COLORECTAL CANCER STAGING—WHAT IS IT? WHY IS IT NEEDED?

The first two questions that most people ask their doctor upon learning they have cancer are:

- What is my outlook for recovery and survival (prognosis)?
- What treatment should I have?

In answering these questions, doctors start by considering the kind of cancer you have (for example, lung cancer, colon cancer, skin cancer) and how advanced the cancer is. Staging is the process of finding out how much cancer there is in your body and where it is located. Your doctor needs this information to predict the course your disease is likely to take and to plan the best treatment for you.

THE TNM STAGING SYSTEM

The TNM staging system is a standardized way for doctors to describe how far a cancer has spread. An organization called the American Joint Committee on Cancer (AJCC for short) holds conferences of experts on each cancer type. These experts review information from medical research studies and agree on which features for each cancer type best predict prognosis and the likely response to treatment. Although the details of staging systems for each cancer type are a little different, their main concepts are the same. With a few rare exceptions (such as leukemia and brain tumors) the staging system for every type of cancer is based on:

- Its T category: How widely a cancer has spread within the organ it started in and whether or not the cancer has grown into other nearby organs and tissues.
- Its N category: Whether or not the cancer has spread to the nearby lymph nodes (small bean-sized collections of immune system cells).
- Its M category: Whether or not the cancer has metastasized (spread) to distant areas of the body.

ABOUT THE COLON AND RECTUM

The large intestine is a muscular tube about 5 feet long. The colon is the first and major part of the large bowel; the final 6 inches of the large bowel is called the rectum. Both the colon and rectum are formed by several layers. These layers, from the inner to the outer, include:

- The mucosa (the lining) which has several layers, including a thin muscle called the muscularis mucosae.
- The submucosa (fibrous tissue beneath this muscle layer).
• The muscularis propria (a thick layer of muscle that contracts to force the contents of the intestines along).
• The subserosa (a thin layer of connective tissue).
• The serosa (a thin outer layer of connective tissue).

T categories of colorectal cancer describe the extent of spread through the layers of the colon and rectum.

• T<sub>x</sub>: No description of the tumor’s extent is possible because of incomplete information.
• T<sub>i</sub>: The cancer is in the earliest stage. It has not grown beyond the mucosa (inner layer) of the colon or rectum. This stage is also known as carcinoma in situ or intramucosal carcinoma.
• T<sub>1</sub>: The cancer has grown through the mucosa and extends into the submucosa.
• T<sub>2</sub>: The cancer has grown through the submucosa and extends into the muscularis propria.
• T<sub>3</sub>: The cancer has grown completely through the muscularis propria into the subserosa but not to any nearby organs or tissues.
• T<sub>4</sub>: The cancer has spread completely through the wall of the colon or rectum into nearby tissues or organs.

N categories indicate whether or not the cancer has spread to nearby lymph nodes and, if so, how many lymph nodes are involved.
• N<sub>x</sub>: No description of lymph node involvement is possible because of incomplete information.
• N<sub>0</sub>: No lymph node involvement is found.
• N<sub>1</sub>: Cancer cells found in 1 to 3 regional lymph nodes.
- **N2**: Cancer cells found in 4 or more regional lymph nodes.

- **M** categories indicate whether or not the cancer has spread to distant organs, such as the liver, lungs, or lymph nodes farther away.
  - **Mx**: No description of distant spread is possible because of incomplete information.
  - **M0**: No distant spread is seen.
  - **M1**: Distant spread is present.

**Stage Grouping**

Once a patient’s T, N, and M categories have been determined, usually after surgery, this information is combined in a process called *stage grouping* to determine the stage, expressed in Roman numerals from stage 0 (the least advanced stage) to stage IV (the most advanced stage). The following guide shows how TNM categories are grouped together into stages.

- **Stage 0 (Tis, N0, M0)**: The cancer is in the earliest stage. It has not grown beyond the inner layer (mucosa) of the colon or rectum. This stage is also known as *carcinoma in situ* or intramucosal carcinoma.
- **Stage I (T1, N0, M0, or T2, N0, M0)**: The cancer has grown through the mucosa into the submucosa or it may also have grown into the muscularis propria, but it has not spread into nearby lymph nodes or distant sites.
- **Stage IIA (T3, N0, M0)**: The cancer has grown through the wall of the colon or rectum into the outermost layers. It has not yet spread to the nearby lymph nodes or distant sites.
- **Stage IIB (T4, N0, M0)**: The cancer has grown through the wall of the colon or rectum or into other nearby tissues or organs. It has not yet spread to the nearby lymph nodes or distant sites.
- **Stage IIIA (T1−2, N1, M0)**: The cancer has grown through the mucosa into the submucosa or it may also have grown into the muscularis propria, and it has spread to one to three nearby lymph nodes but not distant sites.
- **Stage IIIB (T3−4, N1, M0)**: The cancer has grown through the wall of the colon or rectum or into other nearby tissues or organs and has spread to one to three nearby lymph nodes but not distant sites.
- **Stage IIIC (Any T, N2, M0)**: The cancer can be any T category but has spread to four or more nearby lymph nodes but not distant sites.
• **Stage IV (Any T, Any N, M1):** The cancer can be any T, any N, but has spread to distant sites such as the liver, lung, peritoneum (the membrane lining the abdominal cavity), or ovary.

**DOES YOUR STAGE EVER CHANGE?**

Staging information is collected at the time of diagnosis and initial treatment, and the stage assigned at that time never changes. For example, if lymph nodes from an N1 cancer are removed, the cancer is *not* restaged as N0. If liver metastases become apparent years after a patient is treated for an M0 cancer, the cancer is not reclassified as M1.

This is not to say that doctors don’t pay attention to whether your cancer shrinks, disappears, or continues to grow. Doctors observe these changes very carefully and base their treatment plans on these observations. However, these changes do not change your stage.

Although surgery is the first treatment for most people with colorectal cancer, some (especially those with rectal cancer) may receive radiation and/or chemotherapy before having surgery. The stage of a cancer after radiation and/or chemotherapy is important information for the doctor to know in considering a patient’s prognosis and treatment choices. But radiation and/or chemotherapy are expected to shrink the tumor before surgery, so the stage of the cancer when it’s finally removed does not really reflect its extent before treatment started. For this reason, a note is added that alerts other doctors that surgery was not the first treatment in these cases. © *American Cancer Society, Inc.*, 2004.