Utilization of a Curved Aspiration-Irrigation Handpiece

Jerry W. Maida, M.D.

SUMMARY

The safest way to completely remove the cortex from under the iris superiorly is with the angulated aspiration-irrigation handpiece. It is recommended that a .3 or .5 handle be utilized in low aspiration. As the instrument is rotated around its axis the opening of the aspiration handpiece is up, the cortex is grasped, and the surgeon is able to stay away from the posterior capsule. The incidence of vitreous loss is markedly reduced.

For most surgeons, a difficult portion of the extracapsular procedure is removing the cortex under the iris at the 12 o’clock position. The cortex may be fluffy, crystal clear, or tightly juxtaposed to the posterior capsule. Kelman has described the “ice cream scoop maneuver” for removal of the cortex in this area utilizing the straight irrigation-aspiration handpiece. The “ice cream scoop maneuver” is effective but in many situations is difficult and dangerous. In the process of removing the cortex with the straight handpiece, the posterior capsule, zonules, or the remnant of the anterior capsule are often grasped, resulting in a tear in the posterior capsule and vitreous loss. If the cortex is adherent to the posterior capsule it is difficult to remove completely. These problems are magnified if the pupil has come down to 3 or 4 mm. Some experienced extracapsular surgeons at this point will perform a peripheral iridectomy and insert the irrigation-aspiration handpiece through that area to remove the cortex at 12 o’clock. However, this is very dangerous and often those exposed zonules rupture with secondary vitreous loss. Another alternative is to pull back the iris with a Hirschman hook and aspirate the cortex.

The curved irrigation-aspiration handpiece can obviate many of these difficulties. Hoffer originally presented information on this handpiece (Hoffer, personal communication). He described a microsurgical angulated irrigation-aspiration handpiece for this purpose. In addition, a handpiece that is sandblasted to facilitate scraping the posterior capsule and removing cortex can be used. However, it is felt that the sandblasted, curved irrigation-aspiration handpiece increases the complication rate. The purpose of this paper is to emphasize that the angulated handpiece can be utilized to remove cortex safely from the undersurface of the iris at 12 o’clock even if the pupil constricts.

A problem with the sandblasted curved handpiece is that visualization may be poor under the iris making it easier to rip the posterior capsule when rotating the handpiece around its axis.

Another method of removing the cortex at 12 o’clock is to use a Hirschman hook in the left hand to pull back the iris while using the straight irrigation-aspiration handpiece to remove the cortex from 12 o’clock. The difficulty with this maneuver is that it requires more skill in that it is a two-handed maneuver. Because it is two-handed, there is less control of the handpiece which must be held in almost a

Requests for reprints should be addressed to Jerry W. Maida, M.D., Suite 708, Medical Center Plaza, 580 West Eighth Street, Jacksonville, Florida 32209.

FIGURE 1: The curved irrigation-aspiration handpiece in the anterior chamber.

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vertical position to remove the cortex. It is easy to lose the chamber and break the posterior capsule performing this procedure.

Demonstrated in Figure 1 is the curved irrigation-aspiration handpiece in the anterior chamber. One can utilize a .3 or .5 handpiece. The .3 handpiece offers the most control with either high or low aspiration. The .5 opening should be utilized in low aspiration. The reason absolute control is important is that there is often a tag of anterior capsule in the 12 o’clock area under the iris. If high aspiration is utilized, one can pull this tag of anterior capsule or the zonules in the posterior capsule, which may result in vitreous loss. For this reason, it is important to perform a complete capsulotomy at the 12 o’clock area. The curved handpiece is angulated such that it can be easily rotated around its axis under the iris. When inserting the handpiece, if the incision is midlimbal, there is usually no problem with stripping Descemet’s membrane or rupturing the iris base.

Figure 2 demonstrates the rotation of the curved irrigation-aspiration handpiece around its axis to grasp the cortex. Continuous irrigation is important during this maneuver. When the opening is felt to be in place, then aspiration is begun.

Figure 3 demonstrates rotation of the handpiece again around its axis towards the center of the pupil slowly while aspirating. The cortex is easily grasped and pulled toward the center of the pupil. Even when the cortex is adherent to the posterior capsule at 12 o’clock, this maneuver will strip it because there is often a fluffy portion of the cortex at the most extreme periphery of the capsule. If not, a Kratz scratcher can be inserted to scrape the posterior capsule gently followed by reintroduction of the handpiece.

This instrument has now been utilized in 200 successive cases without rupturing the posterior capsule. Previously, the author did use the straight irrigation-aspiration handpiece and had resulting vitreous loss secondary to removing cortex in this area in two percent of his cases.

REFERENCES


The International Society of Geographic Ophthalmology
7th International Congress

The International Society of Geographical Ophthalmology will meet from Sunday, November 7, to Wednesday, November 10, 1982, in Asilomar, California, following the International Congress of Ophthalmology in San Francisco.

Contact: William Miller, M.D., Room 418, 4141 Geary, San Francisco, California 94118 or T.F. Schlaegel, Jr., M.D., Indiana University Medical Center, 1100 W. Michigan Street, Indianapolis, Indiana 46223.