

GUIDELINES FOR PEDIATRIC CATARACTS SURGERY

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ABSTRACT

Modern cataract surgery seeks to restore a child's natural visual axis for healthy visual development, achieve the optimal refractive result to avoid amblyopia, and provide a secure general anaesthesia.

In children, subjective complaints about eyesight are uncommon. The white or partly white pupil is the first symptom that parents often see. Particularly in cases with unilateral cataracts, strabismus may be the first sign, and in newborns with bilateral lens opacities, nystagmus or poor fixation may be present.

Every youngster who visits the eye outpatient clinic must have a complete ocular and systemic examination. The evaluation of pupillary responses, ocular motility, and visual acuity should all be part of an eye exam. To design the surgical operation, a slit lamp examination is required to determine the size, density, and location of the opacity. A fundus examination is performed to check for disc and macula abnormalities and pigmentation. To determine if the cataract is congenital, developmental, or traumatic, the parents' medical history is helpful.

A thorough preoperative evaluation will establish the presence of a visually significant cataract.

2. Verify that the cataract is what's causing the eye problems.

3. To identify any concurrent ocular disease.

4. Verify that the parents are in favour of the procedure and are aware of the hazards involved.

5. Verify that the kid has no systemic conditions that might put them in danger during general anaesthesia, and

6. Create a workable surgical care strategy.

The goal of the surgical method is to achieve age-appropriate postoperative refraction in addition to restoring a normal, clear visual axis for normal visual development. These patients must make an effort to successfully complete visual therapy in order to prevent amblyopia. To determine the source of a cataract and to assure safe general anaesthesia in the paediatric age range, the proper investigations are required.

PEDIATRIC VS ADULT CATARACT

The paediatric cataract surgeon has a significant difficulty in providing the best care for children with cataracts. The whole procedure differs greatly from

that of a normal adult cataract, including diagnosis, assessment, surgical treatment, and post-operative management.

The doctor must keep in mind that the removal of the cataract is merely the first step in the rehabilitation procedure. Other crucial measures include refraction, amblyopia therapy, and regular monitoring of the eye's response.

HISTORY AND EVALUATION:

In order to determine if a child's cataract is congenital, developmental, or traumatic, a history from the parents is helpful. Find out whether the mother has ever used drugs, had an illness, or been exposed to anything else during her pregnancy. Each kid should get a complete systemic workup by a paediatrician to rule out any systemic connections, abnormalities, or congenital rubella.

Paediatric cataracts are idiopathic in 60% of cases. Laboratory testing are not necessary since unilateral cataracts are seldom accompanied by systemic or metabolic diseases. There are several metabolic and systemic illnesses that might be linked to bilateral cataracts. A detailed and systematic laboratory investigation is not required if a positive family history is revealed or if a parent's test reveals congenital lens opacities. Only a tiny fraction of children with cataracts will exhibit subjective visual issues. The presence of nystagmus and strabismus in the case of bilateral cataracts suggests that the opacities are visually significant. It's critical to measure the child's cataract patient's visual acuity as

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exactly as possible. There are many instruments available for evaluating a baby or child's eyesight. To rule out any more vision-impairing defects, it is critical to assess the anterior segment and corneal diameter.

PRE-OPERATIVE ASSESSMENT:

Each youngster with cataracts must have their red reflex quality carefully evaluated. The presence of opacities, their size and position, and whether or not light passes through them. The ideal tool to use is a direct ophthalmoscope at a few inches. If at all feasible, the posterior pole should be checked for disc and macula underdevelopment or malformations. If a fundus view is unavailable, B-Scan ultrasonography can be required. Paediatric cataract surgery is a complicated procedure that should only be handled by surgeons experienced in dealing with the long-term side effects and extensive follow-up. The parents are the most crucial members of the treatment team since treatment is often time-consuming and challenging.

DECISION ABOUT THE SURGERY:

Children with visually severe cataracts should have surgery right away to clear the ocular medium and produce a focused retinal picture. The right therapy at the right time, particularly in the early stages of infancy, is essential for children's visual development and effective recovery. The surgeon may wait till the kid is 4 to 6 weeks old if a unilateral thick cataract is discovered at birth. If the infant is operated on before the age of 10 weeks, a favourable visual prognosis may be attained in the case of bilateral cataract identified at birth. The amount of time between the procedures on the two eyes must be kept to a minimum.

Surgery on extremely young patients is best handled at a referral facility by ophthalmologists with some level of competence. Surgical procedures within these eyes are more difficult because to decreased scleral stiffness and greater vitreous up-thrust. The anterior chamber is often unsteady, capsule management need for specialised skill, and postoperative inflammation is more likely. While an ophthalmologist may be exceptionally proficient at doing cataract surgery on adults, this does not guarantee the same success when performing the procedure on kids. Compared to patients with adult cataracts, there are changes in the methods of therapy. It is best to adapt a process that is widely used, widely regarded as safe, efficient, and manageable.

BIOMETRY:

Depending on their compliance throughout the treatment, children as young as three may undergo

biometry. It may be done under general anaesthetic just before surgery in smaller, less compliant youngsters. If a facility is unavailable, an alternative method for estimating IOL power is retinoscopy after lens suction.

For paediatric biometry, there is no ideal equation. Hoffer Q and SRK-T may be utilised for eyes with small axial lengths and large axial lengths, respectively.

CHOICE OF THE IOL MATERIAL:

IOL types are available; Hydrophobic acrylic IOLs (compressible), PMMA small diameter IOLs or Heparin surface modified PMMA lenses can be used.

There is good evidence that the pseudo-phakic pediatric eye continues to grow like a normal phakic eye.

WOUND CONFIGURATION:

Children's elastin sclera causes self-sealing wound setups to often leak when applied on them. In youngsters, even the corneal tissue is less prone to self-seal. To avoid peripheral anterior synechiae and secondary glaucoma in children, tunnel wounds and paracentesis holes should be sutured up.

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