Yoko Kato: the silent warrior of neurosurgery

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The presence of women in neurosurgery is slowly but surely gaining momentum as many aspiring young female medical residents are being enticed by this fascinating branch. History is rife with the struggles of pioneering women who entered the neurosurgical profession against all odds, formed a firm foothold, and built a legacy for generations to emulate. Prof. Yoko Kato has spent her entire lifetime in the service of neurosurgery and taking it to the remotest corners of the world. Her persistence and conviction have made her one of the most admired neurosurgeons in the world and the most loved neurosurgeon for those in the less privileged countries. She has inspired and trained an entire generation of neurosurgeons. Her contributions will always be a glorious chapter in the world book of neurosurgery.

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Sa Visvayuh sa vishvkarma sa vishvdhayah indrasya
Twa bhagam somen aatnachmi vishno havyam raksh¹

I would like to begin with the explanation of this ancient Sanskrit mantra from the Yajurveda, which translates to:

Woman is the life of all universe, she is the creator (Vishvkarma). She is the one who holds all as a mother (Vishvdhayah). She is the part of the one who has controlled senses (Of Indra), the one who is full of life (Som), the one who could brought her up properly (Vishnu). You all must protect her as she is the solution and the medication.¹

Ancient Indian tradition treated women with utmost respect and sanctity, and those who did not follow this found utmost disfavor among the gods.

This is also true of Japanese society. From a mythological perspective, it is believed that god Izanagi and goddess Izanami descended to earth to create an eight-island country.² Then, goddess Amateratsu was created from a bronze mirror held in Izanagi's left hand and light beamed down on earth. The goddess was created to give birth to the Japanese nation, as an omniscient mother who would take care of the country of the rising sun. The position of women in politics in the Nara period (710–794) in Japan was highly influential, as it was strongly believed that women had certain supernatural powers that could communicate with the spiritual world. In this sense, even nowadays, people still perceive women as creatures who exert an invisible but

effective power on men, as, for example, in the use of the expression, “dansei jo:i, josei yu:i” (men superior, women dominant). Arts, literature, and education flourished under the influence of cultured and refined Japanese women. Between 1900 and the 1980s, with modernization of society, things changed, and women were relegated to taking care of the household and lost their place and influence in the society at large. It was in this era that certain pioneers were born, who, by their conviction and passion, changed the fate of women all over Japan and the world, bringing them back to their former glory and their exalted status in society.

Neurosurgery is one of the most challenging specialties in medicine, where arduous effort is combined with fine technicality. It has been a male-dominated profession for a long time, and it is only in recent years that women have started venturing into this male-dominated realm. There are many pioneering female neurosurgeons who have been on the forefront of this radical change.

If it were not for the efforts of these exceptionally strong individuals, the wing of women in neurosurgery would not have advanced to its present-day status. They have laid an example with their exemplary surgical skills, their leadership, and their mentorship.³ In this article, I would like to highlight the role of Prof. Yoko Kato in uplifting the face of neurosurgical education in general and women in neurosurgery in particular (Fig. 1).

ABBREVIATIONS ACNS = Asian Congress of Neurological Surgeons; WFNS = World Federation of Neurosurgical Societies.

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FIG. 1. Photograph of Prof. Yoko Kato. Copyright Yoko Kato. Published with permission.

Academia

We all have dreams. But in order to make dreams come into reality, it takes an awful lot of determination, dedication, self-discipline, and effort.

— Jesse Owens

Dr. Kato was born on November 9, 1952.⁴ Her passion to join neurosurgery was probably fueled by her father being a renowned cardiac surgeon. She completed her neurosurgical residency from the well-renowned Aichi Medical University. She then joined as faculty in the Department of Neurosurgery at the Fujita Health University, Nagoya, in 1980. After relentless hard work, she was ultimately appointed as a professor in the department, which in those turbulent times was no small feat to be achieved. She is among the first few female Japanese neurosurgeons and became the first to become appointed as a professor in an academic institution. Since then, she became the chairman of the Department of Neurosurgery at the Fujita Health University Banbuntane Hotokukai Hospital, and currently she holds the position of assistant director of the university.

