

# Cutting-edge radio-surgical technology arrives in SA

The cutting edge radio-surgical technology, Leksell Gamma Knife Icon - used in the treatment of selected brain tumours, head and neck tumours, vascular malformations in the brain as well as functional disorders - has been installed at Netcare Milpark Hospital in Johannesburg, the first of its kind in southern Africa.



Left to right: Neurosurgeon and radiation oncologist, Dr Dheerendra Prasad of the Roswell Park Cancer Institute in New York; radiation oncologist, Dr Sylvia Rodrigue; patient, Melanie Thomson, and neurosurgeon Dr Frans Swart. Thomson, who suffers from trigeminal neuralgia, was one of the first patients to receive Gamma Knife Icon treatment at Netcare Milpark Hospital.

Says neurosurgeon, Dr Maurizio Zorio, who practices at the hospital, “The introduction of Gamma Knife Icon is a tremendously exciting advancement in medicine in our country, as this is the most precise radiosurgery device on the market internationally. The technology delivers powerful doses of precision-targeted radiation that acts as a surgeon’s ‘scalpel’. This greatly reduces many of the risks associated with traditional cranial surgery as it enables us to consistently limit radiation doses to healthy tissue,” explains Zorio.

The Icon is the sixth generation of the Leksell Gamma Knife system and introduces a number of new innovations, such as integrated imaging and software, and an advanced patient motion management system to continuously control dose delivery. The system was brought to South Africa by Gamma Knife South Africa.

“South African patients who could benefit from this highly advanced treatment will, therefore, no longer have to travel abroad in order to access the very latest in cranial radiosurgery. In addition to serving local patients, the new centre will also provide hope for patients from across the African continent and elsewhere in the world. We expect to provide treatment to some 400 patients a year,” he adds.

## Advantages of Gamma Knife Icon treatment

The Gamma Knife Icon is the only technology of its type with micro-radiosurgery capabilities, allowing for the treatment of virtually any target in the brain with ultra-high precision. The inbuilt image guidance and frameless features of the technology enable surgeons to treat patients who were not previously candidates for stereotactic radiosurgery therapy.

“What distinguishes the Gamma Knife Icon from other stereotactic radiosurgery devices is that it is better able to preserve healthy nerves and tissues while delivering highly concentrated radiation to the targeted area. In the brain this is particularly important because of the density of vital nerves contained in the brain structures,” Zorio observes.

Another advantage of the Gamma Knife Icon is that there is usually no need for the patient to be admitted to the hospital, as the Gamma Knife Icon treatments are performed as day procedures. Oncologist Dr Samuel Fourie says that this treatment has a number of advantages, for certain patients and conditions, over traditional surgery. “Frequently, a single treatment lasting up to 90 minutes can be as effective as open brain surgery, yet it incurs far fewer risks, as there is minimal chance of damage to healthy tissue around the treatment site and no need for the patient to undergo general anaesthetic.”



Gamma Knife Icon

“Multiple treatment sessions over time can also be used for the treatment of larger tumour volumes, targets close to critical brain structures and new or recurring brain metastases.”

Fourie says that this ‘surgery without a scalpel’ is also more comfortable for patients, as they cannot feel the radiation and are able to communicate with the specialist team during the procedure. “In addition, Gamma Knife Icon treatment does not require the comparatively lengthy recovery period associated with traditional cranial surgeries,” he observes.

## **Treatment a team effort**

Zorio and Fourie assert that the treatment is very much “a team effort”, being planned and executed by a highly specialised multidisciplinary team, including surgeons, radiation oncologists, radiologists, medical physicists, and radiotherapists.

“The Gamma Knife Icon, which utilises both CT (computerised tomography) and MRI (magnetic resonance imaging) technologies, is indicated for a number of selected cases of neurological disorders including malignant and benign tumours or cancer metastases in the brain, spinal cord in the neck, or the membranes surrounding these.

“It can also be used for the treatment of acoustic neuromas, growths on the hearing and balance nerves near the inner ear, vascular malformations such as arteriovenous malformations (AVMs), and functional disorders including trigeminal

neuralgia, a chronic condition that causes severe facial pain, and unresponsive medication tremor in Parkinson's patients. The technology has been used to treat more than a million patients worldwide," notes Fourie.

## **Cause for hope**

According to Noeleen Phillipson, director of Netcare Oncology, the first local patients were treated at the new Gamma Knife Icon centre at Netcare Milpark Hospital towards the end of April under the guidance, or proctorship, of a team of renowned international experts.

"It is a sobering reality that we are seeing increasing numbers of cancer diagnoses, not only in South Africa but around the world. Medical and technological advances in cancer treatment, such as those offered by the Leksell Gamma Knife Icon, are cause for hope.

"By equipping medical specialists and caring healthcare professionals with cutting-edge technology and establishing centres of excellence for improved cancer treatments, the treatment interventions are becoming more effective all the time," she concludes.

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