

Phacoemulsification cataract surgery: is routine review necessary on the first post-operative day?

J.H.Y. TAN, D.K. NEWMAN, C. KLUNKER, S.E. WATTS, R.L. BURTON

Abstract

Purpose To determine the value of routine review on the first post-operative day following phacoemulsification cataract surgery.

Methods A prospective study was performed of 238 consecutive patients who underwent phacoemulsification cataract surgery. Local anaesthesia was used for 97% of patients and surgery was performed as a day-case procedure for 93% of patients. The findings at the first day post-operative review were analysed separately for patients who had undergone uncomplicated surgery and patients who had suffered an intraoperative complication. Four patients were excluded because of incomplete data collection.

Results A total of 227 patients underwent uncomplicated phacoemulsification cataract surgery. Thirteen (5.7%, 95% confidence interval (CI) 3.1–9.6%) of these were found to have post-operative complications at their first day review which comprised corneal oedema (4.4%, 95% CI 2.1–8.0%), raised intraocular pressure ≥ 30 mmHg (1.3%, 95% CI 0.3–3.8%), hyphaema (0.9%, 95% CI 0.1–3.1%), corneal abrasion (0.4%, 95% CI 0.0–2.4%) and anterior uveitis (0.4%, 95% CI 0.0–2.4%). These findings led to the standard post-operative management being altered for 5 (2.2%) patients. Intraoperative complications occurred in 7 (2.9%) patients during phacoemulsification cataract surgery. Five (71%) of these patients had post-operative complications at their first day review.

Conclusions Routine review on the first post-operative day following uncomplicated phacoemulsification cataract surgery could safely be withdrawn. A single post-operative review at 1–2 weeks after surgery would then be required, supplemented by patient-initiated post-operative review in the interim.

Key words Cataract surgery, Day-case surgery, Follow-up, Phacoemulsification, Post-operative review

Phacoemulsification is now the preferred method for cataract surgery because rapid post-operative visual rehabilitation is permitted by a small self-sealing incision.¹ Cataract surgery is also increasingly being performed as a day-case procedure. Studies have demonstrated that day-case surgery does not adversely affect the outcome of cataract surgery and patients report a high level of satisfaction.^{2,3}

Routine review has traditionally been conducted on the first post-operative day following cataract surgery. Current phacoemulsification techniques for cataract surgery are, however, associated with a much lower post-operative complication rate than extracapsular cataract surgery.⁴ This study was performed to determine whether routine review is still necessary on the first post-operative day following phacoemulsification cataract surgery. Elimination of this hospital visit would increase the appeal of day-case surgery for patients and improve its cost efficiency.

Methods

A prospective study was performed of all patients undergoing cataract surgery at the West Norwich Hospital during a period of 1 month. A total of 261 cataract operations were performed during the study period, which comprised phacoemulsification cataract surgery (238 patients), extracapsular cataract surgery (6 patients) and phaco-trabeculectomy (17 patients). Surgery was performed by all grades of ophthalmologists, ranging from junior trainees to consultants. Only patients undergoing phacoemulsification cataract surgery were included in this study. Local anaesthesia was used for 97% of patients and surgery was performed as a day-case procedure for 93% of patients.

The technique for phacoemulsification cataract surgery comprised a 3.0 mm self-sealing scleral tunnel incision, continuous curvilinear capsulorhexis, bimanual nucleofractis phacoemulsification, and automated aspiration of cortical remnants.

J.H.Y. Tan
D.K. Newman
C. Klunker
R.L. Burton
Department of
Ophthalmology
West Norwich Hospital
Norwich NR2 3TU, UK

S.E. Watts
Clinical Audit Department
Norfolk & Norwich
NHS Trust
Norwich NR1 3SR, UK

Jennifer H.Y. Tan ✉
Department of
Ophthalmology
Leicester Royal Infirmary
Leicester LE1 5WW, UK
Tel: +44 (0)116 254 1414
Fax: +44 (0)116 258 5927

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Table 1. Post-operative complications found at first-day review following uncomplicated phacoemulsification cataract surgery

Patient no.	Corneal oedema	Raised IOP (≥ 30 mmHg)	Hyphaema	Anterior uveitis	Corneal abrasion
1	+	+ (48)	-	-	-
2	+	+ (40)	-	+	-
3	+	+ (40)	-	-	-
4	+	-	-	-	-
5	+	-	-	-	-
6	+	-	-	-	-
7	+	-	-	-	-
8	+	-	-	-	-
9	+	-	-	-	-
10	+	-	-	-	-
11	-	-	+	-	-
12	-	-	+	-	-
13	-	-	-	-	+
Total	10 (4.4%)	3 (1.3%)	2 (0.9%)	1 (0.4%)	1 (0.4%)

IOP, intraocular pressure.

A 5.0 mm polymethylmethacrylate intraocular lens was then inserted into the capsular bag after enlarging the scleral tunnel, followed by removal of the viscoelastic (sodium hyaluronate 1%). No suture was used unless there was concern regarding wound integrity. Finally, a subconjunctival injection of antibiotic (62.5 mg cefuroxime or 25 mg vancomycin depending on surgeon preference) was administered.

All patients were reviewed on the first post-operative day. A standard proforma was used to record any post-operative complications found by the examining ophthalmologist. The findings at the first day review were analysed separately for patients who had undergone uncomplicated surgery and patients who had suffered an intraoperative complication. The standard post-operative management was Maxitrol drops four times daily (Alcon; dexamethasone 0.1%, neomycin 0.35% and polymyxin B sulphate 6000 units/ml) until the next post-operative review at 1–2 weeks following surgery.

