Commentary: Impact of manual small-incision cataract surgery on outreach and training curriculum across the world

Cataract is the most common cause of unilateral and bilateral blindness across the globe. Visual acuity <6/60 at presentation is labelled as blindness. Cataract is responsible for 47.8% of blindness and approximately 17.7 million blind people worldwide. Most of these blind people reside in developing nations.[1] Blindness and visual impairment can be eradicated by simple cataract surgery in most patients. To reduce this burden of blindness, safe and cost-effective cataract surgery is needed. Phacoemulsification and manual small-incision cataract surgery (MSICS) are the most common cataract surgical procedures performed nowadays.[2] MSICS became popular in developing nations owing to its lower cost, lesser time taken by an experienced surgeon (useful in mass cataract surgeries with limited resources), need for less equipment/technology, lower curve of learning, lesser complications even in the hands of novice surgeons, and ability to carry the surgery even in hard or advanced stages of cataract. Apart from these, MSICS is an ideal choice of surgery for hard cataracts with a shallow anterior chamber, phacomorphic glaucoma, phacolytic glaucoma, pseudoexfoliation, and phacodonesis.[3] Earlier, MSICS was obsolete in the western world, but now many international ophthalmic societies are adopting this surgery in hard and complex cataract cases owing to its inherent advantages with nearly similar postoperative outcomes compared to phacoemulsification. Although MSICS cannot replace phacoemulsification in high-income countries like the United States, it is valuable in situations where phacoemulsification is less desired. MSICS has become an integral component of training curricula across the globe. Apart from this, it has also revolutionized outreach activities and ophthalmic camps.[4] Vision Outreach International is one such society that offers an MSICS course. The course is for board-certified ophthalmologists to learn or brush up on their MSICS technique and to eliminate needless blindness in resource-poor areas with minimal eye care facilities. MSICS, a manual procedure, can be easily performed on-site and when needed. MSICS has also improved the cataract surgical rate (CSR) and the cataract surgical coverage (CSC), which are the epidemiological hallmarks of the success of a cataract surgical program.

There is minimal literature on outcomes of MSICS performed by international residents and surgeons, and few of them deserve mention here. Zafar *et al*.[5] conducted a five-year retrospective analysis in a university-based practice in the USA. They found that out of 22 MSICSs performed by residents, only two eyes developed complications and found it to be safe to be performed by medical residents early in their curriculum. They suggested that MSICS should be included in the regular training surgical curriculum, including wet labs. Lynds *et al*.[6] examined the outcomes of residents who performed MSICS in an urban academic setting in the USA. Residents performed MSICS only in selected cases where phacoemulsification was not feasible, such as brown cataract, mature cataract, traumatic cataract, and pseudoexfoliative cataract. Out of 52 cases performed by the residents, there were complications in a few, such as iris prolapse, zonular dialysis, and vitreous loss. The most common postoperative complications were cystoid macular edema, retained viscoelastic, intraocular lens (IOL) displacement, and microhyphema. They concluded that MSICS was a safe technique in the hands of residents even in challenging cases and played a vital role in modern cataract surgery. Ting *et al*.,[7] in their retrospective, single-center, comparative study, described a modified MSICS technique for phacoemulsification surgeons who were learning to perform MSICS. They found that out of the 132 total cases performed by the surgeons, the postoperative outcomes were nearly similar between junior and senior surgeons, and there were no cases with any intraoperative complication. They suggested that the modified MSICS technique to be a useful transition technique for phaco-trained surgeons with demonstrable good visual outcomes and safety.

The current study on the MSICS resident training program at the University of Colorado was unique and the authors must be congratulated for this.[8] The unique aspect of this study was that besides the wet lab and surgical curriculum, residents were also detailed about the epidemiology of global blindness, the MSICS surgical technique and how MSICS scores over phacoemulsification regarding cost and sustainability in low-resource settings. This gave an essential foundation to this study. Initially, pig eyes were used for wet lab practice for practicing various steps of MSICS. Later, residents were exposed to MSICS in the operating room with a senior surgeon, and later a survey was conducted on the residents regarding the training pattern. Although the sample size in the study is small, the results are very encouraging. All residents agreed that MSICS is a valuable skill to have; 12 out of 15 believe that MSCIS increased their likelihood of doing any type of outreach work in the future, and 13 strongly agreed that exposure to MSICS increased their understanding of sustainable outreach work. MSICS is a very important surgery in today's era and its value should not be underestimated. In the present era, many surgeons in both the developed and developing world are performing only phacoemulsification, even in complicated cases, because of limited exposure to MSICS during their training period. We strongly recommend sufficient hands-on training on MSICS globally, as surgical skill induction during the early phase of the career will help refine skills over the long-term and outcomes will benefit the community as a whole. More similar studies are needed, especially in the developed countries where MSICS is still less explored. This will help train the emerging ophthalmic surgeons and expand the scope of eye care services to peripheral areas as outreach activities.

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