Cataract surgery in a tertiary care hospital: A comparison between the Pre-COVID-19 and COVID-19 era

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Introduction:

The World health Organisation (WHO) has estimated cataract to be the second largest cause of treatable visual impairment globally, affecting 94 million people worldwide.(1) The COVID-19 pandemic led to cataract surgery being temporarily stood down, on the recommendation of the The Royal College of Ophthalmologists.(2) On reinstating the service, increased incidence of intra-operative complications was noted. This study measures and analyzes the factors that may have contributed to the increased rate of complications. There are no grants, financial support or proprietary interest in a product or drug in this study.

Materials and Methods:

A retrospective study conducted at a University Hospital in United Kingdom. Data of all patients undergoing cataract surgery between May-October 2020 (during COVID-19 pandemic) was compared to May-October 2019 (pre-COVID 19). We collected the data from Medisoft/CRRS (our own hospital EPR system) for all the patients in the corresponding periods. We analysed the intra-operative and post-operative complications, waiting times, cataract grades, patients' age and compared the mean pre-operative and post-operative visual acuity outcomes.

Results:

Gender:
2019: Male 41%, Female 59%
2020: Male 39%, Female 61%

Mean age (in years):
2019: 75 (32-98)
2020: 75.2 (33-99)

Number of surgeries: 651 eyes underwent surgery from May-October 2020, compared to 1342 eyes during the same period in 2019. (Figure 1)

Grade of surgeon: Tabulated in Figure 2

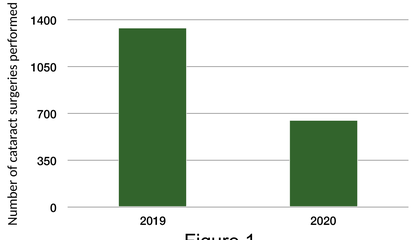


Figure 1

Surgeon grade performing cataract surgery (%)	2019	2020
Consultant	40.8	51.8
Associate specialist	8.1	24.6
Specialty doctor	33.7	4.1
Trainees	17.4	19.5

Figure 2

Pre-operative visual acuity: In 2020, mean pre-operative visual acuity was 0.8 LogMAR and in comparison, in 2019, pre-operative visual acuity was 0.6 LogMAR.

Grade of cataract: In 2020, 14.1% of eyes had brunescent cataract versus 7.4 % in 2019.

Anesthesia: More patients had topical anesthesia in 2020 (around 26 % patients) compared to 9% in 2019 due to reduced availability of anesthetist support in 2020. (of patients where type of anaesthesia was recorded on the EPR system during surgery)

Intraoperative complications: Included posterior capsular rupture (PCR) in 2.15% of the eyes in 2020 (n=14) compared to 1.3% in 2019 (n=18). List of major complications and their incidence has been demonstrated in Figure 3.

Mean waiting time for those patients which developed PCR was 34 weeks in 2020 compared to 13 weeks in 2019. Other factors which may have contributed to the risk of a posterior capsular rupture and their incidence in patients who had PCR in 2019 compared to 2020 has been tabulated in Figure 4. The grade of surgeon performing cataract surgery in the eyes which developed PCR has been demonstrated in Figure 5.

Intra-op complications (%)	2019	2020
No complication	97.1	96.5
Posterior capsular rupture	1.3	2.2
Zonular dialysis	0.4	0.5
Suprachoroidal haemorrhage	0	0.5

Figure 3

Patients which had PCR	2019	2020
Mean age (years)	77	69
Mean waiting time (weeks)	13	34
White cataract (%)	38.9	28.6
Trauma history (%)	5.6	14.2
Poor pupil dilatation/floppy iris (%)	22.2	21.4
Shallow anterior chamber (%)	16.7	21.4
Patient movement/anxious (%)	5.6	42.9

Figure 4

Surgeon grade performing surgery which had PCR (%)	2019	2020
Consultant	27.8	35.7
Associate specialist	22.2	21.4
Specialty doctor	22.2	0
Trainees	27.8	42.9

Figure 5

Post-operative follow-up:

Almost an equal proportion of patients developed no post-operative complications in both the time periods under study. However, few patients developed vitreous haemorrhage, retinal detachment and endophthalmitis in 2020 compared to none in 2019. 1 of the patients who had a retinal detachment post-surgery was a patient who had developed cataract following trauma to the eye and also had a PCR during surgery.(Figure 6)

92.7% of patients had improvement in visual acuity post-surgery in 2019 and 86.4% in 2020 (3 to 6 months follow-up period).

Post-op complication (%)	2019	2020
No complication	90.4	90
Corneal Oedema	1.7	2.6
Uveitis	3.7	2.2
Hyphaema	0.07	0.5
Corneal decompensation	0.4	0.3
Vitreous haemorrhage	0	0.3
Retinal detachment	0	0.3
Endophthalmitis	0	0.15
Raised IOP	0.8	2

Figure 6

Discussion:

Lesser number of patients underwent cataract surgery in 2020 compared to 2019. This can be explained by many cataract theatres being stood down during the peak of the COVID-19 pandemic. Our study demonstrated a relatively greater incidence of intra-operative and some post-operative complications during cataract surgery post-COVID-19. Patients undergoing surgery post-COVID-19 had denser cataracts, poorer pre-operative vision and had waited longer for surgery. Additionally, more patients were noted to have improved visual acuity post-surgery in 2019 compared to 2020. This study identifies the impact of the ongoing pandemic on the cataract surgery service. Steps to reduce wait times may potentially help reduce the rate of complications. Some studies have found Immediate sequential bilateral cataract surgery (ISBCS) to be as safe and effective to conventional delayed sequential bilateral cataract surgery, which can help in reducing waiting time for surgery.(3)

References:

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