ScientificScholar®
Knowledge is power
Publisher of Scientific Journals

https://www.gjcsro.com/

Global Journal of Cataract Surgery and Research in Ophthalmology

Article in Press

Guest Editorial

Preferred practice patterns for safe cataract surgery in the presence of lacrimal and eyelid pathologies

Rolika Bansal[1], Santosh Gajanan Honavar[1]

[1]Department of Ocular Oncology and Oculoplasty, Centre for Sight, Hyderabad, Telangana, India.

INTRODUCTION

"It takes both sides to build a bridge." = Fredrik Nael

The concept of subspecialty practice has taken the front seat in ophthalmology in the past few years. While these silos of focus and professional excellence often lead to improved outcomes, it is equally important to maintain a synergy between the different subspecialties by building bridges of knowledge to maintain the overall quality of care provided to the patients. One such example is knowledge about the lacrimal and eyelid pathologies of cataract surgeons.

KNOW THY NEIGHBOUR

Based on evidence-based eye care interventions, several guidelines have been laid down for cataract surgeons to maintain aseptic precautions pre-, intra-, and post-operatively to improve the standards of care.[1-4] It has been highlighted that endophthalmitis is a dreaded complication, and the incidence is on the decline, that is 1 in 10,000–15,000, due to the improving awareness and vigilance about the precautions to be kept in mind.[5,6] In a case-control study by Kam *et al.*, it was reported that about 50% of patients who underwent cataract surgery with nasolacrimal duct obstruction developed endophthalmitis.[6] Therefore, cataract surgeons need to have clear knowledge about the neighbouring structures and the associated complications. Similarly, eyelid diseases can also predispose to corneal infection and surface inflammation which require to be resolved preoperatively.

NASOLACRIMAL DUCT OBSTRUCTION (NLDO)

In the adult population, nasolacrimal duct obstruction (NLDO) is prevalent in 3–7% of cases,[7] out of which 50% are usually symptomatic. Mostly, two-thirds of these symptomatic patients present with epiphora and out of this subset, 30% have severe epiphora.[7] The complaint of discharge is only given by 30% of the patients and can be easily missed on routine clinical evaluation. A survey on practice patterns showed that 7.9% of respondents did not feel the need for pre-cataract screening for NLDO.[8] It is recommended that a detailed examination of the lacrimal drainage system is practised irrespective of the baseline symptoms.[9] The cataract and refractive surgeons themselves can easily carry out these preliminary tests; however, when in confusion, one can refer the patient to a specialist and request for fitness for surgery after appropriate management.

The preliminary tests which are recommended preoperatively are as follows:

Fluorescein dye disappearance test (FDDT)

Fluorescein dye disappearance test (FDDT) is considered a simple, reliable and effective test for assessment of NLDO in adults.[10] The test is performed by staining the tear film with a fluorescein strip and observing the remaining tear meniscus height by cobalt light of an indirect microscope. Based on the time duration of the assessment, the test could either be 2-FDDT (2 min), 5-FDDT (5 min) or 10-FDDT (10 min).[11,12] MacEwen and Young gave the modified FDDT grading (originally described by Zappia and Milder),[13] that is Grade 0 (no fluorescence in the conjunctival sac), Grade 1 (thin fluorescein marginal tear strips only), Grade 2 (between 1 and 3) and Grade 3 (wide and bright fluorescein strip). Negative FDDT includes grade 1 or 0 whereas positive FDDT includes grades 2 and 3. A sensitivity and specificity of 82.8% and 91.4%, respectively, has been proven for 2-FDDT, and 5-FDDT has a sensitivity and specificity of 71.1% and 94.8%, respectively.[12]

***Corresponding author:** Santosh Gajanan Honavar, Department of Ocular Oncology and Oculoplasty, Centre for Sight, Hyderabad, Telangana, India. santosh.honavar@gmail.com

Received: 07 August 2023 **Accepted:** 18 June 2024 **EPub Ahead of Print:** 12 September 2024 **Published:** XXXXXX **DOI:** 10.25259/GJCSRO_20_2023

Regurgitation on pressure over the lacrimal sac (ROPLAS)

A simple test of gentle pressure over the lacrimal sac can give us an indication of lacrimal sac disease. As per Thomas *et al*., Regurgitation on pressure over the lacrimal sac (ROPLAS) has a sensitivity and specificity of 93.2% and 99.3%, respectively.[14] Whereas Kim *et al*. have reported a sensitivity of 54.5%, and a specificity as high as 100%.[15] The data states that the presence of ROPLAS is a definite indication of an underlying lacrimal disease; however, its absence cannot exclude the possibility of NLDO.

