External beam radiotherapy

External beam therapy (EBT), also called external radiation therapy, is a method for delivering a beam or several beams of high-energy x-rays to a patient's tumor. Beams are generated outside the patient (usually by a linear accelerator, see below) and are targeted at the tumor site. These high energy x-rays can deposit their dose to the area of the tumor to destroy the cancer cells and, with careful treatment planning, spare the surrounding normal tissues. No radioactive sources are placed inside the patient's body.

External beam radiotherapy (EBRT) or teletherapy is the most common form of radiotherapy. The patient sits or lies on a couch and an external source of radiation is pointed at a particular part of the body. In contrast to internal radiotherapy (brachytherapy), in which the radiation source is inside the body, external beam radiotherapy directs the radiation at the tumor from outside the body. Kilovoltage (“superficial”) X-rays are used for treating skin cancer and superficial structures. Megavoltage (“deep”) X-rays are used to treat deep-seated tumors (e.g. bladder, bowel, prostate, lung, or brain).

While X-ray and electron beams are by far the most widely used sources for external beam radiotherapy, a small number of centers operate experimental and pilot programs employing heavier particle beams, particularly proton sources.

Particle radiotherapy is a form of external beam radiotherapy using beams of energetic protons, neutrons, or positive ions for cancer treatment.

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