



Survivorship: Late Effects After Radiation for Non-Hodgkin Lymphoma (Abdomen/Groin)

Side Effects After Cancer Treatment

There are different types of side effects you may have during or after cancer treatment.

- Short-term: side effects that happen while you are on treatment and end shortly after treatment. Example: mouth sores that heal within a few weeks after treatment is finished.
- Long-term: side effects that happen while you are on treatment and last for months to years. Some of these side effects will not go away. Example: neuropathy.
- Late effects: side effects that happen months to years after you have finished treatment. Example: scar tissue forming and causing health issues.

This article focuses on the late effects of radiation treatment to the abdomen/groin area for Non-Hodgkin Lymphoma.

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

Late Effects After Radiation for Non-Hodgkin Lymphoma (Treatment to Groin/Abdomen)

Side effects from radiation treatment affect the area of the body in the treatment field. The treatment field includes the cancer and in some cases nearby healthy tissue. How radiation is given has changed over the years, leading to a lower risk of late effects. Talk with your radiation oncologist to find out which areas were in your treatment field.

Late effects of radiation treatment to the abdomen/groin area for Non-Hodgkin Lymphoma include:

Spinal Cord Damage

The spinal cord may be in the field of radiation treatment. This can cause damage to the nerves in the spine.

- Signs of this can be loss of strength, feeling, or coordination of the arms or legs, paralysis (not being able to move), or problems with bowel or bladder control. Sometimes nerve damage can cause a feeling of electric shock spreading down the arms or legs.
- If you develop any of these, you may need imaging tests or to be seen by a neurologist for more testing.

Radiation can also damage the bones of the spine. This can make you shorter or have a change in the curve of your spine. Radiation to these bones can also put them at risk for fracture (breaks). If you have any new back pain, call your provider right away. You may need x-rays or other imaging tests.

Bowel Problems

The bowel is sensitive to the effects of radiation. If the rectum, colon, or small bowel are in the treatment area, late effects can include:

- **Scarring and strictures:** Damage to the tissue of the bowel can lead to scar tissue. This scar tissue can lead to a stricture (narrowing of a part of the body) and 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 (belly) pain, constipation, vomiting, weight loss, or bloating. If you have severe abdominal pain with vomiting and constipation you should be seen by a provider right away.
- **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 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 seeing a gastroenterologist (GI Doctor). You should also meet with a registered dietitian (RD) who can look at your diet and give you ideas 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, the 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.
 - If you were treated before the age of 18, you should begin colon cancer screening with colonoscopy or DNA stool testing 5 years after treatment or at age 30, whichever is later.
 - 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.

Bladder Problems

Radiation to the pelvic area can cause [late effects to the bladder](#) including:

- **Scar tissue:** Can develop leading to a decrease in how much urine your bladder can hold.
- **Hemorrhagic Cystitis:** Inflammation inside of the bladder that can lead to bleeding. 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. If you have any of these symptoms, tell your provider right away.
- **Urinary Tract Infections:** 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), urinary frequency (needing to go often), or see blood in your urine, call your provider.
- **Bladder Cancer:** Radiation to the bladder can increase your risk of developing bladder cancer. Signs include blood in the urine, urinary frequency (going often) and urgency (needing to go right away), urinating at night, and incontinence (loss of bladder control). Tell your provider if you have any of these symptoms.

These late effects all have similar signs. You may need 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 or smoke, because these irritate the bladder and increase your risk of bladder cancer.

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

Radiation to the pelvis for men may cause problems with [sexual health](#) like infertility (not being able to father a child), low testosterone levels, low sperm count, or not being able to get and keep an erection (erectile dysfunction).

- If you want to have a child, it may help to speak to a fertility specialist. They can look at 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 less seminal fluid. This can cause a man to have a “dry orgasm.” In these cases, the man is still able to reach orgasm but will have little or no fluid released.
- You should speak openly with your provider about these issues. For those having erectile dysfunction, medications such as sildenafil (Viagra) may help. If these medicines are not helping, you should see a urologist. There are other ways that you can get an erection, such as using an implant or pump.

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

Women may have long-term changes to their vagina and uterus after radiation to the 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 make sexual intercourse more comfortable.
- Regularly applying vitamin E to external vaginal tissues or using suppositories (medication you put into your body through an opening like your rectum or vagina) may help the tissues get stronger 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 you apply to the skin).
- If [sexual health](#) changes are affecting your quality of life, discuss them with your providers. It may help to see a therapist that works 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 help to see a reproductive endocrinologist. They can review the cancer treatments that you got and talk about options with you.
- After 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 help to see an endocrinologist even if you do not wish to become pregnant. They can talk with you about ways to reduce these risks, like 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 seen by a high-risk pregnancy specialist.

