



養和醫療
HKSH MEDICAL GROUP

For Immediate Release

HKSH Ophthalmology releases clinical data on SMILE Pro procedure
96% of patients achieved 20/20 or better vision without aid
Advanced version of SMILE delivers better outcomes for moderate to high astigmatism

(18 May 2023, Hong Kong) SMILE Laser Eye Surgery has become increasingly popular in Hong Kong. In 2021, HKSH introduced 'SMILE Pro', the most advanced technology in vision correction, making it the first ophthalmology centre in Asia to adopt this cutting-edge technology. To date, HKSH has treated more than 500 patients (over 1,000 eyes in total) with this technology for vision correction. The Department of Ophthalmology today released the clinical results of a project that aimed to evaluate the clinical efficacy of SMILE Pro on 159 individuals (303 eyes in total) with myopia and astigmatism who underwent the SMILE Pro procedure between September 2021 and February 2023. The patients were between 18 and 38 years old, with preoperative myopia ranging from 1.00 to 10.25 dioptres, and a maximum preoperative astigmatism of 4.50 dioptres.

Three months after undergoing the SMILE Pro procedure, 96% of eyes achieved a naked-eye visual acuity of 20/20 or better. In terms of postoperative myopia/hyperopia, 94% of eyes had levels of ± 0.75 dioptres or less, with 83% having levels of ± 0.50 dioptres or less. In terms of postoperative astigmatism, 98% of eyes had levels of 0.75 dioptres or less, and 88% had levels of 0.50 dioptres or less, demonstrating very favourable outcomes.

The project also analysed 46 eyes with moderate to high astigmatism (≥ 2.00 dioptres); the results showed that 91% of the eyes achieved a naked-eye visual acuity of 20/20 or better – 3% higher than with the previous generation of SMILE technology. Furthermore, 91% of the eyes had postoperative astigmatism of 0.75 dioptres or less – a 5% improvement over the previous generation, indicating that SMILE Pro has a better therapeutic effect on patients with moderate to high astigmatism.

SMILE stands for 'Small Incision Lenticule Extraction'. As a minimally invasive vision correction procedure, it uses femtosecond laser technology to cut a lenticule (a piece of cornea tissue) from the cornea. The lenticule is then removed through a small incision of about 4 mm, which changes the cornea's curvature and corrects refractive errors. The latest generation of SMILE, called SMILE Pro, has made significant improvements in laser speed and laser alignment, resulting in a shorter surgical time, a lower risk of complications and an even smaller incision wound.

Dr John CHANG, the Director of Refractive Surgery and a Specialist in Ophthalmology at Hong Kong Sanatorium & Hospital noted that while the previous version of SMILE technology for refractive surgery takes an average of 25 seconds per eye to complete the laser ablation, it can be difficult for patients who experience surgical anxiety or have sensitive eyes to remain focused and still for half a minute. Any unintentional eye movement of the patient during the surgery may affect the effectiveness of the procedure and may even cause vision loss. Based on our clinical experience,

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approximately 90% of patients express concern about not being able to focus on the fixation light during the surgical procedure.

“The new technology incorporates a navigation system for better centration and cyclotorsion alignment, which can be used for more precise preoperative positioning, greatly enhancing surgical efficiency and accuracy. In addition, the latest technology has shortened the surgery time by 60%, with a single-eye focus time of only 10 seconds, greatly minimising the risk of misalignment due to eye movement during the procedure while improving surgical efficiency and accuracy. The surgery can be completed in seconds, making the patient feel more relaxed, thus greatly enhancing their overall experience”, said Dr CHANG.

Compared with the previous generation, the laser radiofrequency speed of SMILE Pro has been increased from 500 KHz to 2 MHz, resulting in a shorter time required for the surgery and a reduced risk of suction loss during surgery. “When using a femtosecond laser to cut the corneal lenticule, the eye needs to be suctioned to maintain a fixed position. The procedure is likely to be stopped if suction loss occurs during surgery and patients will need to reschedule the surgery after approximately three months. Therefore, shortening the laser time helps to reduce the risk of suction loss and increase the success rate of the procedure. In addition, the scanning of SMILE Pro on the cornea is more precise and meticulous, which results in a finer corneal tissue separation, making it easier and safer to remove the lenticule”, explained Dr CHANG.

The previous version of SMILE surgery, the pupil centre and astigmatism axis was aligned manually by the surgeon. The positioning process relied mainly on the clinical experience of individual doctors to ensure that the lasers were directed to the correct position on the cornea, making it difficult to control the effect of astigmatism correction. The new generation SMILE Pro includes new features such as ‘visual axis-assisted navigation’ and ‘astigmatism axis navigation’, helping doctors to precisely locate the axis. As a result, SMILE Pro delivers a significant improvement in the efficacy and accuracy of astigmatism correction.

“High-precision and minimally invasive technology is emerging as a future trend in the field of refractive correction. With the latest SMILE Pro technology, we are able to correct vision with greater accuracy and lower risk, resulting in safer and more precise surgical outcomes. These benefits help alleviate patient anxiety as well as enhance their overall comfort and satisfaction”, added Dr CHANG.

For more information about SMILE Pro, please contact HKSH Guy Hugh Chan Refractive Surgery Centre at 2855 6699.

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About HKSH Medical Group

Officially launched in September 2017, HKSH Medical Group promotes public health and advanced medicine through a multi-faceted, coordinated approach across clinical services, medical education, scientific research and public health education. Members of the Group, including Hong Kong Sanatorium & Hospital, HKSH Healthcare and HKSH Eastern Medical Centre, are dedicated to offering top-quality holistic care to patients, upholding the motto 'Quality in Service, Excellence in Care.'

About Hong Kong Sanatorium & Hospital

Hong Kong Sanatorium & Hospital is one of the leading private hospitals in Hong Kong. Living up to its motto of 'Quality in Service, Excellence in Care,' the Hospital is committed to serving the public as well as promoting medical education and research.

Photo Caption

1. HKSH Department of Ophthalmology released clinical results on SMILE Pro. It revealed that 96% of eyes achieved a naked-eye visual acuity of 20/20 or better three months after undergoing the procedure; 91% of the eyes with moderate to high astigmatism achieved a naked-eye visual acuity of 20/20 or better – 3% higher than with the previous generation of SMILE technology, indicating that SMILE Pro has a better therapeutic effect on patients with moderate to high astigmatism.



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2. Dr John CHANG, the Director of Refractive Surgery and a Specialist in Ophthalmology at Hong Kong Sanatorium & Hospital said that the single-eye laser time of SMILE Pro is only 10 seconds, greatly minimising the risk of misalignment due to eye movement while greatly enhancing their overall experience.



3. SMILE Pro incorporates a navigation system for better centration and cyclotorsion alignment, which helps doctors to locate the axis precisely and quickly, hence improving the efficacy and accuracy of vision correction.



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