Starting a Glaucoma Fellowship in Pakistan: A Critical Step toward Enhancing Eye Care

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The prevalence of glaucoma in Pakistan, as in many developing countries, poses a significant challenge to the healthcare system. Globally, glaucoma is the second leading cause of blindness, affecting millions, often progressing without symptoms until irreversible vision loss occurs.¹ Global and local glaucoma prevalence is depicted in figure 1.²

As of 2024, glaucoma has become an increasing public health concern in Pakistan, particularly primary open-angle glaucoma, which is on the rise, affecting a large proportion of the elderly population. According to an estimate, the age-standardized prevalence of glaucoma in Pakistan is approximately 106,700.88 people, with the number expected to increase due to the aging population and lack of early detection programs.² Between 1990 and 2017, glaucoma cases have steadily risen, contributing to a growing burden of eye disease.³ This situation highlights the urgent need for improved public awareness, early diagnosis, and treatment. Many patients, even those with a positive family history, remain unaware of their condition, leading to delayed treatment.⁴ Among this situation of unawareness, there are several barriers that hinder patients from accessing appropriate care, including geographic, socioeconomic, cultural, and educational factors, as well as inadequate facilities, medications, and surgical options.

Despite global advances in ophthalmology, Pakistan faces a shortage of specialists trained specifically in glaucoma management. Most ophthalmologists focus on cataract surgeries, general eye conditions, and refractive errors, lacking the specialized expertise needed for the complex diagnosis of glaucoma, monitoring, and treatment. The current

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training program, while providing sufficient exposure to glaucoma, does not adequately equip individuals to manage more complex and challenging cases. The Pakistan Glaucoma Association, under the leadership of renowned glaucoma specialists, has been making significant strides to address this challenge. In this effort, they have developed glaucoma management guidelines, an important step in the right direction. However, managing glaucoma requires proficiency in various diagnostic tools, such as visual field testing, optic nerve imaging, and intraocular pressure monitoring, along with surgical interventions like trabeculectomy and minimally invasive glaucoma surgeries (MIGS). This level of expertise demands indepth, hands-on experience that goes beyond general ophthalmology training. Furthermore, the scarcity of ophthalmologists in Pakistan which is estimated at 14.8 per million population in 2015 aggravates the situation.⁵ Thus, there remains a pressing need to establish a formal 'Glaucoma Fellowship Program' to enhance eye care and reduce blindness.

Meanwhile, the British Pakistan Ophthalmic Society launched a virtual Adult Glaucoma Fellowship Program, which has been successful in providing advanced diagnostic and treatment techniques. Although the program offers live feedback on video recordings of common glaucoma surgeries, such as trabeculectomy and tube procedures, the lack of hands-on training underscores the need for a dedicated Glaucoma Fellowship Program within Pakistan. Such a program could bridge the gap between the increasing demand for specialists and the overwhelming burden of glaucoma. In addition to enhancing clinical practice, a fellowship program would also promote research in glaucoma, an underdeveloped field in Pakistan. Advancing both clinical care and research would global elevate the country's standing in ophthalmology.

The College of Physicians and Surgeons Pakistan has already made significant progress in launching



Figure 1: Age standardized prevalence of Glaucoma worldwide.² (shared under the Creative Commons Attribution 4.0 International License).

fellowships in vitreo-retinal surgery, pediatric ophthalmology, and oculoplastic, with ongoing efforts in glaucoma, cornea, cataract, and refractive surgery. While the initial steps have been taken, much effort is still required from all of us to make this initiative feasible at the institutional level.

Glaucoma specialists are crucial not only for providing high-quality care but also for addressing the broader public health crisis of eye diseases in Pakistan. Many patients, particularly in rural areas, lack access to early glaucoma diagnosis, resulting in end-stage disease when treatment options are limited. A fellowship program would not only produce specialists and researchers but also promote education among general practitioners and optometrists, raising awareness about the importance of early detection.

Furthermore, training programs would help strengthen Pakistan's healthcare infrastructure. By establishing centers of excellence in glaucoma care, these programs could serve as hubs for continuing education, clinical trials, and policy advocacy aimed at reducing blindness.

Research in glaucoma is also essential, as primary open-angle glaucoma (POAG) is genetically heterogeneous with variable inheritance patterns.⁶ Management responses may differ from other countries, making local research imperative, and the fellowship program would provide an excellent platform for this.

Looking globally, glaucoma fellowships have expanded significantly in countries like India, the UK, and the U.S. In India, glaucoma fellowships have grown over the past few decades, with many institutions offering 1-2-year programs that train ophthalmologists to manage a high volume of patients with limited resources.⁷ The UK, with its pioneering institutions like Moorfield Eye Hospital, has a longstanding tradition of specialized glaucoma training, with fellowships accredited by the Royal College of Ophthalmologists. In the U.S., prestigious programs at institutions like the Massachusetts Eye and Ear Infirmary and Bascom Palmer Eye Institute formalized glaucoma fellowship training in the mid-20th century. Today, U.S. glaucoma fellowships are highly competitive, lasting around one year and overseen by the American Society of Ophthalmic Glaucoma Specialists.

As glaucoma fellowship programs evolve in these countries, Pakistan must act swiftly to establish its own program to address the growing disease burden. Developing specialized training is essential to make a lasting impact on the nation's glaucoma management and ultimately reduce preventable blindness.

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