

CASE STUDY

Spinal Cord Metastasis

Extracranial Treatment of a L-1 Metastasis from Renal Cell Carcinoma



Courtesy of Dr. Peter Gerszten, University Pittsburgh Medical Center

Patient History

A 52-year-old woman diagnosed with renal cell carcinoma, status-post right nephrectomy in 1994. She was diagnosed with a large metastatic L-1 lesion in December 2001 and received 3000 cGy external beam irradiation in 10 fractions. Her pain returned four months later, associated with a left L-2 radiculopathy. CyberKnife radiosurgery was recommended.

CyberKnife Advantage

This case presented a unique radiosurgery challenge. The L-1 lesion was wedged between the patient's remaining left kidney and the previously irradiated spinal cord. Since the left kidney was her only remaining kidney, the dose was limited to 200 cGy to the kidney and 300 cGy to the spinal cord. The CyberKnife's robotic capability maximized the dose to her L-1 tumor and spared her left kidney and spinal cord. No other radiation delivery system can provide this conformality.

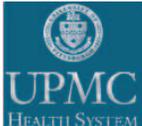
Treatment

A 30 minute percutaneous fiducial placement procedure was performed one week prior to her radiosurgery treatment. The patient was immobilized in a Vac LokTM immobilization device. A 30 mm. collimator was used to treat with a single fraction to a prescribed dose of 1200 cGy that was calculated to the 80% isodose line. The Dmax was 1550 cGy, and the tumor volume was 31.3cc. Only 0.252cc of the spinal cord received greater than 800 cGy.

Outcome & Follow-Up

Treatment was tolerated without difficulty or any discernible acute effects and lasted approximately one hour. No sedation was necessary, and the patient went home that day. The patient reported a significant improvement in pain at her one month follow-up.

CyberKnife Team:



- Radiation Oncologist: Steve Burton, M.D.
- Neurosurgeon: Peter C. Gerszten, M.D.
- Medical Physicist: Cihat Ozhasoglu, Ph.D.
- Radiation Therapist: Julie Sussi, RTT