

Immediately sequential bilateral cataract surgery in Down syndrome

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The exponential increase in world population and average human lifespan is expected to result in geriatric population globally. The problem of preventable blindness due to cataract will increase manifold. Simultaneous Bilateral cataract surgery (SBCS) is a viable option in such subset of patients. Despite faster visual recovery, economic benefits to patients and health care providers, decreased risk of complications associated with General anaesthesia, there is significant resistance in accepting SBCS as a routine procedure. Bilateral endophthalmitis is the main deterrent in performing ISBCS. This case highlights successful ISBCS in 36 years old female patient with Down's syndrome.

Key words: Bilateral cataract, Down's syndrome, general anaesthesia, immediately sequential bilateral cataract surgery

Cataract surgery is one of the most common procedures performed worldwide. Ancient literature suggests that as early as 600 BC, an Indian surgeon, named Sushruta, might have performed some type of extracapsular cataract extraction (ECCE).^[1] Despite the recent advances in cataract surgery, immediately sequential bilateral cataract surgery (ISBCS) is still a hot topic of debate in the ophthalmic world and has not yet been incorporated as a routine procedure of cataract surgery.^[2] We need to reconsider our old-fashioned approach of staggering bilateral cataract surgeries. The aim of this article is to highlight a successful ISBCS in a 36-year-old patient with Down syndrome. The key principles involved in ISBCS along with advantages and disadvantages have been elucidated in this article.

Case Report

A 36-years-old female patient with Down syndrome presented with complaints of sudden onset, painless diminution of

vision in both eyes for the last 3 months. There was no history of redness, photophobia, floaters, and flashes. There was no history of any ocular surgery/trauma. She had no history of diabetes, hypertension, and heart disease. She had mongoloid facies, epicanthal folds, and pallor. Systemic examination was essentially within normal limits. Ocular examination revealed a normal head posture and ocular movements full and free in all directions of gaze. The vision was counting the finger close to the face (CFCF) in both eyes. Intumescent cataract was present in both eyes [Fig. 1].

The rest of the examination was essentially normal. The fundus was not visualized due to hazy media; however, US AB Scan revealed a healthy and attached retina. Intraocular pressures (IOP) were 22 mm and 21 mm Hg in the right eye (RE) and left eye (LE), respectively. Biometry was done and IOL of 18 D and 20 D power were to be implanted in the right and left eye, respectively. Keeping in mind that this was a high-risk case in view of the anticipated difficult airway in the presence of multiple maxillofacial abnormalities, a short neck with a limited degree of head extension, and obesity coupled with cognitive and intellectual disability. The risk further compounds if multiple GA is administered to the patient in a different sitting. Keeping in mind the tricky scenario in an intumescent cataract, surgeon comfort, patient safety, and most importantly to avoid the high risk involved in giving GA twice to the same patient in different sitting, it was decided to perform an immediately sequential small-incision cataract surgery in the right eye followed by the left eye under GA [Fig. 2].

Surgery and GA were uneventful. The patient was started on oral and topical antibiotics and steroid eye drops. Post-operative day 1 revealed mild conjunctival congestion with a clear cornea, the round and normal reacting pupil with PCIOL in the capsular bag. A good fundal glow was appreciated. IOP was 17 mm Hg in both eyes [Fig. 3].

A subsequent visit on day 7 revealed a vision of 6/18 unaided in both eyes and after 4 weeks, the vision was 6/12 unaided and improved to 6/6 in both eyes. IOP was 16 and 17 mm Hg.

Discussion

Down syndrome or Trisomy 21 is the most common genetic disorder affecting more than 1 in 1,000 live births. Sixty percent of these patients have ophthalmic manifestations.^[3] The association of congenital cataracts with Down syndrome is rare, 1 per 40,000 live births; however, the risk of association increases with age.^[4] Eye care and treatment in such patients are difficult due to the myriad of systemic and ophthalmic

Access this article online	
Quick Response Code:	Website: www.ijjo.in
	DOI: 10.4103/ijjo.IJO_1166_22

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Received: 09-May-2022

Revision: 29-Jul-2022

Accepted: 16-Aug-2022

Published: 25-Oct-2022

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Cite this article as: Sharma R, Shankar S, Kumar N, Vichhare N. Immediately sequential bilateral cataract surgery in Down syndrome. Indian J Ophthalmol 2022;70:4089-91.