Neurosurgical Education

Ain't no mountain high enough
Ain't no valley low enough
Ain't no river wide enough⁵
To stop her from reaching her goal of education

There is no neurosurgeon in the contemporary field who has concentrated an entire lifetime in the upliftment of neurosurgery and bringing it to the remotest corners of the world. Her selfless effort and commitment have been persistent, dedicated, and relentless. She has traveled from

one corner of the world to another, taking the message of neurosurgery with her. She financially helped less advantageous neurosurgeons and provided high-end neurosurgical equipment and basic and advanced instruments. In 2016, she donated 150,100 US dollars to the World Federation of Neurosurgical Societies (WFNS) to purchase medical equipment for helping neurosurgeons in developing countries.⁶

The pressures of work could not subdue her subtle Mona Lisa-like smile. Work is not her job—it is her passion. It gives her pleasure and satisfaction. It gave her followers and disciples. When one goes to any meeting, one finds her surrounded and encircled by admirers. She has traveled extensively and continuously, often finding time to sleep only on the flight. She must have visited India more than 30 times. The Asian Congress of Neurological Surgeons (ACNS) was an instrument for her to promote the level of neurosurgery and take advancements in the subject to less privileged countries. Whenever and wherever she traveled, her bag contained small but adorable gifts that she would give to several neurosurgeons. This unique art of giving makes her special. She invited several young neurosurgeons to see and learn in Japan. She paid for travel and for all local expenses so that while they learned they were comfortable and not struggling. She invited nurses, technicians, and operating room workers to learn, experience, and imbibe and, more importantly, get stimulated. She was like a sister and a mother; only *giving* was the premise, and her sole purpose was to advance the message of neurosurgery.

Any young neurosurgeon (male or female) who has been in contact with Prof. Kato finds himself or herself sheltered under the umbrella of a larger neurosurgical world where opportunities lurk around every corner. Prof. Kato is the bridge that has brought neurosurgical societies across continents closer together toward a common goal of education. In the last 6 years alone, she has mentored approximately 100 neurosurgeons from both developed and developing countries, and she has helped inculcate permanent friendships and bonds. She has been the front-runner in holding educational courses under the banner of the WFNS Foundation ACNS seminars in less developed regions with the purpose of advancement of neurosurgery in these countries (Figs. 2–5). To her credit, any neurosurgeon who is invited as faculty on any of her courses considers it as a feather in his or her cap. Such is the level of neurosurgical teaching that she demands and practices.

Elevation of Women in Neurosurgery

When women have each other's backs, amazing things can happen.

From very early on, Prof. Kato has been actively involved in inspiring and encouraging female physicians to pursue the field of neurosurgery. She founded the Women's Neurosurgical Association of Japan as early as 1990 and went on to establish the Asian Women's Neurosurgical Association in 1996. In 2003, she was appointed as the WFNS committee chair of Women in Neurosurgery. These associations have played an unfathomable role in elevating the face of women in neurosurgery in all cor-

FIG. 2. **A:** Photograph of the WFNS Foundation ACNS educational course in Inner Mongolia. **B:** Photograph of the microvascular anastomosis workshop conducted in Mongolia during the WFNS ACNS educational course, 2018. Copyright Yoko Kato. Published with permission.

ners of the globe by providing mentorship, fellowship opportunities, and recognition. She has built a directory of women neurosurgeons in all countries, making the field a truly global community. She recently initiated a women's chapter of the ACNS. The committee promotes attendance of selected female neurosurgical trainees at neurosurgical meetings by funding them and giving them an opportunity to present their work. She has nurtured and mentored, and she has had a direct or indirect influence on all female neurosurgical residents across the globe. She has established women chapters in many neurosurgical societies, thus advancing the stature of women in neurosurgery (Fig. 6).

Neurosurgical Passion

A good surgeon must have an eagle's eye, a lion's heart, a lady's hand.⁷

A talented neurosurgeon, Prof. Kato has demonstrated worldwide her art, technique, and philosophy of complex neurosurgery. Her special interest is in vascular surgery, and she loves to operate on complex aneurysms and arteriovenous malformations. She has a keen interest in developing imaging technology to study the morphology and flow in aneurysms. It would not be surprising to see Prof. Kato in the wee hours of the morning or late at night in the

FIG. 3. Photograph showing Prof. Kato seeing the postoperative patients after a live operative workshop in Myanmar, 2018. Copyright Yoko Kato. Published with permission.

FIG. 4. Photograph of the WFNS Foundation ACNS educational course and live operative symposium organized in Abuja, Nigeria, 2018. Copyright Yoko Kato. Published with permission.

hospital operating on an aneurysm. She has published fervently, is the editor-in-chief of the *Asian Journal of Neurosurgery*, and is on the editorial board of various reputed neurosurgical journals.

Honors and Accolades

No person was ever honored for what he received. Honor has been the reward for what he gave.

