FACT SHEET

Helical TomoTherapy For Prostate Cancer

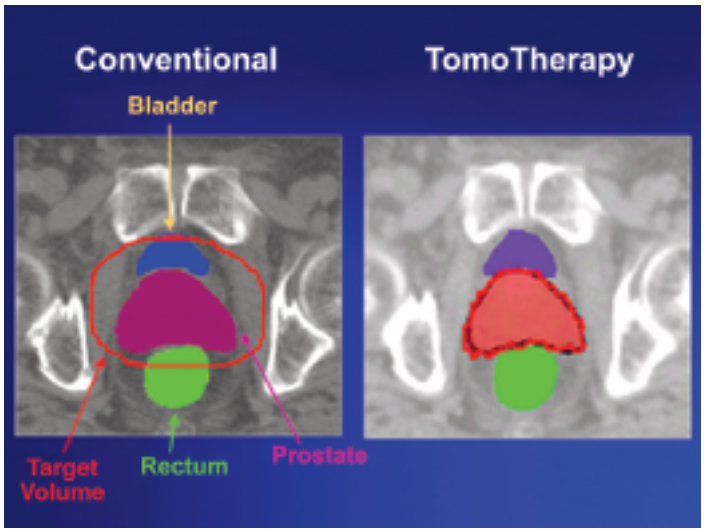
Helical TomoTherapy represents the next generation of leading-edge radiation therapy technology. It provides City of Hope oncologists unprecedented ability to deliver radiation therapy with surgical precision. This translates into more effective radiation therapy to the tumor, reduced radiation to surrounding normal tissue and organs and a significant decrease in side effects for the patient. Though Helical TomoTherapy has broad applicability to many forms of cancer, it is especially well suited as the **surgical alternative for prostate cancer**. TomoTherapy has revolutionized the delivery of radiation for cancer treatment. It delivers the most sophisticated form of intensity modulated radiotherapy (IMRT), which integrates treatment planning, patient positioning and treatment delivery into one system.

WHAT SETS IMRT AND HELICAL TOMOTHERAPY APART?

Helical TomoTherapy is a marriage of two types of technology: 1) spiral computed tomography (CT) scanning and 2) IMRT. IMRT is one of the most important recent advances in radiation therapy. The goal of IMRT is to modify the size, shape and strength of the radiation beam to fit the exact shape of each patient's tumor. With the introduction of TomoTherapy, IMRT is administered as the patient moves through the CT scanner, allowing patient positioning, treatment planning and treatment delivery to occur simultaneously. As with a CT scanner, the patient moves through the unit, but instead of a regular X-ray, a special therapy X-ray spirally rotates around the patient, producing a sculpted high-dose region around the tumor. This produces more effective and potentially curative doses to the cancer, with reduced damage to surrounding normal tissue and fewer complications for the patient.

TREATMENT PLANNING

Before beginning TomoTherapy treatment, the radiation oncologist uses 3-D CT images and special software to establish the precise contours for each region of interest (tumor site) and any regions of risk (sensitive organs or structures). The physician decides how much radiation the tumor should receive, as well as limits to surrounding structures. The TomoTherapy System then calculates the appropriate pattern, position and intensity of radiation beams to be delivered, to match the physician's prescription.



Treatment of prostate cancer with TomoTherapy compared to conventional technique. Radiation dose is confined to the prostate. With conventional techniques more of the rectum and bladder receive the full dose.

TREATMENT ADVANTAGES

- Significant reduction in side effects
- Image-guided verification of patient position prior to each treatment to improve treatment accuracy
- Potential to focus a more effective dose to the prostate

FOR MORE INFORMATION, PLEASE CONTACT

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Division of Radiation Oncology
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PATIENT POSITIONING

External patient position has always been a key concern in providing radiation care, but now TomoTherapy provides the imaging technology to correct for internal movements that previously could not be seen. This feature allows the physician to view a special CT scan just prior to treatment to verify the position of the target and adjust the patient position as needed. This added positioning tool is essential in the treatment of prostate cancer. There can be significant movement of the prostate gland from day to day simply due to changes in rectum or bladder filling. This type of technology has the ability to remain "locked" on the tumor, to further improve the precision of treatment delivery.

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