

Treatment options for men with localised prostate cancer

Choosing a treatment for prostate cancer is not easy. The primary choices include active surveillance, surgical removal of the prostate gland, radiation of the prostate (either external beam or brachytherapy (seed implantation)) and hormone therapy. No one treatment is the “best” treatment for any particular patient, and there are published studies that seem to favour each type of treatment. Here we discuss the different options a little more, and you will be able to discuss them with your doctor as well.

Active surveillance

With active surveillance your prostate cancer is closely watched, by checking your PSA at regular intervals and feeling the prostate gland. Further biopsies may also be taken of your prostate gland, and should there be any signs that your cancer is progressing, then curative treatment can be given. This treatment option is usually offered to patients with lower risk disease, that is a lower Gleason score and lower PSA at diagnosis.

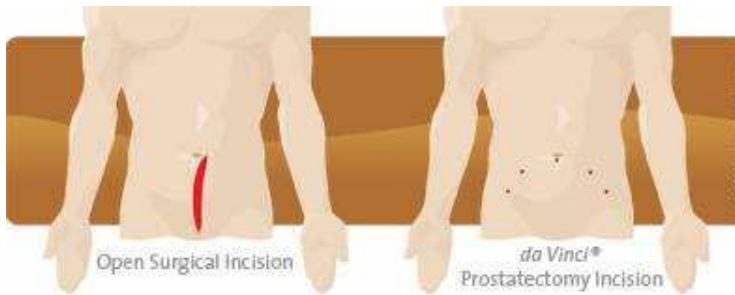
Surgery (Radical Prostatectomy)

Surgery remains the primary option for many men with localized prostate cancer. In radical prostatectomy, the entire prostate gland is removed as a unit with the seminal vesicles and portions of the vas deferens. This can be done via open operation, laparoscopically (using minimally invasive surgery), or laparoscopically with the help of a robot (robot assisted laparoscopic prostatectomy). Compared to other treatment methods such as radiotherapy, a radical prostatectomy has the advantage of providing accurate local staging as well as assessment of pelvic lymph nodes through a detailed pathological analysis. For patients with prostate cancer pathologically confined to the prostate, the chance of cure with surgery alone at 10 years (undetectable PSA) is more than 90 percent.



A picture showing the da Vinci™ robot

At The Robotic Prostate Centre Cambridge all of our radical prostatectomies are done using the **robotically assisted laparoscopic approach** (above). Cambridge was one of the first centres in the UK to use this technology. This technique allows the prostate gland to be removed through several small incisions in the patient's abdomen. Robotic prostatectomy uses the da Vinci™ robot to remove the prostate gland through laparoscopic access in which surgeons make keyhole openings rather than a single 15-20cm midline incision (see below).



The system incorporates a surgeon's console and three to four interactive, robotic arms equipped with a camera and miniaturised surgical instruments. A surgeon controls the da Vinci's™ arms from a remote console that precisely translates his hand and finger movements to the robotic instruments inside the patient's body while providing a three-dimensional view of those movements; the enhanced views offered by the da Vinci™ mean less chance of damaging surrounding nerves and tissue and a reduced risk of scarring. The small skin incisions result in less pain, less blood loss, faster catheter removal and a shorter hospital stay, with some patients returning to work as early as two weeks after the procedure. Patients who undergo this surgery generally leave the hospital the next day, and their overall recovery time is reduced by about half compared to that of standard open radical prostatectomy.

Although the incidence of surgical complications is quite low, the main postoperative issues remain urinary incontinence (5 percent) and erectile dysfunction (20 to 50

percent). Short-term incontinence after radical prostatectomy is common. Many men will require a protective pad for several weeks to months after surgery. Fortunately, most men will recover urinary control. Long-term (after 1 year) incontinence is rare with occurrence in less than 5 percent of all surgical cases.

The two nerve bundles responsible for erection run along either side of the prostate, very close to where prostate cancer most commonly arises. Although preserving these nerves at the time of surgery may be possible, it is not always wise. Since the primary goal of the operation is to remove all of the cancer, one or both of these nerves may have to be completely or partially divided depending upon the grade and stage of the tumour. Unless both nerves are divided, the chance of recovering erectile function exists, but recovery may be slow, taking many months in some cases. In some men, however, erectile function will never recover to normal. The da Vinci™ system allows better visualisation of these nerve bundles, which should facilitate their preservation, where possible.