Lacrimal irrigation

Lacrimal irrigation is the anatomical gold standard diagnostic test to assess NLDO. Preferably this test should be carried out by the oculoplastic surgeons; however, if the technique is adopted the right way, ophthalmologists from any sub-specialty can assess lacrimal patency using this method. After anesthetising the conjunctiva, the patient is made to recline or lie down, and an appropriately sized 15° curved cannula or straight cannula is fitted to a syringe with sterile water or normal saline. The patient is asked to look down (for upper punctum) or up (for lower punctum). Peripunctal stenosis is noted, and Nettleship punctum dilator is used for punctum dilatation. Probing is performed to assess the canaliculus and the cannula is then inserted vertically followed by horizontally. After reaching the horizontal canaliculus, preliminary intra-canalicular irrigation is performed, and then the cannula is advanced into the sac, and gentle irrigation is performed. If the fluid reaches the throat, it indicates patency. If there is a regurgitation of fluid, the site and type of discharge should be noted as it indicates the site of the blockage.[16]

Guzek *et al*. have stated that for a definitive diagnosis, more than one lacrimal tests are suggested in patients with epiphora.[17] Therefore, a detailed clinical assessment, along with the tests mentioned above, with accurate interpretation [Table 1] must be performed preoperatively before posting the patient for cataract surgery. The symptomatic patients should be referred to oculoplastic surgeons for further intervention and cataract surgery should be performed ideally 4 weeks (acceptable) to 6 weeks (ideal) after the lacrimal surgical correction.[8] Simultaneous bilateral surgeries are preferably avoided, and if the other side has NLDO, it is ideal to perform contralateral dacryocystorhinostomy before cataract surgery.[5] In case performing cataract surgery is an emergency (in situations such as lens-induced glaucoma), dacryocystectomy with punctal cautery should be preferred, or punctal plug/punctal cautery/surgical punctal closure/cyanoacrylate glue sclerotherapy should be performed before cataract surgery.

EYELID DISORDERS

Eyelid pathologies such as entropion, ectropion, trichiasis, distichiasis, lagophthalmos and ptosis predispose the patient to corneal infection and surface inflammation. Yarmak *et al*. have stated that in patients with concurrent lower eyelid malposition and cataracts, it is preferable to perform eyelid repair before the cataract surgery; however, a direct correlation with endophthalmitis has not yet been established.[18]

Eyelid malposition

If the patient has mild entropion or ectropion, it is advisable to proceed with cataract surgery. However, if severe, then eyelid correction is advisable before cataract surgery.

Eyelash abnormalities

In cases with trichiasis or distichiasis, before cataract surgery, epilation with the help of electrolysis with or without cryotherapy must be performed.

Table 1: Interpretation of the combination of lacrimal drainage system tests and the preferred intervention.

S. No.	FDDT	ROPLAS	Synringing	Recommendation
1	Positive	Positive	NLDO	DCR
2	Positive	Negative	NLDO	DCR
3	Positive	Negative (dilated sac empties internally)	Patent but atonic sac	DCR
4	Negative	Positive	NLDO	DCR
5	Negative	Negative	NLDO	DCR
6	Negative	Negative (dilated sac empties internally)	Patent but atonic sac	DCR
7	Positive	Negative	Common canalicular block	Cataract surgery
8	Positive	Negative	Upper or lower canalicular block, Nasolacrimal duct patent	Cataract surgery
9	Positive	Negative	Punctal stenosis	Cataract surgery

FDDT: Fluorescein Dye Disappearance Test; ROPLAS: Regurgitation on Pressure over Lacrimal Sac; NLDO: Nasolacrimal Duct Obstruction; DCR: Dacryocystorhinostomy

Lagophthalmos

If there is no significant corneal exposure, then cataract surgery can be performed. However, vision restoration can be at stake if lagophthalmos is not corrected, causing corneal damage.

Ptosis

A ptosis of >4 mm affects the power calculations for the intraocular lens (IOL), thus affecting the final visual outcome; this is due to the change in corneal contour and surface remodelling. Therefore, ideally, ptosis correction should be performed before the cataract surgery to relieve the pressure on the cornea and cause regression of the anterior corneal surface to its original anatomy.[19,20] It is advisable to keep a gap of at least 6 weeks between the eyelid correction and toric or multifocal IOL insertion. In cases with mild ptosis, observation for the lid height can be adopted, and reassessment should be performed 3 months after the cataract surgery.

CONCLUSION

A detailed pre-operative evaluation of the lacrimal and eyelid pathologies can minimise the risk of post-operative complications with better visual restoration and reduced morbidity. The cataract surgeons are advised to perform a thorough assessment to rule out NLDO and eyelid disorders before considering cataract surgery or refer to a specialist oculoplastic surgeon, as appropriate, for detailed evaluation and further management before any intervention.