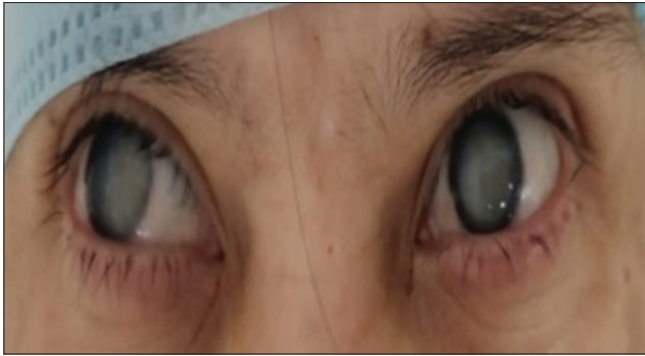


Figure 1: Intumescent cataract in both eyes

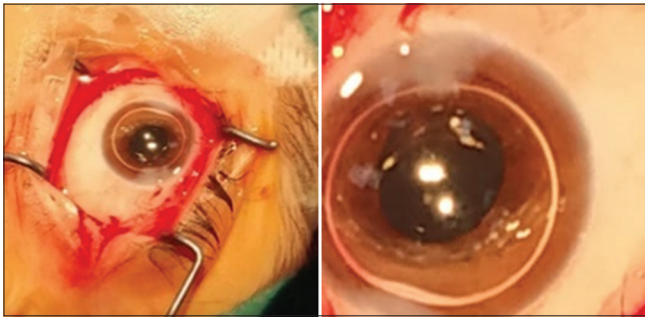


Figure 2: Intra-operative appearance of the right eye (left) and the left eye (right) respectively

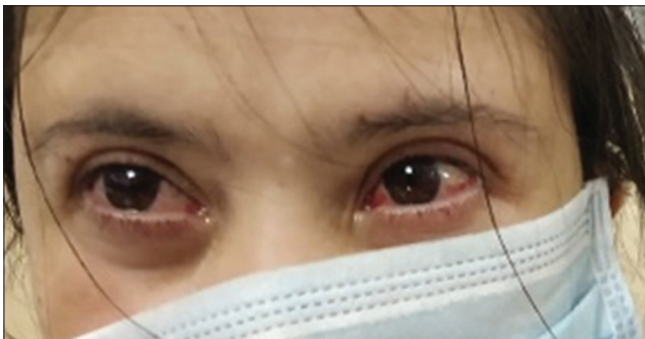


Figure 3: Post-operative day 1

manifestations.^[5] A multidisciplinary team approach is warranted in such a challenging scenario.^[6] As per the earliest scientific reports, in 1952, Chan and De la Paz performed simultaneous binocular cataracts in one operating session.^[7] Finland is the leading country for the number of ISBCS done since 1996.^[8] In Finland and Sweden, 40% of all cases are ISBCS.^[9] Timing of the second procedure differentiates ISBCS from DSBCS, where there is an interval of days/weeks/months between the treatments of two eyes, whereas, in ISBCS, it is the word “immediately sequential” which is of paramount importance.^[10]

ISBCS is indicated in the pediatric population, uncooperative, mentally retarded, and physically disabled adults needing general anesthesia to reduce the risks and complications of general anesthesia. Multifocal intraocular lens (IOL) implantation is also one of the indications for ISBCS.^[11,12] In our case, bilateral white cataracts in Down syndrome patients

with anticipated difficult airways and intubation were clear indications for performing ISBCS.

ISBCS is contraindicated whenever there is an increased risk of infection from untreated blepharitis and mucocoele, diabetes mellitus, and immunosuppression. Various corneal pathologies with risk of decompensation, and lenticular abnormalities do not favor ISBCS. Failed surgery in the fellow eye and increased risk of biometry due to high hyperopia/myopia are also unfavorable for performing ISBCS.^[13]

The fundamental principle in performing a successful ISBCS is “Treat Each Eye Surgery as an Individual, Autonomous, New Procedure.” A second set of “sterile operating equipment” is a must for the second eye and there is no room for cutting corners. The use of povidone-iodine 5–10% for a minimum of 3 min before surgery remains of paramount importance. The ISBCS stress the importance of informed consent, accurate biometry, patient safety, and benefit before proceeding to the second eye.^[14,15] The greatest deterrent to the adoption of ISBCS in routine practice is the fear of bilateral simultaneous endophthalmitis. The world literature has reported only four cases of bilateral endophthalmitis, which is due to non-adherence to the protocol published by the International Society of Bilateral Cataract Surgeons.^[15,16]

ISBCS offers manifold advantages such as faster complete visual rehabilitation and overcoming other significant problems occurring after unilateral surgery, that is, anisometropia. ISBCS is an ideal solution for patients who require general anesthesia because it obviously lowers the risk of a second anesthetic with associated risks.^[17,18] Another advantage is lower hospital costs, more efficient use of operating room time, and more efficient use of clinic. ISBCS provides an economical advantage to patients in terms of faster return to work, fewer hospital visits, and only one pair of new glasses needed.^[19,20] There is no significant difference in the incidence of endophthalmitis, TASS, or refractive surprise associated with ISBCS when compared with DBCS. There is an increased risk of the following complications such as PCO, secondary glaucoma, and RD compared to the population without Down syndrome.^[21,22]

Conclusion

With continued advancements in surgical techniques and technology, cataract surgery has evolved into a refractive procedure rather than simply a surgical treatment of cataracts. With careful patient selection and strict adherence to protocol and perioperative recommendations, ISBCS offers a low-risk, cost-effective solution to help decrease the backlogged surgical waiting period. In the future, it might be adopted in suitable cases in routine practice to combat the problem of preventable blindness due to cataracts.

Ethical statement

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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