CAPSULE CATARACT OPERATION, WITH REPORT OF CASE.

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Cataract is an opaque condition of the crystalline lens, due to structural changes of its component fibres. Various classifications have been made, but for our use we will divide them into congenital or soft and senile or hard, complete and incomplete. By soft we mean, in a general way, those occurring before thirty or thirty-five years of age. Senile are those after this age. Complete are the fully matured, or uniformly clouded, while the incomplete are only partially cloudy.

Etiology is still in many cases very obscure. Heredity unquestionably plays an important part in the congenital, as well as in the senile, forms. It is not an unusual thing to see two or three cases in young children in the same family. I have two cases which I will report later. Hopkins reports four children in one family, both father and mother having developed the disease at an early age. Hasket Derby—eight cases among ten members of the same family. Jno. Green twenty-one cases in seventy-one persons in six successive generations of one family. Senility, diabetes, convulsions in children, faulty development, inherited syphilis, injuries to lens, foreign bodies, blows, etc. In children the diagnosis is often not made until the child starts to school. Various forms of eye strain are believed to be productive of cataract. In later life a frequent change of glasses should be looked on with suspicion. It is not unusual to hear the expression, second sight. In many of these cases we find the presbyopic eye becoming myopic from a gradual clouding of the lens in such occupations as blacksmiths, foundrymen, glass blowers where these persons are subjected to intense heat.

General symptoms: Gradual failure of vision, inability to obtain suitable glasses, necessitating frequent change in their glasses. If the opacity is central at the beginning,

the patient sees better at night due to dilation of pupil. If cloudiness begins in periphery, he sees better in the daytime. Finally the vision is reduced to light perception. The diagnosis can be made at any stage by the ophthalmoscope. When we speak of the cataract as ripe or fully matured, we mean that condition where lens is uniformly cloudy and patient only has light perception or follow a candle held in front of the blind eye. There can be no specific time stated when a partial or beginning cataract will become mature or ripe, anywhere from one to thirty years. Where the progress is slow we can often use atropine in central cloudiness, but the atropine should be cautiously used in old people, for fear of glaucoma. Eserrine should be used in perifal cloudiness to improve the vision. While in the Presbyterian Eye and Ear Hospital at Baltimore there was one old woman with central cloudiness who had been coming to the hospital for thirty years or more for her drop of atropine, with apparently little advancement of cataract. After she would get her drop she would be able to read the papers. I shall not go into the pathology or details of the various operations, but will attempt to trace the successive steps as far as our knowledge, and the various operations up to the present time. Cataract was known as far back as the ancient Greeks and Romans and operated on, though they had an erroneous conception of the nature of the disease. They located the opacity in front, and not in the lens itself. The lens was considered to be the seat of vision or perceptive organ, instead of the retina. They operated by depressing the lens into the vitreous, but thought the opacity was situated in front of the lens. The operation of depressing or couching, as done by them, was usually followed by loss of the eye, and as

a consequence fell into disuse or was abandoned, except by traveling physicians and often priests who would operate with temporary brilliant results, as the patient would be able to see at once, and the operators would shortly take their departure with the blessings of the deluded victim to be later damned by the same individual, as in most cases the eye would be lost from inflammation induced by the irritation of the depressed lens acting as a foreign body. I shall quote freely from an historical paper written by Samuel Hopkins Brown in *Annals of Ophthalmology*, page 310 (1904). He states that Galen alludes to the operation in his writings, but seems not to have done the operation. Avercenna in his description of the couching operation mentions that some surgeons, in addition, open the lower part of the cornea, and extract the opaque lens. This is one of the earliest mentions of extraction of the lens. In 1604 with Keppeler's announcement that the lens was not the seat of vision, the operation was revised, and there were various modifications of instruments and technique. This was followed by discission or breaking the lens by means of a needle, as a substitute for couching. Neill, Lawrence and McKenzie all recommended the operation of couching about the middle of the last century, but from this time it was supplanted by extraction. In soft cataract suction and lavage are both used by many operators today. First, extraction was with a hollow needle. This was followed by an incision of cornea a little below the pupil, and lens removed by the curette. In 1745 Daviel operated by making a small cut at the lower margin of cornea with knife and enlarged the opening with scissors, passed a blunt needle through the opening, depressed the lens through this opening and removed with hook. By 1750 he had so perfected the operation to his own satisfaction that he employed it exclusively in his operations. Barth, in 1795, used a triangular

