

# SAFETY PROCEDURES IN THE OPERATION OF SENILE CATARACT.

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This paper gives certain practical measures for avoiding dangers that beset cataract extraction. It especially emphasizes the value of complete anesthesia; and of leaving a bridge of tissue in the corneal incision until the speculum is withdrawn, when it may be divided with the scissors. Read before the Colorado Congress of Ophthalmology and Otolaryngology, July 23, 1920.

During the operation of cataract extraction, prolapse of vitreous may occur at any stage after the beginning of the incision. Minimize the importance of this occurrence if you will, it is nevertheless one of the most dreaded complications of this operation, for it may mean the loss of the eye. Frequently it means greatly reduced vision thru permanent opacities in the vitreous chamber. Often the pupil is drawn upward on account of retraction of the iris. Also the more serious complications of retinal detachment, choroidal hemorrhage and irido-cyclitis may accompany or follow the accident.

The most frequent cause of prolapse is pressure by the operator or by the patient; the vitreous escaping either with the lens or immediately after. It may occur as soon as the section is completed from contraction of the orbicularis or recti muscles. There may be complicating conditions from disease or injury which has caused atrophy or rupture of the zonula.

Much has been written regarding the character of the section; and of various instruments, as eye specula and lid retractors, by which the frequency of the occurrence may be lessened. I believe I have seen it occur more frequently from insufficient anesthesia than any other one cause. I well remember seeing one of the chief promoters of the intracapsular method lose vitreous in two cases out of four operations in one afternoon, in his own operating room and with his own trained assistant. I am quite sure it was due to insufficient anesthesia primarily, altho the method itself increased the hazard.

So much has been said about the effect of cocain upon the corneal epithelium that operators may and do err on the side of using too little rather than too much. It is pain, sudden and acute

pain, which causes the patient to "squeeze" his eye.

Another promoter of this operation in this country following the practice of Col. Smith, used and advised one drop only of a two per cent solution of cocain. He has long since abandoned this practice and now uses a subconjunctival injection of cocain for anesthesia in addition to its instillation into the conjunctival sac.

Inexperienced operators are apt to make too small an incision. This is of no serious consequence if the operator recognizes the cause of the failure of lens to present and enlarges the incision with the scissors. I have seen vitreous prolapse brought about by the persistent attempt of the operator to extract a lens thru an insufficient opening. There is no need in this country of using dull instruments. I believe Col. Smith does one hundred operations with the same knife. The traction on the eye ball is in direct proportion to the dullness of the knife. The zonula may be easily ruptured by the traction caused by dull instruments. It is better to have a fresh knife for each operation. This is of more importance than the particular shape which may be advocated by various operators.

Vitreous is occasionally lost after the operation is completed and the operator attempts to remove a blood clot from the wound. This is one of the most regrettable accidents because it is so unnecessary. I have known this to happen to two of the most skilled operators. One was using a cotton sponge to wipe the blood from a conjunctival sac and the other was using forceps. In both these cases, after very slow recovery vision of only twenty two-hundredths was obtained on account of the opacities in the vitre-

ous, which followed. In these cases, the speculum should have been out or the patient should have been told that the eye was to be touched.

Some operators believe it to be good practice to cut off the eye lashes. At the Illinois Charitable Eye and Ear Infirmary, someone started this practice and it was followed with my cases until I had this experience: I was operating upon a woman who could neither speak nor understand English, neither could an interpreter be found. I find the eye lashes are very useful to serve as a handle. The lid can be picked up and drawn over the corneal flap. In this case after the extraction was done and the speculum removed, the lid brushed down into the wound. The patient kept opening and closing the eye and with every movement there was a continuous prolapse of vitreous. With the lashes present, the lid could have been held over the eye until the patient could have been made to understand that she was to keep the lids closed.

In November of last year, a man of 76 was brought to the Illinois Eye and Ear Infirmary with double senile cataract. His general physical condition was good; but his mental condition was poor. He was in the early stages of senile dementia. One could gain his attention by talking to him; but his mind would wander from a subject very quickly. His son was made acquainted with the danger of operating upon a patient in his mental condition; but was of the opinion that it was worth while to make the attempt, an opinion with which I concurred and which the after results showed were wise. When I arrived at the hospital on the day of the operation, the male attendant, who has been long in the service and who exercises the privilege of free speech, often accorded such faithful employes, "hoped that I would not operate."

The patient had been out of bed wandering over the hospital not knowing where he was. The stage was well prepared to save the nurses and attendants this additional care, which a

crazy man with a freshly operated eye would give them.

