Survivorship: Late Effects After Radiation for Bladder Cancer

What is a late effect?

A late effect is a side effect that is caused by treatment but happens months to years after the cancer treatment has finished. Some side effects that you develop during treatment can last for months to years after treatment is completed (for example, fatigue or neuropathy). These are often called long-term side effects.

Late effects can be health issues or psychological, emotional, and practical challenges.

Late Effects After Radiation for Bladder Cancer

Side effects from radiation treatment are directly related to the area of the body being treated. Any area in the treatment field has a risk of being damaged, causing side effects. As radiation techniques have improved over the years, the risk of late effects has decreased.

Bladder Problems

Radiation to the bladder area can cause late effects to the bladder including:

- Developing scar tissue, which can lead to a decrease in how much urine your bladder can hold.
- If given with chemotherapy medicines known to cause bladder damage (cyclophosphamide, ifosfamide), late effects can include hemorrhagic cystitis that causes bleeding from the bladder lining. Signs of hemorrhagic cystitis include urinary frequency (needing to pee often) and urgency (needing to go quickly), blood in your urine, or pain when peeing. You should report any of these things to your provider right away.
- Radiation to the bladder may also make you more prone to urinary tract infections. This type of infection can be treated with antibiotics. If you have burning when urinating (peeing), frequency (needing to go often), or see blood in your urine, call your provider.
- Radiation to the bladder can increase the risk of developing bladder cancer. Signs of this include blood in the urine, urinary frequency (going often) and urgency (needing to go right away), urinating at night, and incontinence. Contact your care provider if you have any of these.
- These late effects all have similar signs. You may have urine tests or cystoscopy (inserting a small tube with a camera into the bladder) to figure out what is causing your issues. It is best to not drink alcohol and or to smoke, as these irritate the bladder and increase the risk of bladder cancer.

Bowel Problems

The bowel is sensitive to the effects of radiation. The late effects that may occur after radiation treatment that includes the rectum, colon, or small bowel include:

- Scarring and strictures: Damage to the tissue of the bowel can lead to scar tissue. This scar tissue can cause a bowel obstruction. A bowel obstruction is when the normal movement of stool through the bowel is blocked. Call your provider if you are having any abdominal pain, constipation, vomiting, weight loss or bloating. If you have severe abdominal pain along with vomiting and constipation you should be seen by a provider right away, either in the office or the emergency department.
- Ulceration and bleeding: Ulceration and bleeding can be caused by damage to the bowel tissues. Report any dark or black colored stools, bright red blood in your stools, in the toilet water, or on the toilet paper to your provider right away. You may need testing with a colonoscopy to find the area that is bleeding.
Chronic diarrhea: Report diarrhea that is causing weight loss to your care team. Medications to lessen diarrhea may be helpful. You may benefit from meeting with a gastroenterologist (GI Doctor). You should also meet with a registered dietitian (RD) who can help evaluate your diet and give you suggestions to lessen diarrhea and maintain or gain weight.

Fistula formation: A fistula is a connection (hole) between two parts of the body that are not normally connected. A fistula can form between the bowel and bladder, bowel and female reproductive system (uterus/vagina), or the bowel and the skin. If you have urine, feces, or blood coming out of any opening that it should not be, you should call your provider right away.

Colon cancer: Radiation to the bowel can lead to colon cancer years after treatment is complete. If you were treated before the age of 18, it is recommended to begin colon cancer screening with colonoscopy or DNA stool testing 5 years after treatment or at age 30, whichever occurs later. Screening for the general population begins between the ages of 45-50. You should consider these 2 guidelines when deciding when to start colon cancer screening. You may need earlier screening if you have irritable bowel disease, chronic diarrhea or bleeding, ulcerative colitis, colon cancer in your family or previous gastrointestinal cancers or polyps.

Impact on Reproductive Organs, Sexual Function, and Fertility (for Men)

Radiation to the pelvis in a man may cause problems with sexual health such as infertility, low testosterone levels, low sperm count, or the inability to get and maintain an erection (erectile dysfunction).

- If you want to have a child, you may benefit from speaking to a fertility specialist. They can evaluate the health of your sperm and your ability to father a child.
- In some cases, the prostate gland is affected by radiation, which can lead to a decrease in seminal fluid. This can cause a man to have a “dry orgasm.” In these cases, the man is still able to achieve orgasm but will have little or no fluid released.
- You should try to speak openly with your provider about these issues. For those having erectile dysfunction, medications such as sildenafil (Viagra) may be useful. If these medicines are not helping, you should see a urologist. There are other ways that you can achieve an erection, such as using an implant or pump.