External beam radiotherapy (EBRT)

Traditionally, radiotherapy has been used in a more elderly population (over 70 years) and in men with locally advanced prostate cancer. Some studies have shown, however, that radiotherapy and surgery can offer comparable long-term outcomes up to 10 years.

In external beam radiotherapy, a small amount of radiation is delivered incrementally to the prostate over a course of 4 to 7 1/2 weeks. The total radiation dose received is usually over 70 Gy. Currently, three-dimensional conformal radiotherapy (3DCRT) or intensity-modulated radiotherapy (IMRT) is used to deliver high-dose radiation to the prostate while minimizing damage to the surrounding normal structures such as the bladder and rectum.

The main side effects of radiotherapy include bladder and rectal toxicities which can result in urinary and bowel dysfunction. Within one or two months following completion of treatment, most men notice that symptoms disappear. If changes in bladder or bowel function persist, they are typically mild. About 20 percent of men, however, do experience more significant long-term bowel irritability. The incidence of erectile dysfunction also appears to be similar to that of surgery, ranging in 20 to 50%.



Picture of a radiotherapy machine

Prostate brachytherapy

Brachytherapy is a method in which radioactive seeds are implanted directly into the prostate. The seeds are delivered percutaneously into the prostate via the specially designed needles using ultrasound guidance. The procedure is performed under general or regional anesthesia and is usually well tolerated with minimal perioperative morbidity. The treatment is limited to patients with smaller prostates causing minimal urinary symptoms. Incontinence is very rare, but a small proportion of patients, less than 5%, experience slight difficulty in voiding in the first month after seed implantation. Erections are rarely impaired initially after treatment, but might deteriorate after this time. The treatment can be performed with a hospital stay of less than 24 hours, including one night.

The relative effectiveness of EBRT and brachytherapy appear to be similar for early stage prostate cancer. Some patients are offered the combination therapy in which both EBRT and brachytherapy are utilized. For those with locally advanced cancer and/or highly aggressive cancer, androgen deprivation (hormonal treatment) is also added to optimise cancer control.

Androgen Deprivation Therapy

Prostate cancer is androgen sensitive in early stages. This means that it needs the body's circulating testosterone in order to grow. As such, androgen ablation can result in a dramatic reduction in cancer burden in the vast majority of cases. Unfortunately, most prostate cancers eventually progress despite effective medical (tablets or injections) or surgical castration (removal of the testicles) and become androgen independent.

In the management of localized prostate cancer, the role of androgen ablation is usually limited to a neoadjuvant (used before radical treatment is given) or adjuvant (used together with radical treatment) setting. Two recognized scenarios are 1) for use together with EBRT. For patients who are at high risk for cancer recurrence, a prolonged use of androgen ablation (up to 3 years) combined with EBRT has resulted in improved survival

compared to EBRT alone and 2) to reduce the prostate size prior to prostate brachytherapy (infrequently used).

This treatment usually involves administration of an of an LHRH analogue by an injection every 3 months under the skin, so that it is slowly released over that time. Initially you may also be asked to take tablets for three weeks, during which time your injection will be given, and these tablets (antiandrogens) block the initial stimulating effects of the injection.

While hormonal therapy may be useful in addition to radiation treatment, there can be unpleasant side effects. These can include nausea and vomiting, hot flushes, anaemia, lethargy, osteoporosis (thinning of the bones), swollen and tender breasts and erectile dysfunction.

More information:

The Prostate Cancer Charity: www.prostate-cancer.org.uk

The prostate cancer foundation: www.prostatecancerfoundation.org

The da Vinci robot for radical prostatectomy: www.davinciprostatectomy.com/index.aspx

The Prostate Cancer Network: www.pcaso.com/

Cancerbackup (Macmillan Cancer support): www.cancerbackup.org.uk

UK prostate link: www.prostate-link.org.uk/

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