

SURGICAL AND RADIOTHERAPY TREATMENTS FOR CANCER

Type of Surgical Procedure	Description	Applicable cancer
Mastectomy	Surgery to remove part or all of the breast	Breast cancer
Lumpectomy	Surgery to remove the cancer and some normal tissue around it, but not the breast itself	Breast cancer
Orchiectomy	Surgery to remove one or both testicles	Testicular cancer
Video-Assisted Thoracoscopic Surgery (VATS)	Surgery performed using a small video camera that is introduced into the patient's chest via small incisions	Multiple head, neck and chest cancers
Laparoscopic surgery	Surgery done with the aid of a laparoscope	Variety of abdominal cancers
Reconstructive and limb-sparing surgeries	Surgery to restore the function or appearance of organs or tissues that were either removed or changed by cancer treatment; Surgery to remove a tumor in a limb (arm or leg) without removing the whole limb	Sarcoma and other cancers
Partial nephrectomy	Surgery to remove part of one kidney or a kidney tumor, but not an entire kidney	Kidney cancer
The Whipple/modified Whipple procedure	Surgery to remove head of the pancreas, the duodenum, a portion of the stomach, and other nearby tissues	Pancreatic cancer
Total mesorectal excision	Surgery to remove significant length of the bowel around a tumor	Rectal cancer
Nerve-sparing prostatectomy	Surgery to remove part or all of the prostate and some of the tissue around it	Prostate cancer
Transanal Endoscopic Microsurgery (TEM)	Surgery performed through the rectum with specially designed microsurgical instruments to remove rectal tumors and early stage rectal cancers	Rectal cancer
Modified retroperitoneal lymph node dissection	Surgery to remove abdominal lymph nodes	Testicular cancer
Sentinel lymph node biopsies	Surgery to identify, remove, and examine sentinel lymph node to determine whether cancer cells are present	Breast, melanoma, and colorectal cancers
Robotic or computer-assisted surgeries	Surgeries that use robotic systems to aid in procedures	Multiple cancers
Type of Radiation Procedure*	Description	Applicable cancer
Brachytherapy	A form of radiotherapy where a sealed radiation source is placed inside or next to the area requiring treatment	Cervical cancer, prostate cancer, ocular melanoma, breast cancer, skin cancer, recurrent cancers, other cancers
Three-dimensional conformal radiotherapy (3DCRT)	A type of radiation delivery that shapes the radiation beams to match the shape of the tumor	Multiple cancers
Intensity modulated radiotherapy (IMRT)	An advanced form of 3DCRT that uses advanced computer programs to calculate and deliver precise radiation doses to a malignant tumor or specific areas within the tumor	Multiple cancers
Imaged guided radiotherapy (IGRT)	The use of imaging during radiation therapy to improve the precision and accuracy of treatment delivery	Many cancers, especially those that may move during treatment or are located adjacent to critical organs

*Delivered alone or in combination with other types of radiation listed in the table with/or without concurrent chemotherapy, targeted therapy or hormonal therapy

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SUPPLEMENTAL TABLE 3
(CONTINUED)

SURGICAL AND RADIOTHERAPY TREATMENTS FOR CANCER

Type of Radiation Procedure*	Description	Applicable cancer
Stereotactic radiosurgery (SRS)	A type of external radiation therapy that uses special equipment to position the patient and advanced computer programs to calculate and deliver precisely a single large dose of radiation to a tumor	Brain metastases
Stereotactic body radiotherapy (SBRT) or Stereotactic ablative radiotherapy (SABR)	Administers very high doses of radiation in a few fractions (usually 5 or less), using several beams of various intensities aimed at different angles to precisely target the tumor anywhere in the body	Liver cancer, lung cancer, pancreatic cancer, spinal metastases, oligometastases, recurrent cancers requiring re-irradiation
Proton therapy	A type of radiation treatment that uses protons to treat cancer	Pediatric cancers, certain unresectable skull base or head and neck cancers, certain CNS tumors, ocular tumors, recurrent cancers requiring re-irradiation, hepatocellular carcinoma, certain retroperitoneal sarcoma **
Particle therapy	A form of external beam radiotherapy using beams of energetic protons, neutrons, or positive ions such as carbon ion for cancer treatment	Carbon ion therapy is being tested for several solid cancers outside of the US
Neoadjuvant or adjuvant radiotherapy	Radiation is delivered either before (neoadjuvant) or after surgery (adjuvant), sometime with concurrent systemic therapy	Multiple cancers
Organ preservation approach	Definite radiotherapy +/- chemotherapy that are designed to produce cure while preserving the organ where the tumor is located	Certain head and neck cancers, breast cancer (with lumpectomy), anal cancer, esophageal cancer, bladder cancer

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