Kidney Damage

When the radiation field includes the kidney(s), renal insufficiency (decreased kidney function) and

hypertension (high blood pressure) can happen.

- Your risk for kidney problems after radiation is higher 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, high blood pressure may be treated with medications.
- Your team will also watch your kidney function through blood testing (basic metabolic panel) and urine tests (urinalysis).
- Eating a balanced, healthy diet can support healthy blood sugar levels and help protect your kidneys from further damage.

Liver Damage

Radiation to the liver may be needed for cancer treatment but can cause damage to areas of the liver that are healthy.

- How your liver is working will be measured by a blood test (called LFTs) before and after treatment.
- Avoid drinking alcohol; it can raise the risk of liver damage.
- If you have yellowing of the eyes and/or skin (jaundice), pain or swelling in your belly, itchy skin, or dark-colored urine, call your care team. You may need to see a gastroenterologist (GI Doctor) for further evaluation.

Damage to the Spleen

The spleen is an organ in the upper abdomen (belly) that works like a filter, taking out bacteria and dead red blood cells from the bloodstream. Radiation to the spleen can cause it to not function. Damage to the spleen can mean a higher risk for certain infections caused by encapsulated bacteria (bacteria covered by a capsule). *Streptococcus pneumoniae* and *Haemophilus influenzae* type b are the most common. If your spleen doesn't work due to radiation, it is important to know:

- An infection can quickly cause sepsis (life-threatening infection) and needs to be treated with antibiotics right away. In some cases, providers may give you antibiotics to have on hand to take at the first sign of infection, even before being seen by the healthcare team. You need to report a fever (100.4° F/ 38.0°C or higher) or any sign of infection to your team right away. If you can't get in touch with your provider, go to an emergency room right away. You should tell any provider you see that you do not have a spleen.
- You should wear a medic alert bracelet noting that you do not have a working spleen (asplenia). It is important for those involved in your care to know.
- Have an annual flu vaccine as well as pneumococcal, *Haemophilus influenzae* type b (Hib), meningococcal, and hepatitis vaccines (per CDC guidelines). Talk to your provider to see if you need other vaccines, including Tdap, zoster, HPV, MMR, and varicella.
- If you are bitten by a dog, cat, or rodent, antibiotics are needed to prevent infection from *Capnocytophaga canimorsus* bacteria.

If you are traveling to an area with malaria, take medication to prevent infection with malaria and use a mosquito repellent. If you are traveling to or living near Cape Cod or Nantucket Island in Massachusetts, Southern New England, and the Hudson Valley in New York, you may be more likely to get Babesia (an infection) caused by deer ticks. If you notice you have been bitten by a tick in this area, please contact your healthcare provider as soon as possible because this can cause a serious infection.

Stomach Problems

Indigestion and heartburn can be late effects of radiation that included the stomach. You may be at risk for gastritis (irritation of the stomach wall), ulcers, and gastric outlet obstruction.

- Signs include new or worsening belly pain, frequent vomiting or heartburn, or blood in your vomit or stool. Call your care team right away if you have any of these problems.
- You may need to see a gastroenterologist (GI Doctor) to find the cause.
- If you have heartburn, your care team may prescribe medicine to lessen the amount of acid being made or to coat/protect your stomach.

Skin Changes

Radiation can lead to changes in the skin that don't go away.

- You may find new scars or changes in the color or texture of your skin. Radiation can also change the color and texture of your hair or can cause hair loss in the treated area. Your hair might never grow back.
- The soft tissue and muscles under the skin can cause scarring and/or shrinkage, which can lead to a loss of flexibility and movement or chronic swelling in the area treated.
- You may get chronic or recurring ulcers of the skin in the area treated. Blood vessels of the skin may become dilated (larger) and more visible, but this is not harmful.
- If the skin feels tight or sore, you can put vitamin E on it.
- Use fragrance and dye-free soaps and moisturizers 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 not to be 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, you should call your provider for an assessment.

Managing Late Effects

Tell your care team about any new or worsening symptoms. Some side effects need care from healthcare providers who specialize in working with cancer survivors. There are [Interdisciplinary survivorship clinics](#) at many cancer centers. If there is not a survivorship clinic near you, talk with your oncology care team about support for managing your late effects.

After treatment, talk with your oncology team about getting a survivorship care plan, which can help you in your transition to survivorship and learn about life after cancer. You can build your own survivorship care plan using the [OncoLife Survivorship Care Plan](#).

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