

CYBERKNIFE TARGET:

# LUNG CANCER



## CYBERKNIFE® CENTER OF CHICAGO

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# Lung Radiosurgery

*Precisely Delivering Radiation While Sparing Surrounding Healthy Tissue*

Lung cancer (both small cell and non-small cell) is the leading cause of cancer death for both men and women. One in 13 men and one in 16 women will get lung cancer in their lifetime.\*

Patients with early stage lung cancer have high cure rates when they are treated surgically; however, surgery may be limited by the patient's health and/or tumor location. External beam radiation alone was lengthy and had much lower rates of success due to an inability to deliver high doses to the tumor while preserving normal lung. Now cyberknife offers a revolutionary way to treat lung cancer that involves no anesthesia, no hospital stay, and only 3-5 treatments.

The Cyberknife is the world's first and only robotic radiosurgery system. It is the only technology that tracks tumors in real time with continual image guidance offering radiosurgical accuracy throughout treatment. The beams move precisely with tumor motion throughout the breathing cycle



The sub-millimeter accuracy of the CyberKnife ensures protection of surrounding critical structures.

requiring no breath holding or gating. Using hundreds of concentrated and precise radiation beams, the cyberknife enables the clinician to conform the dose to the tumor while

preserving surrounding healthy tissue.

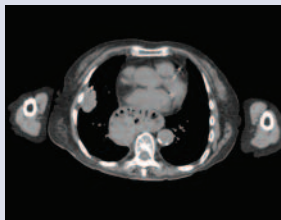
Recent trials published in 2010 in JAMA have demonstrated the efficacy of radiosurgery in Stage I patients. Timmerman and colleagues recently conducted a multicenter study of patients with early stage medically inoperable lung cancer. Historically these patients have a poor rate of local control (30-40%). At ~3 years follow up, the local control was 90.6%. The local regional control, which included nodal failures, was 87.2%. Treatment was extremely well tolerated <5% grade 4 and no grade 5 toxicity.\*\*

Overall, radiosurgery has been used successfully world wide for many years with several reports showing similar long term control rates.

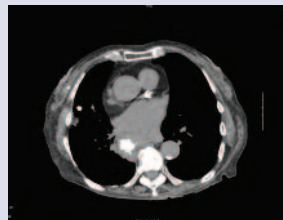
## CyberKnife Benefits for Lung Cancer:

- Treatments delivered in five or fewer outpatient visits compared to conventional radiation therapy which requires up to 40-45 visits
- Non-coplanar treatments enable dose escalation with precise control
- Tracks tumors in real time while others are limited to pre-treatment image guidance only
- No hospital stay or post-operative recovery
- Non-invasive treatments provide extreme comfort for patients
- Able to track the tumor as it moves with the respiratory cycle

	CONVENTIONAL RT	CYBERKNIFE SRS
Daily Dose	1.8-3.0 Gy per fraction	5.0-20 Gy per fraction
Number of treatments	6-7 weeks	3-5 treatments
Normal tissue margin	20-30mm	1-5mm
Number of beams	2-7 beams	100-200+ beams



Before



After

\*American Cancer Society 2010, [www.cancer.org](http://www.cancer.org)

\*\*JAMA.2010 Mar17;303(11):1070-6



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