inflammation, which it evidently had not commenced to do since assuming its place in the aqueous humour; and lest the very means used to despatch it might cause irritation of the eye, and thereby render the operation more hazardous.

3d. Forewarned by what happened in Neumann's case, I refrained also from dilating the pupil by belladonna. In that case the cysticercus slipped into the dilated pupil, and remaining there, caused such irritation that the pupil could not by any further application of belladonna be dilated sufficiently to set the hydatid free from its embrace. Under these circumstances, a needle was passed through the cornea, and the cysticercus depressed. By this means the pupil was freed, and the pain removed. But the crystalline lens must have been sacrificed, and what is worse, on the third day severe inflammation set in, and the eyeball suppurated.*

4th. In operating on Elizabeth Gordon I imitated the plan followed by Dr. Schott, in a case related by Dr. D. W. Soemmerring,† the only difference being that he used a pair of forceps for extracting the hydatid, while I employed Schlagintweit's hook, an instrument admirably suited by the smallness of its size, the certainty of its gripe, and the guard upon its point, for being introduced into the interior of the eye, seizing any of the membranous textures, such as the iris or the crystalline capsule, and extracting them without catching in the wound. It is by far the best instrument, for instance, for Freytag's operation of extracting a secondary

* Rust's Magazin, vol. xxxiii.

† Oken's Isis for 1830.

capsular cataract through a puncture of the sclerotica.* Forceps are always objectionable as an instrument to be used within the eye, owing to the considerable incision required to allow the expansion of their blades before they can be made to seize anything.

5th. Had the patient been younger and not very staid, I should have put her under the influence of chloroform before proceeding to the operation. The result of Mr. Logan's case, operated on by Dr. Robertson, shows the danger to be apprehended from restlessness of the patient under similar circumstances. An incision of the cornea having been made in that case, no persuasion or threats could induce the patient, a girl of seven years of age, again to open the eye; she became perfectly ~~unruly~~ unruly, and the muscles compressed the eye so powerfully, that the crystalline lens was forced out and the hydatid ruptured.†

6th. Some of my friends hinted that I was rather precipitate in operating on Elizabeth Gordon, and that I might safely have allowed so curious an object as a living cysticercus in the eye to remain for a time, for the examination of those who felt an interest in the natural as well as pathological history of the entozoa. A reference to Mr. Canton's case will serve as my vindication. The eye in this case inflamed in consequence of the presence of the hydatid, the cornea became semi-opaque and vascular, so that the iris was hid from view, the diameter and prominence of the cornea were abnormally increased, and the patient, a boy about ten years of age, suffered almost constant pain and lost flesh during the progress of these symptoms. The cysticercus was extracted, but the eye was not thereby saved from further disorganization. Twice did the cornea again require to be opened, to give exit to the disorganized contents of the eyeball.‡ It should be added, that the patient applied too late to afford an opportunity of saving the eye.

* J. H. Freytag de Catarrhacta, in Haller's Disp. Chir., vol. ii.

† Jones's Manual of the Principles and Practice of Ophthalmic Medicine and Surgery, p. 216. London, 1847.

‡ Lancet, July 22d, 1848.

On the whole, then, I am disposed to say that, by a puncture of the cornea rather than a free incision, and extraction with a small hook, the point of which is guarded, rather than a pair of forceps, and this done early, not delayed till disorganizing inflammation is excited, the cysticercus cellulosæ, when it occurs in the anterior chamber of the human eye, may be pronounced *jure optimo casus*.