

Burkitt's Lymphoma for the Pediatric Patient

What is Burkitt's lymphoma?

Burkitt's lymphoma is one of three types of non-Hodgkin's lymphoma. Non-Hodgkin's lymphoma is a disease in which cancer cells form in the lymph system (the tissues and organs that produce, store and carry white blood cells that fight infection and disease. The lymph system includes the bone marrow, spleen and lymph nodes.). Burkitt's lymphoma was first discovered in Africa, where it is the most common type of childhood cancer. It is a rare disease in other parts of the world, including the United States.

How is Burkitt's lymphoma in Africa different from Burkitt's lymphoma in the United States and other parts of the world?

Because it occurs so frequently in equatorial Africa (affecting 5 to 15 of every 100,000 children), the disease is known there as *endemic* Burkitt's lymphoma. In the United States and Europe, where only about 2 to 3 of every 1,000,000 children get the disease, it is often called *sporadic* Burkitt's lymphoma.

In Africa, about 95 percent of children with endemic Burkitt's lymphoma were at one time infected with the Epstein-Barr virus. The most common places in the body for the disease to start in African children are the jaw, abdomen, orbit of the eye and central nervous system.

In the United States and Europe, about 15 percent of children with sporadic Burkitt's lymphoma have had Epstein-Barr virus. Although any organ of the body may be involved, sporadic Burkitt's lymphoma tends to start in the abdomen, bone marrow, blood or serous membranes (the thin layer of tissue lining the lung or the abdominal cavity, for example). Symptoms typically include:

- Abdominal pain or swelling
- A change in bowel habits
- Nausea and vomiting
- Gastrointestinal (stomach and intestines) bleeding

Burkitt's lymphoma can grow rapidly. The tumor masses can press on other organs, causing a number of very serious complications, including:

- Airway obstruction (difficulty breathing)
- Arrhythmias (abnormal heartbeat)

- Obstruction or perforation of the bowel (preventing adequate passage of feces from the body)
- Renal tract obstruction (preventing adequate flow of urine from kidneys)
- Inferior vena cava obstruction (preventing adequate flow of blood to the heart)
- Increased intracranial pressure (build-up of fluid in the brain that can cause headaches, vision problems, nausea and/or vomiting, changes in consciousness)

How is Burkitt's lymphoma diagnosed?

In addition to blood tests, your child's doctor may do the following:

- Lymph node biopsy – a needle is used to remove tissue from a lymph node
- Chest x-ray
- Bone scan – a special kind of camera is used to scan all the bones in the body
- Bone marrow aspiration and/or biopsy – a needle is used to remove a sample of fluid from the bone marrow (aspiration) or a sample of bone marrow cells from the bone marrow (biopsy)
- Pleural fluid analysis – using a needle to take out fluid from the sac that surrounds the lungs
- Peritoneal fluid analysis – using a needle to take out fluid from the area where such organs as the stomach, liver and intestines are located
- CT scan of the neck, chest, abdomen and pelvis
- PET (Positron Emission Tomography) scan – a scan that used to determine how tissues function
- Spinal tap – fluid is removed from the spine to see if cancer cells are present in the brain or spine.

What is staging?

Staging means the extent of cancer within the body. If the cancer has spread, the stage describes how far it has spread from the original site to other parts of the body. Your child's doctor must know the stage of the disease in order to select the best treatment.

How is Burkitt's lymphoma treated?

Burkitt's lymphoma is treated with high-dose cancer-killing drugs called chemotherapy. Chemotherapy is as effective or more effective than radiation, and radiation may make it difficult for a patient to start or use chemotherapy. Therefore, chemotherapy should be the treatment of choice.

What about surgery?

Aggressive attempts to surgically remove the cancer are unnecessary and may not help extremely ill patients. If the cancer is localized to a single lymph node mass (has not spread beyond a single lymph node mass) then surgical removal may be an option. But this is not considered if the patient is extremely ill or of the removal would require extensive (major) surgery. The aim of treatment should be to use the least invasive procedure.