Lynch syndrome is an inherited condition that gives you a higher risk for colon, uterine and other cancers.

Lynch Syndrome

Cancer in Lynch Syndrome

Cancer of the colon and uterus (endometrium) are the most common cancers in Lynch syndrome. Cancer related to Lynch syndrome often happens at a younger age than usual. The average age of a colon cancer diagnosis in Lynch syndrome is 45 years old. Uterine cancer in Lynch syndrome often occurs before 50 years of age.

During their life, a person with Lynch syndrome has:

- A 40-80% chance to develop colon cancer
- A 20-60% chance to develop uterine (endometrial) cancer
- Up to 20% chance to develop other Lynch syndrome cancers

Cancers seen in Lynch syndrome:

Colon cancer
Uterine cancer
Stomach cancer
Ovarian cancer
Urothelial cancer (kidney/urinary tract)
Other GI cancers
Brain cancer
Sebaceous neoplasms

Genetics of Lynch Syndrome

Lynch syndrome is caused by a mutation (genetic change) in a cancer risk gene. The four main genes associated with Lynch syndrome are MLH1, MSH2, MSH6, and PMS2. These genes normally help fix errors that happen in our DNA (genetic code). Mutations can happen when DNA is copied to make new cells in the body. These random DNA errors can build-up until cell growth is not well controlled and can lead to cancer. When a Lynch syndrome gene has a mutation and is not working correctly, random DNA errors may build-up faster than usual.

Lynch syndrome runs in families in a dominant pattern. This means when one parent has a mutation in a Lynch syndrome gene, each child has a 50% chance to inherit the mutation. The chance to inherit a mutation is the same whether the parent with the mutation is the mother or father.

You might have a Lynch syndrome mutation if you answer "yes" to any of these statements:

- I had colon cancer before 55 years old
- I had uterine cancer before menopause
- I had colon cancer AND one of the other cancers seen in Lynch syndrome
- I had uterine AND ovarian cancer
- I had tumor testing suggestive of Lynch syndrome
- I have three or more close relatives with the type of cancers seen in Lynch syndrome
- I have a relative with a mutation in a Lynch syndrome gene

Genetic Counseling

A genetic counseling visit can help determine if your cancer history might be due to Lynch syndrome. A genetic counselor reviews your medical records, your health history, and your family history. Genetic counselors are trained in genetics and counseling. You may also meet with a medical geneticist. Medical geneticists are doctors who specialize in genetic conditions. These genetic specialists help guide you through decisions about genetic testing. If you have testing, they will explain results and arrange any follow-up care that is needed.

Genetics.kp.org

Testing for Lynch Syndrome

Tumor Testing

Tumor testing is often the first step in identifying Lynch syndrome. Tumor testing looks for changes in the tumor cells that are more likely to happen in Lynch syndrome. One common tumor test is called immunohistochemistry (IHC) testing. IHC testing looks for proteins normally made by the Lynch syndrome genes. The result from IHC testing can help determine if a tumor might be due to a mutation in one of these genes. Genetic counseling and more testing is offered when results from a tumor test show that one or more of the Lynch syndrome genes may not be working.

Genetic Testing

Genetic testing looks for mutations in cancer risk genes. Many genes can be tested at the same time using a cancer gene panel. The testing panel includes genes that are known to cause Lynch syndrome. Genetic testing usually starts with a blood sample from a person who has had cancer, not from a tumor sample.

There are three possible results you can get from genetic testing:

NEGATIVE - A negative result means that no gene mutation was found.

- When a blood relative is known to have a mutation, a negative result lets you know that you did not inherit the gene mutation that is in your family.
- When you are the first person in the family to have testing, a negative result does not give you a complete answer about your cancer risk. Genetic testing does not always find a mutation in families with Lynch syndrome. This can happen if the specific mutation is not detectable by the current test or if the mutation is on a gene that is not part of the testing panel. When the cancer history is suspicious for Lynch syndrome, there may still be an inherited risk for cancer, even with a negative result.

POSITIVE - A positive result means that a gene mutation was found that raises your risk for cancer. It does NOT mean that you will definitely get cancer, but it does mean your lifetime chance to develop cancer is higher than average.

VARIANT of UNKNOWN SIGNIFICANCE (VUS) – A VUS result means a genetic change was found, but we do not know if it causes a risk for cancer. Many variants are harmless DNA changes. A VUS result will not be used to make decisions about your medical care.

Cancer Management in Lynch Syndrome

If you are at a higher risk for cancer, you and your doctor will develop a cancer management plan that could include cancer screening at an early age or surgery to lower the risk of cancer.

- **Cancer screening -** Cancer screening helps find some cancers early or in pre-cancer stages – when they are easier to treat.
- **Risk-lowering surgery-** Not all cancers can be found by screening tests. Risk-lowering surgeries are optional procedures that are done before cancer develops.

It is important to discuss the risks and benefits of screening and surgical options with your doctor to decide on the right care plan for you.