— Calvin Coolidge

FIG. 5. Photograph of an educational course conducted in Uzbekistan, 2018. Copyright Yoko Kato. Published with permission.

FIG. 6. Photograph of the WFNS Women in Neurosurgery Symposium, 2019. Photographer: Dr. Abhidha Shah.

Honor is a reward for virtue, and, more frequently than not, it follows people who care for it the least. Prof. Kato has never demanded or wanted any kind of favor (Fig. 7). To an extent, she has ignored praise and accolades. She has been admired by the neurosurgeons from advanced countries but is loved in the less privileged countries. Her method is to give, her aim is to teach, and her way is to smile. She has always been encouraging and admiring, and reassuring has been her *modus operandi*. She has touched the smallest country and reached the remotest neurosurgical unit.

Self-promotion has never been her aim; promotion of neurosurgery as a subject has always been her goal. Besides numerous titles and honorary positions, Prof. Kato was the recipient of the WFNS Medal of Honor award in 2019. She was also awarded an honorary fellowship in the American College of Surgeons in San Francisco in 2019.

Some Excerpts From Renowned Neurosurgeons and Fellows

Through her persistence and passionate hard work, Prof. Yoko Kato has left a permanent impression on the global neurosurgical map. Her students are spread far and wide and deep in the remote parts of the world and are a testimony of her achievements. She has created a neurosurgical world without borders connecting the developed with the underdeveloped and strived to spread the word of neurosurgery across the world. Through her modest, conscientious, arduous and earnest nature, she has achieved an iconic status in the world of neurosurgery, and I am privileged to be associated with her for more than 2 decades.

— Prof. Atul Goel

Head, Department of Neurosurgery, K.E.M. Hospital and Seth G.S. Medical College, Parel, Mumbai, India
President, Craniovertebral Junction and Spine Society
Past President, Neurological Society of India

Professor Kato is a great colleague and an astute neurosurgeon. She is recognized regionally and internationally for her pivotal merits as an experienced vascular neurosurgeon and a great mentor. Prof. Yoko has been the driving force for the introduction of several international initiatives in the field of neurosurgical education

FIG. 7. Prof. Kato along with Prof. Atul Goel (President, Neurological Society of India, 2019). She was invited as an honored guest for the Annual Conference of the Neurological Society of India, 2019. Photographer: Dr. Abhidha Shah.

and promotion of young neurosurgeons training. With her innovative ideas & in her capacity as president of the ACNS and her multitask role at the WFNS committees, she was able to establish two great initiatives “Women in Neurosurgery” & “Young international Neurosurgeons” promoting education of new generation of young colleagues with special focus on developing or less privileged countries. Prof. Yoko’s commitment & unsustain efforts include charity funding, hands-on courses, exchange program, meetings and more recently regular educational webinars.

In brief, Prof. Yoko is the dynamo and livewire of worldwide neurosurgical education. We all in the neurosurgical community are in great debt for her unmatched endeavors.

— *Imad N. Kanaan, MD, FACS, FRCS(Ed)*

Professor & Chairman Emeritus of WFNS
Neuroanatomy Committee, Past President of Asian-Ocean
International Congress on Skull Base Surgery, 2006
Past President of ACNS, 2018

Prof. Kato is very kind person and gave the fellows authority to involve in the clinical fellowship field. She provided an excellent team of master of neurosurgeon’s network to teach young neurosurgeons to learn the new concept as much as we can. She also supported me to attend and join hands-on workshop or academic meetings overseas or another region of Japan by contacting the head of meeting and providing travelling expenses. She also provided me the opportunity to present the project of cerebrovascular surgery at many congresses under her advice. She is a very good mentor to do an involved research. Until now, she still is active and working for organizing the ACNS webinar meeting. All fellows who have been studied from her are conducting the course for young neurosurgeons by inviting several famous neurosurgeons to give their lecture on the website (ACNS channel) during COVID pandemic era. It is very excellent work and gives a benefit to us in this time. Furthermore, she introduced me also to good nonmedical or nonacademic societies meeting. That is very good for a foreigner like me who can then learn different cultures and apply to my life.

— *Ittichai Sakarunchai*

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Conclusions

Prof. Kato is one of the most admired and loved neurosurgeons of our times. She has left her mark in the hearts and minds of a multitude of neurosurgeons worldwide and continues to do so selflessly. She has built neurosurgeons and neurosurgical departments. She has not created followers; she has created leaders of and citadels of neurosurgery!

If you are not willing to learn, no one can help you.

If you are determined to learn, no one can stop you.

— *Anonymous*

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Disclosures

The author reports no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

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