

Teen's tumour gone, thanks to new device

Old method would have meant 50 per cent chance of paralysis

REPORT: NG WAN CHING
wanching@sph.com.sg

POLYTECHNIC student Nicholas Chong was shattered when he discovered he had a tumour in his brain earlier this year.

The 17-year-old first sensed something wrong in June last year when he could not move the toes of his right foot.

He also suffered drop-foot (a kind of paralysis in the muscles of the ankle and feet) where he was unable to lift his foot.

After much to-ing and fro-ing visiting medical experts and Traditional Chinese Medicine practitioners for foot X-rays, nerve tests and acupuncture, he finally discovered the devastating cause of his mysterious symptoms.

Then, more bad news followed.

If he were to undergo surgery to remove all of the tumour, there was more than a 50-per-cent chance he would become paralysed.

But thanks to a state-of-the-art imaging device called the Intra-Operative Magnetic Resonance Imaging scanner (iMRI), Nicholas had his tumour removed safely.

The iMRI gives surgeons real-time data to guide them through the patient's brain during the operation.

Nicholas was the first and youngest patient here to undergo brain surgery while still awake using this technology.

The iMRI facility is located at the Khoo Teck Puat-National Neuroscience Institute (KIP-NNI) Integrated Neuroscience Centre at the Singapore General Hospital (SGH).



RECOVERING: Nicholas Chong plans to return to studies next year.

TNP PICTURE: KELVIN CHNG

Associate Professor Ivan Ng, senior consultant and head of the neurosurgery department at the NNI and SGH, told The New Paper the iMRI has "allowed a quantum leap in neurosurgery". Before this, surgeons had only the image of the patient's brain taken before surgery to guide them through the procedure. Under such circumstances, surgeons are unlikely to be able to remove a tumour entirely.

Tumour mixed in fibres

One challenge in Nicholas' case was that his tumour was mixed in critical fibres in his brain, which controlled his leg and hand movement.

Prof Ng said: "The iMRI suite incorporates a sophisticated brain GPS (global positioning system) which is also synched with the operating microscope.

"We scan as we go along, so we know exactly where the tumour is all of the time, and where critical parts of the brain tissue are in relation to it."

The iMRI can give clear and real-time images of a patient's brain in black and white as well as in colour.

For Nicholas, surgeons took three iMRI scans during his seven-hour surgery. Prof Ng and his team managed to remove all of the tumour, which was roughly about the size of a cookie.

Prof Ng recalled: "If we had not used the iMRI and used only contemporary methods to take out 100 per cent of the tumour, Nicholas would have had a more than 50-per-cent chance of paralysis."

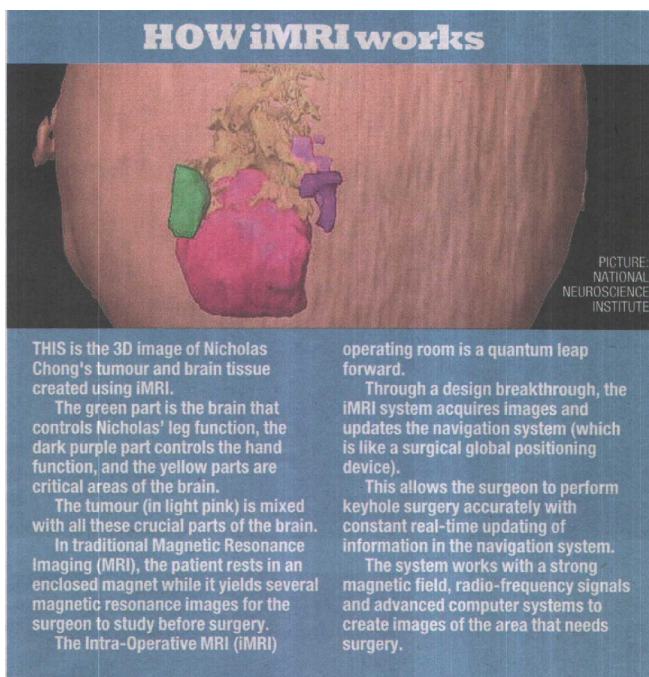
Since May, the surgeon has used the iMRI during awake brain surgery seven times, and during other brain surgery, 12 times.

In five of the seven awake brain operations, he and his team achieved near-total or total removal of tumour.

Of the two less successful resections (removal of tumour), one was a recurrent tumour. The other had the tumour partially removed before the patient suffered some loss of movement.

Prof Ng made a comparison of the outcomes of the 19 cases using the iMRI and without it: "We took a scan of all the patients' brains after their operations and

Headline **Teen's tumour gone, thanks to new device**
Date **05. Dec 2008**
Media Title **The New Paper (Mon - Sat)**



found that the iMRI made a difference in 18 out of the 19 cases," he said.

The iMRI facility is the only one available in Singapore and only the second in Asia. Japan had the first and India is setting one up, Prof Ng said.

The success of his operation has given Nicholas, a Republic Polytechnic student, renewed hope. When he first found out he had a brain tumour, his "world fell apart".

"I had just started my polytechnic studies for three weeks and I had to stop it to go for the operation," he recalled.

"On the day of my operation, I was very drowsy, so I did not feel very nervous."

He had been taken into the operating theatre to see the set-up before the operation.

"I knew where everything was. But during the operation, I could not see my brain on any of the screens. I could not feel anything. But I could hear people doing things," he said.

"The doctors spoke to me constantly, telling me to keep awake and to move my leg."

Nicholas was kept comfortable and pain-free with local anaesthetic and mild sedatives.

He plans to go back to studies next year.

Now, he is undergoing physiotherapy to get his toes and foot moving again.

"It's happening, slowly but surely," he said.

"If we had not used the iMRI and used only contemporary methods to take out 100 per cent of the tumour, Nicholas would have had a more than 50-per-cent chance of paralysis."

– Assoc Prof Ivan Ng, senior consultant and head of the neurosurgery department at the NNI and SGH