The Royal Australian and New Zealand College of Ophthalmologists

Preferred Practice Patterns:

Cataract and Intraocular Lens Surgery

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We acknowledge the Aboriginal and Torres Strait Islander Peoples, the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and community. We pay our respects to them and their cultures; and to their Elders past, present and emerging.
In recognition that we are a bi-national College, we also acknowledge the Rangatiratanga of Māori as Tangata Whenua and Treaty of Waitangi partners in Aotearoa New Zealand.

1 Purpose and Scope

These Preferred Practice Patterns have been issued by the Royal Australian and New Zealand College of Ophthalmologists to guide best practice in cataract surgery in alignment with improvements in efficacy, safety and speed of recovery of cataract surgery. Cataract surgery is one of the most common and efficacious operations in Australia and New Zealand.

The purpose of the Preferred Practice Patterns (PPP) which emulate the American Academy of Ophthalmology (AAO), Cataract in the Adult Eye PPP 2016[1], is to assist ophthalmologists in the provision of safe and ethical care for cataract patients. The guidelines should not be considered inclusive of all methods of care directed at obtaining the best results and are not protocols for provision of care.

They should not be used by any other persons or provided to patients as a replacement for medical advice.

2 Steps in cataract surgery

The aim of cataract surgery is to achieve a rapid, stable visual recovery to the preferred refractive status with minimal morbidity and risk. The following components are considered minimum requirements to achieve this aim:

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a) Identify the presence of a cataract.
b) Quantify the impact on vision and its effect on the patient's quality of life.
c) Counsel the patient about the risks and prognosis of the surgery.
d) Inform patients of all refractive alternatives open to them such as toric, multifocal and extended depth of focus (EDOF) intraocular lenses (IOLs) and provide them with the calculated refractive aim and expected outcome.
e) Perform appropriate surgery when indicated and desired by an informed patient.
f) Provide necessary post-operative care, rehabilitation, and treatment of any complications.

3 Pre-operative assessment of the cataract patient

3.1 General

The preoperative check should be performed by an ophthalmologist and, if another is to perform the surgery, there should be adequate communication of clinical details. The reassessment of patients waiting for surgery should be made after an appropriate time.

3.2 Diagnosis of cataract

Diagnosis of cataract is made by observation of the presence of lens opacity.

3.3 Assessment of Visual Impairment in the Cataract Patient

The diagnosis of visually significant cataract is made by the ophthalmologist based on patient symptoms and ocular examination.

Symptoms patients might describe include blur, monocular diplopia, glare and refractive change. These might be significant but might not necessarily be associated with best-corrected visual acuity (BCVA) reduction.

[1] AAO PPP Cataract/Anterior Segment Panel, Hoskins Centre for Quality Eye Care

No single test indicates or denies the need for surgery. In particular, BCVA, whilst an important measure of visual function cannot, on its own, be used in this way. Further special tests of visual function, retinal image quality, contrast sensitivity, whole eye aberrations, forward light scatter and objective measurements of cataract density might be helpful in some cases.

3.4 Comprehensive Pre-Operative Eye Examination

A comprehensive examination of both eyes should be performed along with IOL power estimation. The target spherocylindrical should be known and along with its implications should be shared with the patient.

Macular OCT should be performed.

3.5 General Medical Conditions

The ophthalmologist planning cataract surgery should have an understanding of their patient's general medical condition and how it might impact on the surgery and the anaesthesia. Consultation with the patient's treating practitioner and the anaesthetist might be important. Diabetic control and diabetic peri-operative plans are important.

Cessation of anti-coagulation may be associated with systemic morbidity and should only be undertaken in consultation with the appropriate managing physician and judged on individual circumstances. Knowledge of the current status of anticoagulant therapy at the time of cataract surgery is necessary to determine the type of anaesthesia, the surgical technique and the timing of surgery.

3.6 Informed Consent

Medical and financial informed consent should be obtained prior to surgery.

4 Indications for Surgery

4.1 Threshold for Surgery

Cataract surgery is indicated when the ophthalmologist has determined cataract is completely or partly affecting the vision, that the benefits outweigh the risks, and the patient agrees and consents. There is no visual acuity below or above which surgery is or is not indicated. Factors to be taken into account include the patient's age, occupation, home conditions, family circumstance, hobbies, general health, ability and need to drive a motor vehicle and ophthalmic co-morbidities. There are specific conditions where lens removal is indicated without visual impairment conditions. These include phacolytic glaucoma, angle closure glaucoma and the need for retinal observation.