Results

A total of 234 patients underwent phacoemulsification cataract surgery. There were 69 males and 165 females. Coexisting ocular pathology was present in 73 operated eyes: age-related macular degeneration (40), glaucoma (21), diabetic retinopathy (6) and corneal opacity (6). The grades of surgeon performing the operations were: consultant 80 (34%), staff grade 66 (28%), specialist registrar 82 (35%) and senior house officer 6 (3%). Four patients were excluded from the analysis because their proforma had not been completed.

A total of 227 patients underwent uncomplicated phacoemulsification cataract surgery. Thirteen (5.7%, 95% confidence interval (CI) 3.1–9.6%) of these patients were found to have post-operative complications at their first day review (Table 1). These findings resulted in the standard post-operative management being altered for 5 (2.2%) patients. Three patients had raised intraocular pressure ≥ 30 mmHg and all received a short course of oral acetazolamide. One patient with significant post-

operative anterior uveitis was given Maxitrol drops (Alcon) 2 hourly. Another patient with a corneal abrasion was treated with a pressure patch.

Intra-operative complications occurred in 7 (2.9%) patients during phacoemulsification cataract surgery. These comprised posterior capsule rupture and vitreous loss (2), zonular dehiscence (2), posterior capsule rupture (1), zonular dehiscence and vitreous loss (1) and dropped nucleus (1). Five (71%) of these patients had post-operative complications noted at their first-day review. These were raised intraocular pressures ≥ 30 mmHg (3), corneal oedema (2), lens material in vitreous (2), hyphaema (1) and vitreous prolapse (1) (some patients had more than one complication).

Discussion

This study found that few post-operative complications are detected at the first-day review following uncomplicated phacoemulsification cataract surgery. While post-operative complications were present in 5.7% of patients, alterations to the standard post-operative management were required for only 2.2% of patients. Three previous studies have investigated post-operative complications following uncomplicated phacoemulsification cataract surgery (Table 2).^{5–7} The overall post-operative complication rate in this study is comparable to two of these studies (3.0%⁶ and 6.6%⁵) but much lower than one report (18.9%⁷).

Raised intraocular pressure is the most common post-operative complication requiring specific treatment. The incidence of this complication was much lower in this study than in any of the previous studies (Table 2). Transient post-operative elevation of intraocular pressure generally results from retained viscoelastic material in the anterior chamber.⁸ It should be possible virtually to eliminate this complication by careful removal of all viscoelastic material at the end of surgery (particularly viscoelastic material posterior to the intraocular lens in the capsular bag).

Table 2. Comparison of studies reporting post-operative complications at the first day review following uncomplicated phacoemulsification cataract surgery

	Current study	Tufail <i>et al.</i> ⁵	Whitefield <i>et al.</i> ⁶	Cohen <i>et al.</i> ⁷
No. of patients	227	212	100	201
Raised IOP (≥ 30 mmHg)	1.3%	2.4%	3%	6.0%
Corneal oedema	4.4%	0.9%	3%	12.9%
Iris prolapse	0	0.5%	0	0
Wound leak	0	1.9%	0	0
Overall post-operative complication rate	5.7%	6.6%	3.0%	18.9%

IOP, intraocular pressure.

Post-operative elevation of intraocular pressure is self-limiting.⁹ Since most eyes can tolerate a short period of elevated intraocular pressure without damage, the value of detecting and treating transient post-operative elevation of intraocular pressure is questionable. This might still be considered important in certain patients with susceptible optic nerve heads (such as glaucoma). However, it is possible to detect post-operative elevation of intraocular pressure on the day of surgery because this occurs within a few hours of surgery.⁸ Indeed, it would be more appropriate to commence treatment for raised intraocular pressure in such patients at that stage rather than on the first post-operative day.

Other post-operative complications which might require specific treatment (such as hyphaema, anterior uveitis or corneal abrasion) will be associated with symptoms such as pain or reduced vision. Patients with these early post-operative complications would therefore be able to initiate their own hospital review.

Extracapsular cataract surgery was associated with a significant rate of post-operative complications which might not be symptomatic, such as wound leak and iris prolapse.¹⁰ Such complications rarely occur following uncomplicated phacoemulsification cataract surgery¹¹ and therefore do not justify routine review on the first post-operative day. Early detection of post-operative endophthalmitis is, of course, important but this typically presents 48–72 h after surgery.

Patients who suffer complications during phacoemulsification cataract surgery should always be reviewed on the first post-operative day because they do have a significant incidence of post-operative complication. The intraoperative complication rate for phacoemulsification cataract surgery is low, with reported values of 5%.⁴ In this study, surgery was performed by all grades of ophthalmologist (including trainees) with an intraoperative complication rate of 2.9%. This small group of patients did, however, have a high incidence of early post-operative complications requiring alterations in the standard post-operative management.

It is concluded that routine review on the first post-operative day following uncomplicated phacoemulsification cataract surgery could safely be

withdrawn. A single post-operative review at 1–2 weeks after surgery would then be required, supplemented by patient-initiated post-operative review in the interim.¹² Instructions regarding post-operative care would need to be given to patients before they returned home on the day of surgery, preferably supplemented by written information. Patients should receive explicit instructions regarding warning symptoms and be given a contact telephone number for advice. They must also have easy access to the ophthalmology department for review as required. Further studies are required to determine the efficacy of this system for post-operative care.

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