I am not relating this case to argue especially in favor of operating all such cases and was hesitating myself, as many of you have done in the same situation. So I asked the intern if I should operate or not. His reply was characteristic: "If you wish to allow the attendant to dictate what to do with your patients, don't operate." I replied "We will operate." Anesthesia was secured by a ten per cent solution of cocain. The puncture and counter-puncture were made and the incision begun when the patient began to lose control of himself and started to "squeeze the lids." He would stop when spoken to and began again as the cutting was resumed. Realizing we were in for a vitreous prolapse if we kept on, I withdrew the knife before the incision was quite completed, leaving a scleral bridge of perhaps 3 or 4 mm. in length. At this time I did not know any more than my audience did, how I would complete the operation; but I did feel that the patient would expel the contents of the eye ball if he could; and I did not intend to give him the opportunity. The speculum was removed, a few more drops of cocain solution instilled and after waiting a few moments, the lids were slightly separated with the fingers and the incision completed with the scissors. We have at the infirmary, scissors designed for the purpose of enlarging a corneal incision if made too small but a pair of Stevens' curved tenotomy scissors will answer the purpose.

Iridectomy was performed and capsulotomy also without the use of speculum or retraction. The lens was expelled by pressure of the fingers on the lids. This patient made an uneventful recovery and his mental condition was very much improved so that everybody concerned was delighted with the results.

It occurred to me that if this procedure of temporarily leaving a sclero-corneal bridge would help to guard against vitreous prolapse from fault of the patient, it might also be useful in

cases where the zonula was known to be ruptured as in dislocated lenses, traumatic cataracts, diseased fluid vitreous, etc.

A. P., a private patient, 57 years of age, presented himself with a luxated cataract. Two years before he had been struck in the left eye with a piece of wood. Vision had very gradually failed; but he had been blind only about three weeks before he came for an examination. The anterior chamber was shallow and the iris tremulous. It was not until the pupil was dilated that it could be plainly seen that the lens was luxated to the temporal side. Knowing that vitreous prolapse would certainly follow the ordinary incision, I followed the method used in the previous case and succeeded in completing the incision without any loss of vitreous. The iridectomy was performed with very slight loss and the lens extracted with the wire loop with a slightly increased amount of loss. Vision of 6/12 was obtained with + 9 + 1.00c. ax. 180.

I believe this method of making the incision is the acme of precaution in guarding against vitreous loss and

shall advise it and follow it in these two types of cases.

#### Conclusions:

1. Vitreous prolapse is less apt to occur if anesthesia is thoro. Use enough cocain rather than too little. Softening of the corneal epithelium is of little consequence compared with vitreous prolapse.

2. Incision must be large enough so that moderate pressure causes the lens to present. The incision is easily enlarged with scissors if originally made too small.

3. The knife must be as sharp as possible to avoid unnecessary traction on the eye.

4. After the operation is completed, do not touch the eye without a word of caution to the patient and better have the speculum removed.

5. Do not allow the cilia to be removed.

6. In cases where vitreous prolapse is a probability, either from lack of self control on the part of the patient or from diseased conditions in the eye itself, do not immediately complete the corneal section with the knife; but remove the speculum and complete the incision with the scissors.

## DELIRIUM FOLLOWING CATARACT AND OTHER EYE OPERATIONS.

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After reviewing the literature of this subject a summary is given of what it contains regarding etiology and treatment. The author's recent cases are mentioned with details of one of them, and conclusions drawn from the study and experience. Read before the Colorado Congress of Ophthalmology and Oto-Laryngology, July 23, 1920.

**LITERATURE.** Altho it has been known since the middle of the 17th century that delirium followed certain surgical operations, Dupuytren<sup>1</sup> in 1819, was the first to direct attention to the special delirium following cataract operations. In his clinical lectures on cataract, he reported that in twenty-one cases he had observed nervous delirium in two of them. The symptoms disappeared in a few days after the use of antispasmodics. The delirium was distinct from delirium tremens.

Since Dupuytren's paper was published (just 100 years ago), twenty-nine other papers on this subject have been recorded. In 1863 (59 years after the first recorded case) Sichel<sup>2</sup> reported eight cases, all in old people, and described the condition as a febrile delirium due to closure of the lids and loneliness. Magne<sup>3</sup> and Lanne<sup>4</sup> also described some cases in 1863. Magne thought the condition was due to diet changes causing stomach trouble. Warlomont<sup>5</sup> in 1865 described a case in which the patient tore off the ban-