

Gamma Knife

ELE282 Biomedical Engineering Seminar 1

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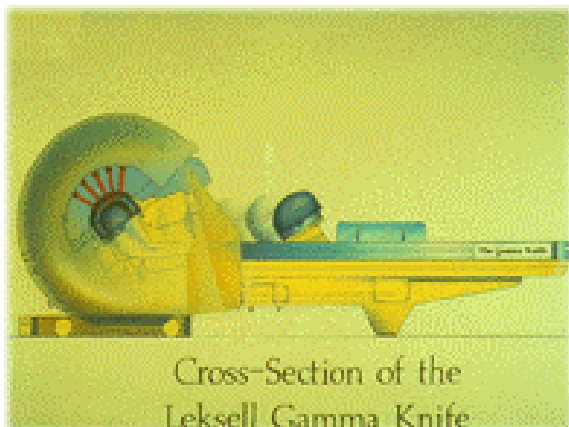
Kingston, RI 02881

This revolutionary neurosurgical tool was developed by a Swedish neurosurgeon called Lars Leksell and Borje Larsson, with the first one to be used clinically installed at Karolinska Institute in Stockholm in 1968.



The Leksell Gamma Knife[®] is a non-invasive neurosurgical tool for the treatment of small to medium size tumor and AVM's.

The traditional treatment for these brain malformations was usually surgery, intensive radiation therapy or a combination of both. Now the Gamma Knife offers new hope to patients with inoperable conditions such as arteriovenous malformations and brain tumors.



How it works is Gamma radiation emitted from 201 separate sources of cobalt-60 is focused on a tumor or blood vessel abnormality or other abnormal brain tissue with 0.1 mm accuracy. This tissue is then destroyed.



Using highly sophisticated 3-dimensional software, doctors can pin point location of brain abnormality and devise a treatment plan specific to your problem. This way the Gamma radiation is focused only on the abnormal tissue, while protecting the surrounding normal brain tissue.

Patients do not experience any pain and can resume their normal lifestyles and activities as soon as the next day.

There are no incisions, therefore reducing the risk of surgical complications, like those occurring from anesthesia, hemorrhage and infection.

Usually the patient will experience some side effects but these are minimal such as: nausea, local hair loss, headache, mild scalp numbness, and mild discomfort at the frame pin sites.

Elekta, the developer of the Leksell Gamma Knife[®], has improved the design with the Leksell Gamma Knife[®] C. This new version is more comfortable for the patient. Also great advancements have been made in the development of the 3-D software used to control the gamma rays.