

Personal cataract audit: report

NAME REMOVED

Introduction and methods

This audit examined 50 consecutive phacoemulsification cases carried out at *HOSPITAL NAME REMOVED* beginning *DATE REMOVED*, during the ST6 year of training.

No cases were excluded from the audit, and an electronic patient record (Medisoft) was used to obtain the list of patients, as well as some of the dataset. Paper notes were also examined where relevant – this was not necessary in most cases as the electronic patient record is used for all pre-operative and post-operative clinic visits, as well as for the operation note.

Audit standards

The Cataract National Dataset¹ was used to devise the following standards:

- Overall complication rate 4.64% or less
- Posterior capsule rupture rate less than or equal to 1.92%
- A visual acuity outcome the same or better in 95% of cases
- Of patients with no co-pathology, 52.3% or more achieving 6/6 and 94.6% achieving 6/12
- Of patients with co-pathology, 32.1% achieving 6/6 and 82% achieving 6/12
- Patients developing post-operative complications to be 14.4% or less

Further published evidence² was used to develop the following standard:

- Post operative refraction: 85% of patients to be within 1 dioptre of predicted post-operative spherical equivalent; 55% to be within 0.5 dioptres of predicted post-operative spherical equivalent

Baseline patient characteristics

The patients ranged in age from 57-90, with a mean age of 73 years. 11 patients were noted to be diabetic at the pre-operative assessment (22%).

74% of patients were found to have no pre-operative pathology which would warrant a guarded prognosis. This is similar to the percentage reported in the Cataract National Dataset¹, who found a mean of 71.% of patients had no recorded pre-operative pathology (this varied from 48.9-88.7% by site).

Of the remaining patients, 5 (10%) had glaucoma, of whom 3 (6%) had had previous trabeculectomy surgery. One of the patients with glaucoma had previously had an attack of acute angle closure glaucoma. 2 patients (4%) had diabetic retinopathy. One patient (2%) had pseudoexfoliation. 2 patients (4%) had high myopia. One patient had corneal scarring. One patient had age-related macular degeneration.

Operative complications

One patient (2%) had a posterior capsule rupture. This occurred in a patient with previous acute angle closure glaucoma, where the rupture occurred at the stage of intraocular lens insertion.

Zonular laxity, which may have resulted from the previous acute angle closure attack, meant that a decision was made to place a sulcus-fixated intraocular lens. While positioning this lens, a rupture of the posterior capsule occurred and vitreous loss necessitated an anterior vitrectomy. A complication of lens exchange required/IOL problems was recorded as a change to the planned intraocular lens was necessary. The overall rate of intraoperative complications was therefore 4%.

This patient developed cystoid macular oedema post-operatively. Fortunately, this resolved and she achieved 1 Snellen line of visual improvement after refraction.

Post-operative complications

3 patients (6%) in total developed post-operative cystoid macular oedema. Of these, 1 patient had complicated surgery detailed above. This patient also developed raised intraocular pressure post-operatively. One of the patients had underlying diabetes mellitus, while the other had no risk factors for this complication. 2 patients developed post-operative uveitis but both settled well with further steroid treatment and achieved good visual outcomes.

Refractive aims

Refractive data was unavailable for 6 of the 50 patients included in the study. The refractive data in the table below refers to the 88% of patients where this was available.

Deviation from predicted post-operative refraction	Percentage
≤1 dioptre	100%
≤0.75 dioptre	89%
≤0.50 dioptre	70%
≤0.25 dioptre	39%

Visual outcomes

Visual outcome data was available for all 50 patients.

The median number of Snellen lines gained post-operatively was 4.

2 patients were recorded as having worsened visual acuity post-operatively. One of these patients had advanced glaucoma and had previously undergone a trabeculectomy. It was felt that glaucoma progression accounted for the reduction in vision. The other patient had high myopia with associated fundus changes, and was recorded as having experienced a subjective improvement in their visual acuity.

Best corrected visual acuity	With no co-pathology	With co-pathology
6/6 or better	100%	25%
6/12 or better	100%	67%

Comparison of results to audit standards

- This audit had a fairly good proportion of patients with both visual outcome data and refractive data.
- The complication rate was 4% overall, which met the audit standard.
- The posterior capsular rupture rate was 2%, where the aim was to achieve a rate of 1.92% or less. To achieve this in a dataset of 50 would have meant not having any posterior capsular ruptures at all – it would therefore be better to monitor this over a larger number of cases.
- 4% of patients (2 cases) were recorded as having worse vision post-operatively. 96% of patients therefore achieved the same visual acuity or better. This is in keeping with the audit standard of 95% of patients achieving the same or better visual acuity following surgery.
- In this audit, patients with no co-pathology met the audit standard of 52.3% or more achieving 6/6 and 94.6% achieving 6/12, with 100% of patients achieving 6/6.
- Patients with co-pathology did not achieve levels of visual acuity in keeping with the audit standard of 32.1% achieving 6/6 and 82% achieving 6/12. In this study, only 25% achieved 6/6 and 67% 6/12. This may reflect the relatively small dataset or the particular mix of pathologies in the cohort.
- The audit standard for post-operative complications was 14.4% or less. In this study, 10% of patients in total developed post-operative complications (6% cystoid macular oedema, 4% post-operative uveitis). This standard was therefore met.

- 100% of patients achieved post-operative spherical equivalent within 1 dioptre of predicted (aim 85%). 75% of patients achieved post-operative spherical equivalent within 0.5 dioptres of predicted (aim 55%).

Actions to be taken

The audit achieved 5 of the 7 standards. The posterior capsular rupture rate has been monitored continuously since this audit and is currently 1.3%. A larger audit is currently in process to review the visual outcomes for a separate cohort of patients.

Further improvements could be made prior to the next audit cycle by attempting to increase the percentage of patients for whom refractive data is available, and by undertaking a more detailed analysis of post-operative changes in refraction, such as surgeon-induced astigmatism.

The key actions to be taken are therefore continuous monitoring of complication rates, particularly posterior capsular rupture rate, and completing the repeat audit to review visual outcomes.

References

1. Jaycock P, Johnston RL, Taylor H, Adams M, Tole DM, Galloway P, Canning C, Sparrow JM and the UK EPR User Group. The Cataract National Dataset electronic multi-centre audit of 55 567 operations: updating benchmark standards of care in the United Kingdom and internationally. *Eye (2009) 23, 38-49*
2. Gale RP, Saldana M, Johnston RL, Zuberbuhler B, McKibbin M. Benchmark standards for refractive outcomes after NHS cataract surgery. *Eye (2009) 23, 149-152.*