knife and made the section upward known as Beer's knife in use at the present time by some operators. Beer in 1799 rejected the operation in which the capsule is first lacerated, and extracted the lens and capsule together. Then the Von Graefe operation was performed a few years later by linear extraction with a narrow knife with or without iridectomy. This is the operation used today by many operators. Some make the linear incision and extraction called simple in contradistinction to combined operation with iridectomy. The last few years Dr. Smith of India makes the incision and expresses the lens without first rupturing the capsule.

In the past year Dr. Savage invented an instrument and devised an operation to first dislocate the capsule and its lens, and deliver through a previous linear incision upwards. The needling operation is now practiced by the majority of operators in congenital cataract in children, as it unquestionably is the safest operation in such cases. The operation should be done under cocaine anesthesia, unless the child is very small, when a general anesthetic should be used. Atropine should be used before and after the operation. Instruments: Speculum, fixation forceps and needle with triangular point and tapering shank, thereby preventing any loss of aqueous during the operation. Pass needle from outer side near the sclero-corneal junction. As soon as the point enters anterior chamber, depress the handle and then pass needle through the anterior chamber to about center of pupil. With point of needle open anterior capsule, being careful not to make too free an incision. The needle should be quickly withdrawn. Atropine instilled, both eyes bandaged and the little patient put to bed for twenty-four hours, when the bandage should be removed and atropine instilled. The eye operated on should be kept bandaged until all inflammation subsides. Then if in any hurry a second needling on the same eye or the other eye can be done in a few days.

Usually from two to five operations will be sufficient to absorb the lens substance. The next question is when shall the operation be performed, and the advantage. I think the preponderance of opinion is the sooner the better, for if the child is operated on at a few weeks or months of age, the retina will develop better. Another question in dispute is, should the operation be performed when the cataract is mature in only one eye. I unhesitatingly answer, yes. It permits the development of the retina, while the two eyes may not focus alike and probably will not even by correction. Undercorrect the cataract eye, thereby giving your patient a larger field of vision, and avoid the necessity of his having to turn his head in order to see an object on that side. I am also a strong advocate of operation on the one eye without waiting for the other lens to mature in senile cases, for not only the reasons stated above, but for the further fact that your patient at the time if in good health, and two or three years hence, when his good eye becomes ripe, his general health may not permit of an operation, as occurred in the case of my own father, who was forced to submit to blindness for a year before he had recovered his health sufficiently to be operated on. It is not an unusual thing in examination for glasses to find a similar state of affairs, the weaker eye becoming amblyopic from nonuse, as nature ignores the blurred picture of the weaker eye, and the better eye does all the work except for large objects; yet, notwithstanding this fact, many of these individuals are not even aware that there is any difference in the two eyes. This being the case, why should we not advise and operate on a mature cataract, without waiting until both are ready for operation? Nature can take care after operation as well as inequality of retina of the eye. Two by ignoring the blurred picture as stated above. In congenital cataract in children, when the cloudiness is central, an iridectomy will often give fairly good vision,

without any further operation. In conclusion I wish to briefly report a few operations for congenital cataract in my service at the blind school.

Case 1. Jennie H. 10 years old. Double congenital cataract. Both lenses needled twice at rather long intervals. The lens substance partly absorbed, leaving a tough membranous capsule. April, 1909, R. eye, upper section of cornea and extraction with iris forceps of the opaque capsule. May, 1909, L. eye a similar operation, later an iridectomy, both eyes downward, one two weeks after the first. 10 D. S. lens ordered. The child's parents left the state, and she did not return to school this year but a few days ago our nurse received a letter from her, stating that she was attending the public school and getting along nicely.

