What happens to all those dropped nuclei after phacoemulsification?

Dermot McGrath in Dubai

PROMPT intervention by a specialist vitreoretinal team is the most appropriate response to posterior capsule rupture with dislocation of lens fragments into the vitreous cavity after phacoemulsification for cataract surgery, according to a British study presented at the Pan Arab African Congress of Ophthalmology.

“All cases of posteriorly dislocated lenses should be referred promptly to a specialist vitreoretinal team, since the size of the fragments may be underestimated. The optimum time for vitrectomy is immediately following the incident if possible, otherwise as soon as possible,” said Ibrahim El Ghrably MD of the Royal Victoria Infirmary, Newcastle, UK.

Noting that pars plana vitrectomy (PPV) is commonly used to restore posteriorly dislocated lens fragments and restore vision, Dr El Ghrably said that the indications for PPV and factors determining the final visual outcome remain unclear. There is also no universal agreement on when PPV should be performed.

Retrospective study
To try to shed light on these questions, Dr El Ghrably and his team set out to evaluate the management and visual outcome of patients with posteriorly dislocated lens fragments after phacoemulsification managed with PPV. The researchers reviewed the medical records of all patients who underwent PPV for lens fragments in the Royal Victoria Infirmary between January 2002 and February 2004. Data was collected from a vitreoretinal database. Demo-graphics, pre-existing eye conditions, details of the previous cataract surgery, findings at presentation, details of the vitreoretinal procedure, final visual acuity and complications observed during the follow-up were all taken into account.

The team also evaluated the pattern of referral and the speed of vitreoretinal intervention following the occurrence of such complications. The results were then compared to previous studies carried out at the Royal Victoria Infirmary as well as to previously published studies. Of the 30 patients identified, 29 had a full set of data and were included in the study. The incidence of dropped nuclear fragments was 0.2% and the mean follow-up was 5.6 months. Thirteen patients (49%) were referred on the same day as the phacoemulsification surgery and 10 patients (37%) were referred within one week. Twenty-two patients (85%) had vitreoretinal surgery within two days of referral and 10 (39%) of them had their surgeries on the same day.

Nineteen patients (62%) had a final visual acuity of 6/12 or better, which compares favourably to previously reported rates,” said Dr El Ghrably.

Capsulorhexis complications, small irides and surgical error main causes of capsular tears

“In this study, 66% of cases achieved a final visual acuity of 6/12 or better, which compares favourably to previously reported rates,” said Dr El Ghrably. Putting the results into perspective, Dr El Ghrably noted that the incidence of dropped lens fragments in the Royal Victoria Infirmary (0.2%) compared favourably to the national United Kingdom standard of 0.3%. Furthermore, he said that it is clear that pars plana vitrectomy has become the surgical procedure of choice in the management of posteriorly dislocated lens fragments after cataract surgery.

“In this study, 66% of cases achieved a final visual acuity of 6/12 or better, which compares favourably to previously reported rates,” said Dr El Ghrably. The investigators found that the most important predictor of final visual acuity after this procedure is a less complicated clinical course - specifically, no suprachoroidal haemorrhage, no retinal detachment, no cystoid macular oedema and no additional surgery after pars plana vitrectomy. The most common cause of decreased final vision was cystoid macular oedema.

“The clear conclusion is that the optimum time for vitrectomy is immediately if possible, otherwise as soon as possible after the occurrence and preferably within 48 hours of the displacement,” noted Dr El Ghrably.

The causes of the dropped lens fragments are usually radial tears in the continuous curvilinear capsulorhexis or improper surgical manipulation that results in posterior capsular rupture and vitreous loss, or develop cystoid macular oedema, in an effort to reduce the likelihood that the macular oedema will result in permanent vision loss.

Dr El Ghrably noted that an interesting outcome of his own study was that the results were compared with previous studies at the Royal Victoria Infirmary and the national United Kingdom standard of 0.3% compared favourably with the incidence of dislocated lens fragments after cataract surgery.

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