Metastatic Cancer: Questions and Answers

KEY POINTS

- Cancer happens when cells become abnormal and grow without control.
- Where the cancer started is called the primary cancer or the primary tumor.
- Metastatic cancer happens when cancer cells spread from the place where it started to other parts of the body.
- When cancer spreads, the metastatic cancer keeps the same type of cells and the same name as the primary tumor.
- The most common sites of metastasis are the lungs, bones, liver, and brain.
- Treatment for metastatic cancer usually depends on the type of cancer. It also depends on the size and location of the metastasis.

WHAT IS CANCER?

- Cancer is a group of many related diseases. All cancers begin in cells. Cells are the building blocks that make up tissues. Cancer that arises from organs and solid tissues is called a solid tumor. Cancer that begins in blood cells is called leukemia, multiple myeloma, or lymphoma.
- Normally, cells grow and divide to form new cells as the body needs them. When cells grow old and die, new cells take their place. Sometimes this orderly process goes wrong. New cells form when the body does not need them. Old cells do not die when they should.
- The extra cells form a mass of tissue. This is called a growth or tumor. Tumors can be either not cancerous (*benign*) or cancerous (*malignant*). Benign tumors do not spread to other parts of the body. They are rarely a threat to life. Malignant tumors can spread (*metastasize*) and may be life threatening.

WHAT IS PRIMARY CANCER?

- Cancer can begin in any organ or tissue of the body. The original tumor is called the primary cancer or primary tumor. It is usually named for the part of the body or the type of cell in which it begins.

WHAT IS METASTASIS, AND HOW DOES IT HAPPEN?

- Metastasis means the spread of cancer. Cancer cells can break away from a primary tumor and enter the bloodstream or *lymphatic system*. This is the system that produces, stores, and carries the cells that fight infections. That is how cancer cells spread to other parts of the body.
- When cancer cells spread and form a new tumor in a different organ, the new tumor is a metastatic tumor. The cells in the metastatic tumor come from the original tumor. For example, if breast cancer spreads to the lungs, the metastatic tumor in the lung is made up of cancerous breast cells. It is not made of lung cells. In this case, the disease in the lungs is metastatic breast cancer (not lung cancer). Under a microscope, metastatic breast cancer cells generally look the same as the cancer cells in the breast.

WHERE DOES CANCER SPREAD?

- Cancer cells can spread to almost any part of the body. Cancer cells frequently spread to lymph nodes (rounded masses of lymphatic tissue) near the primary tumor (regional lymph nodes). This is called lymph node involvement or regional disease. Cancer that spreads to other organs or to lymph nodes far from the primary tumor is called metastatic disease. Caregivers sometimes also call this distant disease.
- The most common sites of metastasis from solid tumors are the lungs, bones, liver, and brain. Some cancers tend to spread to certain parts of the body. For example, lung cancer often metastasizes to the brain or bones. Colon cancer often spreads to the liver. Prostate cancer tends to spread to the bones. Breast cancer commonly spreads to the bones, lungs, liver, or brain. But each of these cancers can spread to other parts of the body as well.
- Because blood cells travel throughout the body, leukemia, multiple myeloma, and lymphoma cells are usually not localized when the cancer is diagnosed. Tumor cells may be found in the blood, several lymph nodes, or other parts of the body such as the liver or bones. This type of spread is not referred to as

metastasis.

ARE THERE SYMPTOMS OF METASTATIC CANCER?

- Some people with metastatic cancer do not have symptoms. Their metastases are found by x-rays and other tests performed for other reasons.
- When symptoms of metastatic cancer occur, the type and frequency of the symptoms will depend on the size and location of the metastasis. For example, cancer that spreads to the bones is likely to cause pain and can lead to bone fractures. Cancer that spreads to the brain can cause a variety of symptoms. These include headaches, seizures, and unsteadiness. Shortness of breath may be a sign of lung involvement. Abdominal swelling or yellowing of the skin (*jaundice*) can indicate that cancer has spread to the liver.
- Sometimes a person's primary cancer is discovered only after the metastatic tumor causes symptoms. For example, a man whose prostate cancer has spread to the bones in his pelvis may have lower back pain (caused by the cancer in his bones) before he experiences any symptoms from the primary tumor in his prostate.
- How does a caregiver know whether a cancer is a primary or a metastatic tumor?
- To determine whether a tumor is primary or metastatic, a pathologist examines a sample of the tumor under a microscope. In general, cancer cells look like abnormal versions of cells in the tissue where the cancer began. Using specialized diagnostic tests, a pathologist is often able to tell where the cancer cells came from. Markers or antigens found in or on the cancer cells can indicate the primary site of the cancer.
- Metastatic cancers may be found before or at the same time as the primary tumor, or months or years later. When a new tumor is found in a patient who has been treated for cancer in the past, it is more often a metastasis than another primary tumor.

IS IT POSSIBLE TO HAVE A METASTATIC TUMOR WITHOUT HAVING A PRIMARY CANCER?

- No. A metastatic tumor always starts from cancer cells in another part of the body. In most cases, when a metastatic tumor is found first, the primary tumor can be found. The search for the primary tumor may involve lab tests, x-rays, and other procedures. But in a small number of cases, a metastatic tumor is diagnosed but the primary tumor cannot be found, in spite of extensive tests. The pathologist knows the tumor is metastatic because the cells are not like those in the organ or tissue in which the tumor is found. The primary tumor is called unknown or hidden (*occult*). The patient is said to have cancer of unknown primary origin (CUP). Because diagnostic techniques are constantly improving, the number of cases of CUP is going down.

WHAT TREATMENTS ARE USED FOR METASTATIC CANCER?

- When cancer has metastasized, it may be treated with:
  - Chemotherapy.
  - Radiation therapy.
  - Biological therapy.
  - Hormone therapy.
  - Surgery.
  - Cryosurgery.
  - A combination of these.
- The choice of treatment generally depends on the:
  - Type of primary cancer.
  - Size and location of the metastasis.
  - Patient's age and general health.
  - Types of treatments the patient has had in the past.

In patients with CUP, it is possible to treat the disease even though the primary tumor has not been located. The goal of treatment may be to control the cancer, or to relieve symptoms or side effects of treatment.

ARE NEW TREATMENTS FOR METASTATIC CANCER BEING DEVELOPED?

- Yes, many new cancer treatments are under study. To develop new treatments, the NCI sponsors clinical trials (research studies) with cancer patients in many hospitals, universities, medical schools, and cancer centers around the country. Clinical trials are a critical step in the improvement of treatment. Before any new treatment can be recommended for general use, doctors conduct studies to find out whether the

treatment is both safe for patients and effective against the disease. The results of such studies have led to progress not only in the treatment of cancer, but in the detection, diagnosis, and prevention of the disease as well. Patients interested in taking part in a clinical trial should talk with their caregivers.

RELATED RESOURCES

National Cancer Institute (NCI) Resources
Cancer Information Service (toll-free)
Telephone: 18004CANCER (1 800 422-6237)
Online
NCI's Web site: http://www.cancer.gov
NCI's online assistance: https://cis.nci.nih.gov/

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