Case 2. Norman W. Thirteen years old. Double congenital cataract. Could count fingers. Four needlings at intervals on each eye. In the first operation on each eye, this boy suffered with nausea and vomiting for three or four days, due to the swelling of the lens, but at the subsequent operations there was no nausea or vomiting. Vision with 10 D. S. 15-30 Jeager No. 3. Jeager No. 4 or 5 is about ordinary type.

Case 3. Barney W. Age 9. Brother. Double cataract. Could see to get around. Two operations on each eye with 10 D. S. vision 15-40 Reads Jeager No. 3 without trouble at time of examination.

Case 4. Brown K. Age 14. Left eye previously operated on before entering school, with loss of vision. R. congenital cataract. Needled twice. 10 D. S. vision 15-40 Jeager No. 3.

Case 5. Ida K. Age 14. Double congenital. Both lens dislocated. Needled each eye once, both lenses were depressed without needer entering capsule. Glasses given with vision improved, but six months later the lenses were again partially presenting behind the pupil. No further operation attempted.

Case 6. Horace H. Age 9. Left eye previously operated on. No vision. R. eye also previously operated on. The boy had some vision, but on examination he had apparently a secondary cataract. I needled the eye twice. In the second operation there was a band extending across the pupil, which after some little effort, I succeeded in cutting across. The eye was bandaged, as usual. Two days later, when I saw the boy, the eye was very much inflamed and the anterior chamber was filled with what I then took to be an exudative deposit. I began hot applications, and on my next visit the inflammation had cleared up some, and I then saw that the deposit or substance in the anterior chamber was not an exudate, but the cloudy lens which had evidently been depressed and held down by this band stretching across the pupil, and had been liberated when the band was cut. I continued the treatment, not feeling it safe to open the eye with the active inflammation going on. After about a week the inflammation had subsided sufficiently, I thought, to be safe in making a section of the lower segment of cornea and remove the lens, but I found it impossible to remove all of the lens substance. I bandaged the eye and kept the boy in bed with atropine every three hours and hot box. The corneal section healed promptly, and under the treatment the eye seemed to be doing nicely, but as it was at the end of the session, I wrote his mother instruction how to continue the treatment, and advised her to have an eye man to see him, if the eye gave him the least trouble. The child was from Memphis, and several weeks afterwards I had a letter from his mother, stating she had consulted Dr. Ferrington, and he wanted to know what I had done. I wrote the doctor what had been done, but heard nothing from either. The boy returned to school this session, and on examination I find the inflammation subsided, closed pupil. T— with light P. I am afraid there is little chance to do anything for the eye. I have reported

this failure along with the successful cases and in detail, as I feel I was, under the circumstances, justified in each step taken, notwithstanding the fact that in all probability the eye will be lost, as the complication was unforeseen and could hardly have been anticipated by any one. I may add, had the lens presented itself at the time of the operation, I would have performed a section and removed it at once, which would have been a comparatively easy matter before any inflammatory adhesion to the iris, or breaking up of the lens substance, then the lens could have been removed without leaving any lens matter in the anterior chamber.

Case 7. George R. L. eye cataract with detachment of retina and loss of vision. Lens luxated. R. eye lens luxated and transparent. When the pupil is dilated the lens will pass into the anterior chamber. There is no detachment of the retina, but with complete detachment in left, and the further fact that he has a sister at the school blind with phthisis bulbi or trophy of the ball, as her history would indicate, due to detachment of the retina and loss of both eyes, the question is what should be done in this case. I have been, and am now, of the opinion that to remove this luxated lens would increase the chance of detachment of retina and ultimate loss of the eye, and as it now stands he can see to get around and that perhaps is better than an attempt to remove the lens. Of the eight eyes operated on by me the result in seven was all that we could hope for. The eye of case 6 with its present bad outlook is very much to be regretted. As stated before, I feel that the complications were not to be expected or foreseen, and in all probability would have occurred in the hands of any other operator. While I believe this to be the case, I am free to confess it is poor consolation for a lost eye. My chagrin is far greater for the one lost than the pleasure derived from the other seven successful ones.