REFERENCES

1. Lundström M, Barry P, Henry Y, Rosen P, Stenevi U. Evidence-based guidelines for cataract surgery: Guidelines based on data in the European Registry of Quality Outcomes for Cataract and Refractive Surgery database. J Cataract Refract Surg 2012;38:1086.
2. Zhang JH, Ramke J, Lee CN, Gordon I, Safi S, Lingham G, *et al*. A systematic review of clinical practice guidelines for cataract: Evidence to support the development of the WHO package of eye care interventions. Vision (Basel) 2022;6:36.
3. Verma L, Agarwal A, Dave VP, Honavar SG, Majji AB, Lall A, *et al*. All India Ophthalmological Society (AIOS) Task Force guidelines to prevent intraocular infections and cluster outbreaks after cataract surgery. Indian J Ophthalmol 2022;70:362-8.
4. Guidelines for the management of cataract in India. VISION 2020: The right to sight India; 2011.
5. Good WV, Hing S, Irvine AR, Hoyt CS, Taylor DS. Postoperative endophthalmitis in children following cataract surgery. J Pediatr Ophthalmol Strabismus 1990;27:283-5.
6. Kam JK, Cheng NM, Sarossy M, Allen PJ, Brooks AM. Nasolacrimal duct screening to minimise post-cataract surgery endophthalmitis. Clin Exp Ophthalmol 2014;42:447-51.
7. Shin JH, Kim YD, Woo KI, Korean Society of Ophthalmic Plastic and Reconstructive Surgery (KSOPRS). Impact of epiphora on vision-related quality of life. BMC Ophthalmol 2015;15:6.
8. Nair AG, Kamal S, Agarwal A. Indian survey on practice patterns of lacrimal and eyelid disorders (iSUPPLE): Report 3 – Cataract and nasolacrimal duct obstruction. Saudi J Ophthalmol 2017;31:145-9.
9. Singh M, Kaur M, Abhaypal K, Gupta P. Commentary: Rule out lacrimal duct obstruction before every intraocular procedure. Indian J Ophthalmol 2022;70:3836.
10. Roh JH, Chi MJ. Efficacy of dye disappearance test and tear meniscus height in diagnosis and postoperative assessment of nasolacrimal duct obstruction. Acta Ophthalmol 2010;88:e73-7.
11. MacEwen CJ, Young JD. The fluorescein disappearance test (FDT): An evaluation of its use in infants. J Pediatr Ophthalmol Strabismus 1991;28:302-5.
12. Kashkouli MB, Mirzajani H, Jamshidian-Tehrani M, Pakdel F, Nojomi M, Aghaei GH. Reliability of fluorescein dye disappearance test in assessment of adults with nasolacrimal duct obstruction. Ophthalmic Plast Reconstr Surg 2013;29:167-9.
13. Zappia RJ, Milder B. Lacrimal drainage function. 2. The fluorescein dye disappearance test. Am J Ophthalmol 1972;74:160-2.
14. Thomas R, Thomas S, Braganza A, Muliyil J. Evaluation of the role of syringing prior to cataract surgery. Indian J Ophthalmol 1997;45:211-4.
15. Kim U, Vardhan A, Datta D, Mekhala A, Kishore N, Rathi G, *et al*. Regurgitation on pressure over the lacrimal sac versus lacrimal irrigation in determining lacrimal obstruction prior to intraocular surgeries. Indian J Ophthalmol 2022;70:3833-6.
16. Das S. Evaluation of epiphora. In: Ali MJ, editor. Principles and practice of lacrimal surgery. Singapore: Springer; 2018. p. 69-82.
17. Guzek JP, Ching AS, Hoang TA, Dure-Smith P, Llaurado JG, Yau DC, *et al*. Clinical and radiologic lacrimal testing in patients with epiphora. Ophthalmology 1997;104:1875-81.
18. Yarmak P, Lee-Wing M, Rocha G. Does cataract surgery in patients with concurrent lower lid malposition increase the risk of postoperative endophthalmitis? Can J Ophthalmol 2022;57:253-6.
19. Aydemir E, Aksoy Aydemir G. Ptosis effects on intraocular lens power calculation. J Cataract Refract Surg 2023;49:171-6.
20. Assadi FA, Narayana S, Yadalla D, Rajagopalan J, Joy A. Effect of congenital ptosis correction on corneal topography- A prospective study. Indian J Ophthalmol 2021;69:1527-30.

How to cite this article: Bansal R, Honavar SG. Preferred practice patterns for safe cataract surgery in the presence of lacrimal and eyelid pathologies. Glob J Cataract Surg Res Ophthalmol. doi: 10.25259/GJCSRO_20_2023