

Analyzing various surgical steps necessitating ambidexterity in ophthalmology

Dear Editor,

Ambidexterity is necessary for any surgeon where the right-handed surgeon uses the left hand and vice versa (non-dominant hand). Most of the ophthalmic surgical procedures require mixed handedness for a faster, smoother, and better post-operative outcome.^[1] Various sporting activities, playing video games, driving a four-wheeler, brushing, combing, eating, and so on have helped surgeons face less

difficulty using the non-dominant hand or foot. Hand laterality and ambidexterity have been well explored in general surgery, neurosurgery, and laparoscopic surgery but less in ophthalmic surgery.^[2] It is highly imperative to acquire ambidexterity early in a surgeon’s career. Still, on the contrary, non-dominant proficiency may not always be associated with an enhanced surgical outcome, as shown by Saleh *et al.*^[3] The future of ophthalmic surgery is rapidly changing with simulators, robotics, artificial intelligence, and 3D visualization systems and the fusion of technology. Lombana *et al.* studied the implication of ambidexterity in surgical training by comparing right-handed and left-handed surgeons and found that left-handed individuals have a greater degree of ambidexterity than their right-handed counterparts. They also found that the

Table 1: Depicting the various common surgical procedures requiring ambidexterity

Specialty	Surgery	Surgical Step
Cataract and intra-ocular lens (IOL)	MSICS	Peritomy, sclerocorneal tunnel, anterior chamber entry, hydro-dissection, nucleus delivery, cortex wash, conjunctival cautery, anterior chamber reformation
	Phaco- emulsification	Clear corneal incision, hydro-dissection, chopping, emulsification, bimanual irrigation, aspiration, IOL implantation
	Anterior vitrectomy	Bimanual irrigation, aspiration, and vitrectomy
Glaucoma	Trabeculectomy	Peritomy, scleral flap dissection, sclerotomy, peripheral iridectomy, scleral and conjunctival suturing,
	Goniotomy	Gonio application and trabecular meshwork incision simultaneously
Cornea	Aqueous drainage implant	Shunt placement in the sclera, tube placement in the anterior chamber, suturing the implant,
	Pterygium surgery	Tissue dissection, graft dissection, scleral bed cautery graft placement and attachment, suturing the graft
Retina	Keratoplasty (TPK and OPK)	Host trephination, donor button dissection, PI, lens removal, PAS release, anterior vitrectomy, IOL placement, suturing of the graft
	Lamellar surgeries (DSEK, DALK, DMEK)	Graft dissection, graft placement, scleral or clear corneal tunnel formation, air tamponade, suturing, layer-by-layer dissection in DALK
	Pars plana vitrectomy	Three-port pars plana vitrectomy
	Scleral fixated IOL	Handshake technique, XNIT
	Macular hole surgery Scleral buckle surgery	Pars plana vitrectomy, maculorhexis Peritomy, muscle separation, scleral buckle placement, fluid air exchange, pars plana vitrectomy, endolaser, port closure

perceived difference may not be solely because of innate skill or dexterity but may be because of a combination of external influences.^[4]

We read the interesting article by Ramesh *et al.*,^[5] highlighting the use of ambidexterity in ophthalmic surgical procedures, and we must congratulate the authors on touching on this important aspect of surgery. This article prompted us to explore more on ambidexterity. Here, we have listed various ophthalmology surgical steps requiring ambidexterity which we believe will benefit all the surgeons, especially the young surgeons who have just started training [Table 1]. To the best of our knowledge, this is the first article highlighting ambidexterity in various surgical procedures in ophthalmology.

Acknowledgements

Dr. Om Parkash Eye Institute, Amritsar, Punjab, India, 143001.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Bharat Gurnani, Kirandeep Kaur¹, Amit Porwal²

Consultant Cataract, Cornea and Refractive Services, ¹Consultant Pediatric and Squint, Dr. Om Parkash Eye Institute, Amritsar, Punjab, ²Glaucoma Services, Choitram Netralaya, Indore, Madhya Pradesh, India

Correspondence to: Dr. Bharat Gurnani, Consultant Cataract, Cornea and Refractive Services, Dr. Om Parkash Eye Institute, Amritsar, Punjab - 143 001, India. E-mail: drgurnanibharat25@gmail.com

References

- Nagaraj MB, AbdelFattah KR, Farr DE. Laparoscopic ambidexterity in left-handed trainees. *J Surg Res* 2022;275:203-7.
- Zaghloul MS, Saquib J, Al-Mazrou AR, Saquib N. A qualitative assessment of the impact of handedness among left-handed surgeons in Saudi Arabia. *Laterality* 2018;23:39-50.
- Saleh S, Uppal S, Sharma V. Greater nondominant hand proficiency is not associated with enhanced simulated surgical performance. *Can J Ophthalmol* 2015;50:350-3.
- Lombana NF, Naeger PA, Padilla PL, Falola RA, Cole EL. Ambidexterity in left-handed and right-handed individuals and implications for surgical training. *Proc (Bayl Univ Med Cent)* 2021;35:176-9.
- Ramesh PV, Balasubramaniam P, Devadas AK, Ray P, Ramesh SV, Ramesh MK, *et al.* On the other hand-developing ambidextrous/mixed handedness organisation for ophthalmic procedures. *Indian J Ophthalmol* 2022;70:1432-3.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online

Quick Response Code:



Website:

www.ijo.in

DOI:

10.4103/ijo.IJO_1434_22

Cite this article as: Gurnani B, Kaur K, Porwal A. Analyzing various surgical steps necessitating ambidexterity in ophthalmology. *Indian J Ophthalmol* 2022;70:4461-2.

© 2022 Indian Journal of Ophthalmology | Published by Wolters Kluwer - Medknow