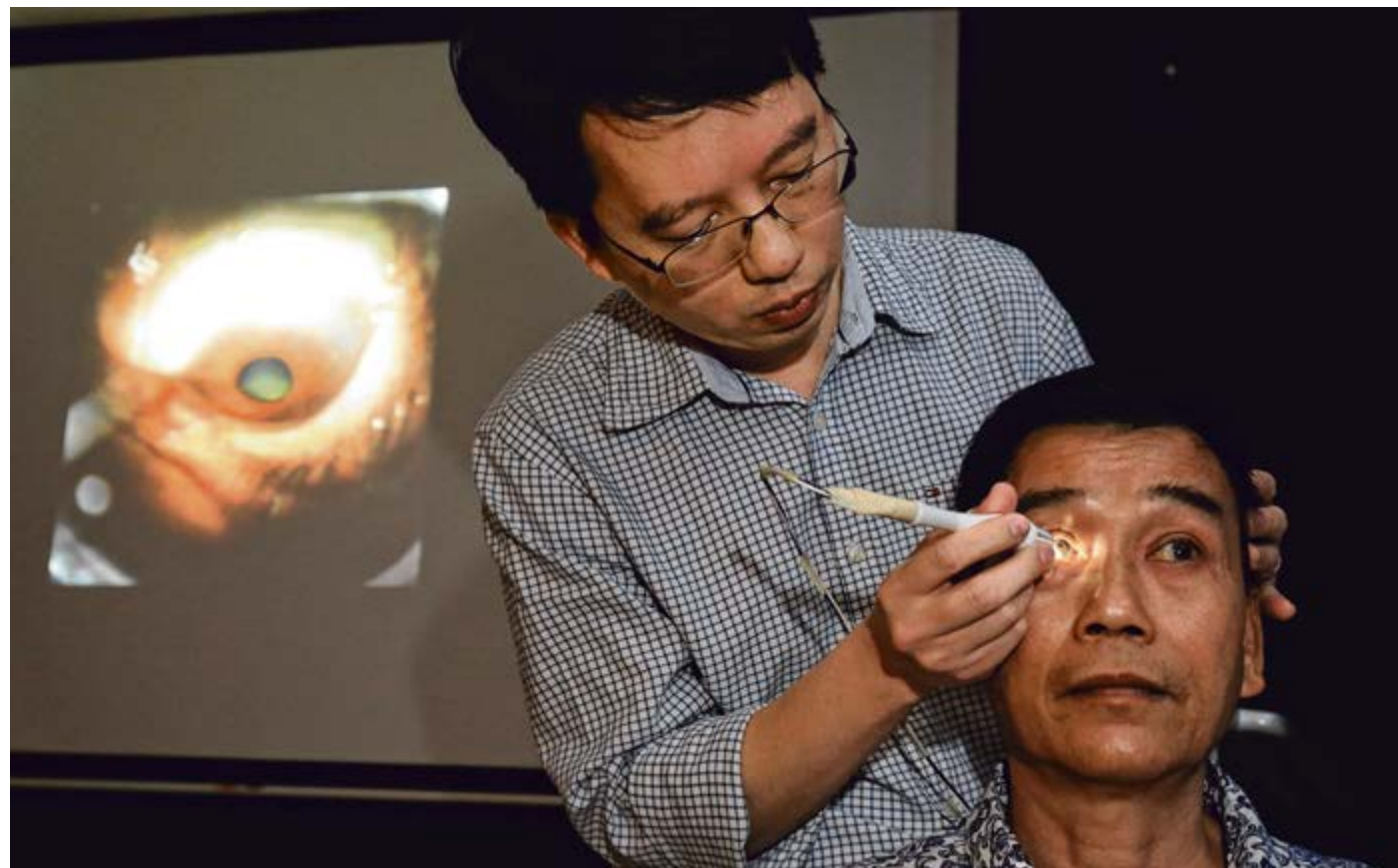




The GonioPEN (right) compared with a traditional glass goniometer, which is pressed against a patient's eyeball and is linked to a microscope, into which a doctor peers.

NTU's GonioPEN makes diagnosing glaucoma a snap

Pen-sized camera takes images of patient's eye quickly and without causing discomfort



Low De Wei

Diagnosing glaucoma can be faster and made more comfortable for patients with a new device developed at the Nanyang Technological University (NTU).

Glaucoma is associated with pressure building up in the eye. If left untreated, damage to the optic nerve can lead to loss of vision and even blindness.

NTU researchers, working with clinicians from the Singapore Eye Research Institute (Seri), came up with a pen-sized camera, which they unveiled yesterday.

The GonioPEN takes images of the eye's drainage canal, which are then further analysed to help eye specialists with their diagnosis.

There are currently several tests for glaucoma. The most widespread practice involves pressing a glass goniometer against the eyeball. The specialist then peers through a microscope paired with the lens to make a visual diagnosis.

But this method can cause discomfort to the patient and is time-consuming, often taking up to 15 minutes. As a result, said Assistant Professor Baskaran Mani from Seri, about half of patients who are 40

years old and above choose not to undergo a gonioscopy.

He said 3 to 4 per cent – or between 65,000 and 80,000 – of Singaporeans above 40 years old are affected by glaucoma, but it is estimated that up to 70 per cent of them remain undiagnosed.

The head of the research team, Associate Professor Murukeshan Matham from NTU, hopes the new technology can be integrated into routine eye checks. He said the device does not require direct contact with the eye and can capture high-resolution images.

Existing camera devices are bulky and often expensive, costing

from \$33,000 to \$158,000, and used solely in research institutions. Gonioscopes, combined with a microscope, can cost up to \$16,500.

“While only specialists are currently able to conduct gonioscopies, with the new technology, technicians can perform it with minimal training,” he said.

Prof Mani said patients will potentially enjoy significant cost savings in addition to the the benefits of early detection and treatment.

Commercial production could take place in the next one to two years. The project is supported by grants from the National Medical Research Council and the National Research Foundation Singapore.

Mr Loke Yew Choong, 59, a glaucoma patient who took part in the study, expressed satisfaction with the GonioPEN, saying he did not feel any discomfort.

The Singapore National Eye Centre has indicated interest in adopting the new technology.

“The new GonioPEN will be a welcome device for the screening and management of glaucoma (and),” said Associate Professor Tina Wong, head of glaucoma department and senior consultant.

Seri research assistant Tin Aung Tun uses the GonioPEN to diagnose the type of glaucoma in Mr Loke Yew Chong. PHOTOS: LIANHE ZAOBAO

\$16.5k

Maximum cost of a gonioscope, combined with a microscope.

\$5k

Estimated cost of the GonioPEN.

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