4.2 Cataract Surgery in the One Eyed or Monocular Patient

While the indications for surgery are the same as for the two eyed patients, the threshold for intervention may be different. The ophthalmologist must explain the risk of total blindness if severe complications should occur.

4.3 Poor vision in fellow eye

In cataract surgery when the fellow eye has poor vision, the risk of loss of some or all vision in the operated eye must be discussed. The same general principle of the benefit having to outweigh the risks with patient understanding and giving consent apply.

4.4 Cataract Surgery in the Second Eye

Indication for surgery on the second eye is much the same as first. If cataract is bilateral, second eye surgery options including its timing should be discussed with the patient when booking the first eye.

Having second eye surgery later allows for complete healing before fellow eye surgery, but anisometropia with reduction in binocular vision and falls risk, when taken into account, favours a shorter interval.

There is no evidence of a difference in complications of immediate sequential bilateral cataract surgery (ISBCS) and surgery performed on separate days, but quality of evidence is low. ISBCS might suit patients who have low risk of complications where a second procedure is best avoided. Examples are to avoid sometimes higher risk general anaesthesia second time, or remote patients avoiding travel and those for whom anisometropia could cause significant problems including falls.

When ISBCS is planned, full informed consent including risks of bilateral complications needs be given and recognised protocols to avoid these complications need be instituted.

5 Delivery of Surgery Technique

The phacoemulsification technique is the preferred planned surgery for most cataracts. The intraocular lens is normally implanted in the capsular bag.

5.1 Endophthalmitis prophylaxis

It is strongly recommended that intracameral antibiotics be injected at the end of the cataract operation. In the ESCRS Study[2] not using intracameral cefuroxime was associated with 5 times increase in risk of developing endophthalmitis. In Australia and New Zealand cefuroxime is not readily available. Intracameral cefazolin 1mg/0.1 ml is often used as an alternative. Use of vancomycin and moxifloxacin has also been described.[3]

While subconjunctival and topical routes of prophylactic antibiotic administration at the time of surgery may be considered as alternatives, the evidence base for their use remains weak. It may be prudent to use these when intracameral antibiotic is not given.

5.2 Facility

The surgical facility should satisfy requirements set by the relevant National, State or Territory Health Departments.

5.3 Anaesthesia

The anaesthetic technique used depends on many factors, including the surgical technique and the patient's health status. The surgeon should discuss the choices with the patient and the preference of the patient is an important consideration. The surgeon's final decision may require discussion with the anaesthetist.

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[2] Endophthalmitis Study Group, European Society of Cataract & Refractive Surgeons. Prophylaxis of postoperative endophthalmitis following cataract surgery. results of the ESCRS multicenter study and identification of risk factors. J Cataract Refract Surg. 2007;33(6):978–88

[3] Titiyal, J, Kaur, M. (2020). Role of intracameral antibiotics in endophthalmitis prophylaxis following-cataract surgery. Indian Journal of Ophthalmology: 68 (5): 689-691

6 Post-Operative Care

The surgeon is responsible to see adequate post-operative care is delivered to the cataract patient. The surgeon should instruct the patient regarding access to emergency care, especially if the visual acuity deteriorates or fails to improve. The surgeon's obligation to the patient continues until post-operative rehabilitation is complete.

The College is opposed to any payments by a surgeon to any party who refers a patient or patients to that surgeon. The fundamental principle is that payment to the attending practitioner (either the referring practitioner or the practitioner receiving the referral) is from third party payers or from the patient and not between practitioners. In certain situations, in particular in delivering rural care, it is often required that another ophthalmologist or optometrist is delegated for delivery of some of this care. This person must be adequately qualified and specifically trained in recognising complications and in managing the post-operative period.

Normally a post-operative steroid drop and sometimes non-steroidal anti-inflammatory drops are used after surgery.

6.1 Posterior Capsule Opacification and laser capsulotomy

Nd:YAG laser capsulotomy is used after cataract surgery to improve vision in cases where the posterior capsule has some opacity. This can be primary or develop secondarily from lens epithelial cell proliferation and migration.

The decision to perform capsulotomy is made in conjunction with the patient. Risks of this intervention need to be understood by the patient and the benefits must outweigh the risks.

7 Record of amendments to this document

Page	Details of Amendment	Date amended
Entire document	Reviewed and rewritten	18/06/2021