Impact on Reproductive Organs, Sexual Function, and Fertility (for Women)

You may have long-term changes to your vagina and uterus after radiation to your pelvis. You may experience vaginal dryness, atrophy (shrinkage and thinning of the tissues), less feeling/sensation in the genital area, bleeding, or painful intercourse.

Sexual Health

- Water-based lubricants and moisturizers (Replens) can help to make sexual intercourse more comfortable.
- Regularly applying vitamin E to external tissues or using suppositories to apply to vaginal tissue may help to strengthen the tissues and reduce friction and discomfort. Some women may benefit from low-dose estrogen suppositories.
- Scar tissue in the vagina may cause the size of the vagina to narrow or shorten. Regular use of vaginal dilators, which are placed in the vagina for short periods of time, is recommended for all women who have had radiation to the pelvic area. This will help stretch the vaginal tissues and make intercourse and vaginal exams more comfortable.
- Physical therapy to strengthen pelvic floor muscles has been shown to decrease pain with intercourse and improve sexual health. Women with pain in the vulvar region may find relief with topical lidocaine (a numbing agent).
- If sexual health changes are affecting your quality of life, discuss them with your providers. You may find it helpful to see a therapist experienced in working with cancer survivors with sexual concerns.

Fertility and Childbearing

Radiation fields that include the ovaries can result in damage to a woman’s supply of eggs (oocytes). The risk of infertility is higher with higher doses of radiation. Your period will likely stop during treatment but may return in women younger than 40. If it returns, you may still be at risk of going into menopause earlier than your peers. This can be important to know for family planning purposes.

- If you would like to become pregnant, it can be helpful to see a reproductive endocrinologist. S/he can review the cancer treatments that you got and review options with you.
- After ovarian radiation to the ovaries, some women will go into early menopause (menopause that occurs before natural age). Early menopause can increase your risk for osteoporosis or heart disease. It may be helpful to see an
endocrinologist even if you do not wish to become pregnant. They can discuss ways to reduce these risks, including hormone supplements, calcium, vitamin D, and exercise, depending on your case.

- Radiation to the uterus (womb) can cause the uterus to shrink, have less elasticity (ability to stretch) and develop scar tissue. These changes in the uterus can cause a higher risk of miscarriage, preterm labor, and babies born at low birth weight. If you wish to become pregnant, you should be followed by a high-risk pregnancy specialist.

**Damage to the Kidney**

When the radiation field includes the kidney(s), renal insufficiency (decreased kidney function) and hypertension (high blood pressure) can happen. The kidneys are not typically included in the bladder radiation field but may be in some cases. Ask your radiation oncologist about what organs were in your treatment field.

- The risk for kidney problems after radiation is increased if you have diabetes, only have one kidney, have a history of high blood pressure, or if you have taken other medications that can cause kidney damage.
- Have your blood pressure checked at your annual check-ups. If needed, your blood pressure may be treated with medications.
- Your team will also monitor your kidney function through blood testing (basic metabolic panel) and urine tests (urinalysis).
- Eating a balanced, healthy diet can promote healthy blood sugar levels and help to protect your kidneys from further damage.

**Skin Changes**

Radiation can lead to permanent changes in the skin.

- You may develop new scars or notice changes in the color or texture of your skin. Radiation can also change the color and texture of your hair or cause permanent hair loss in the treated area.
- The soft tissue and muscles under the skin can develop scarring and/or shrinkage, which can lead to a loss of flexibility and movement or chronic swelling in this area.
- You may develop chronic or recurring ulcers of the skin in the area treated. Blood vessels of the skin may become dilated and more visible, although this is not harmful.
- If the skin feels tight or sore, you can apply vitamin E to the skin.
- Use fragrance and dye-free soaps and moisturizers in the area if your skin is sensitive after radiation.
- After radiation, the skin in the treated area is more sensitive to sunlight. This sensitivity will last for your lifetime. Practice sun safety, use plenty of sunscreen, wear a wide-brimmed hat, and keep skin in the treated area covered with clothing. Try to avoid being out in the sun between the hours of 10 am-4 pm when it is the strongest.

If you notice any new or worsening skin issues anywhere on your body, you should contact your provider for an assessment.

**Managing Late Effects**

If you experience any concerning or lasting symptoms, contact your care team. Some side effects require specialized care from healthcare providers experienced in working with a cancer survivor. Interdisciplinary survivorship clinics are available at many cancer centers. If a clinic is not available near you, talk with your oncology care team about resources for managing your late effects.

After treatment, talk with your oncology team about receiving a survivorship care plan, which can help you manage the transition to survivorship and learn about life after cancer. You can create your own survivorship care plan using the OncoLife Survivorship Care Plan.