Complications In Modern Cataract Surgery: A Single-Centre Comparison of Intra-Operative Complication Rates Pre-and Post-COVID-19

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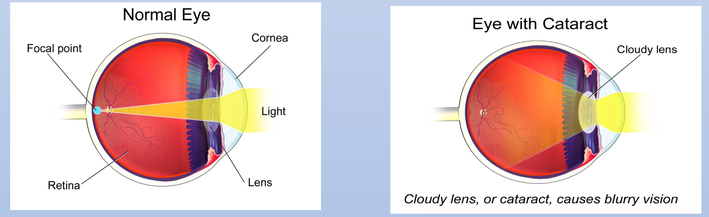
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Background

During the COVID-19 pandemic, national redistribution of cataract surgery to independent external providers (EPs) was initiated in attempts to tackle growing NHS patient waiting lists due to necessary cancellation of routine surgery. Use of such contracted services endures today and has provoked controversy in modern ophthalmic practice. This is due to the perceived impact of limiting access to surgical training opportunities for junior ophthalmologists training under the NHS. Further, it is reported that inequality exists in the increased complexity of cataract surgery performed within the NHS compared to those by EPs (1). Higher complexity of cataract surgery performed in the NHS may result in increased intra-operative complication rates with subsequent cost implications (2).

Figure 1: Illustration of the passage of light rays through a normal eye compared to an eye with a cataractous lens (3)



Methods

Retrospective data on 793 surgeries was collected during a three-month period in 2018 (P1) and 2021 (P2) to compare rates of intraoperative complications observed during cataract surgery in a single, high-volume NHS cataract service. Patient demographic details and pre-operative factors attributable to higher operative complications risk were recorded. Cataract type and severity were described in addition to intra-operative parameters such as surgeon experience, patient positioning and mode of anaesthetic utilised (general anaesthesia, local anaesthesia, or local anaesthesia with sedation). Intraoperative complications such as posterior capsular rupture, vitreous loss, incomplete capsulorrhexis, zonule dehiscence, iris prolapse were recorded. Statistical analysis was performed to dispute the hypothesis that no difference exists between the two cohorts in each parameter. This was completed using an unpaired (Student's) t-test for continuous variables and chi-squared test for categorical variables.

Results

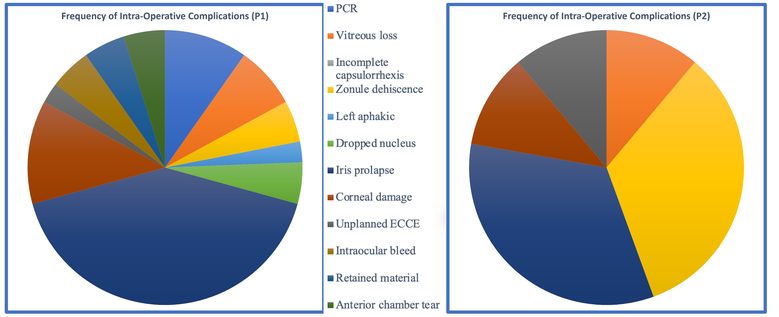
The number of cataract surgeries were recorded in P1 (n=594) compared to P2 (n=435). Complete data was available for 199 procedures in P2. The mean age at time of surgery was 74 years (P1) and 73 years (P2) respectively. Gender composition of both cohorts was comparable. Similar reported rates of ophthalmic comorbidities known to increase the rate of intraoperative complications (4) were seen in both groups, with the most common ophthalmic comorbidity reported as shallow anterior chamber length (<3mm). There was no significant difference in the cataract severity recorded between P1 and P2. In a total of 594 surgeries in P1, a documented intraoperative complication was reported in 6.9% of cases (n=41), compared to 4.5% of 199 cases in P2 (n=9). In P1, the most common complication (3%) was iris prolapse (n=17). In P2, iris prolapse and zonule dehiscence were the most common intraoperative complications. Cataract surgery was significantly more likely to be performed by surgeons with greater experience such consultants or senior registrars in 2021 than those performed in 2018 (p= 0.008).

Table 1: Summarised data for patient demographics, cataract severity and intraoperative parameters in P1 (2018) and P2 (2021)

	2018	2021	p-value
Cataract surgeries performed, n	594	199	-
Male gender, %	43.4	48.7	.192366
Age at surgery, y, mean ± SD	74.5 ± 11.9	73.3 ± 11.9	.0219
Cataract severity, n (%)			
1+	58 (9.8)	23 (11.6)	.47152
2+	215 (36.2)	58 (29.1)	.0703
3+	110 (18.5)	29 (14.6)	.20408
4+	17 (2.9)	11 (5.5)	.0784
Brunescent	65 (10.9)	20 (10.1)	.72634
Anaesthesia type, n (%)			
Local only	579 (97.5)	195 (98)	.6816
Local with sedation	4 (0.7)	0	.24604
General	13 (2.2)	3 (1.5)	.5552
Surgeon experience, n (%)			
Specialty trainee 3-5	87 (14.6)	8 (4)	**.00006**
Specialty trainee 6-7	132 (22.2)	21 (10.6)	**.0003**
Middle grade	38 (6.4)	62 (32.2)	**< .00001**
Consultant	338 (56.9)	108 (54.3)	.5157
Intra-operative complication rate, n (%)	41 (6.9)	9 (4.5)	.23014

Results

Figure 2: Frequency of Intra-operative complications based on complication type in P1 versus P2



Conclusions

This audit on a single-centre, high volume cataract service identified that junior ophthalmic trainees have had reduced cataract surgical experience following the COVID-19 pandemic. Overall cataract severity did not appear to be influenced by the contracted provision of cataract surgery by EPs. The intraoperative complication rate observed during cataract surgery subsequently was not increased as per the findings of this audit. However, this may be partially explained by the higher frequency of consultant- or senior registrar- led procedures following the pandemic. A further audit cycle to assess the ongoing impact for junior ophthalmic trainees is recommended.

References

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