The Pathology Report

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After a biopsy is taken the physician who performed the biopsy sends the specimen to a pathologist. The pathologist examines the specimens at both the macroscopic (visible with the naked eye) and microscopic (requiring magnification) levels and then send a pathology report to the physician. The report contains information about the tissue's appearance, cellular make up, and state of disease or normalcy. The pathology report is vital to the treating physician and the patient, as treatment decisions and options are made based on the information the report contains.

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Watch a video on breast cancer pathhology

Gross or Macroscopic Report

The first component of a pathology report is the gross or macroscopic report. This report includes the general appearance of the biopsy. Often times the pathologist will state the site from which the biopsy was taken. Also included is the shape of the tumor in question and whether or not it appears to have well-defined borders. In this section the size of the biopsy is given. Usually both the diameter or length and the weight of the specimen are given. All dimensions or size identifiers are given using the metric system of measurement. This means that lengths or diameters are given in centimeters and weights are given in grams.

NOTE: There are approximately 2.5 cm in 1 inch and 454 grams in 1 pound.

Microscopic Report

The second section of the pathology report is the microscopic report. This portion contains information and descriptions that the pathologist attains by looking under the microscope. This more technical language describes the biopsy on a cellular level. Atypical is a term used to describe cells that appear to be abnormal when examined. Several factors can define varying levels of atypia. An atypical cell often has a nucleus that is larger than usual and contains a larger amount of chromatin than is normal. Pathologists also will check the mitotic rate of the cells, which is an indication of how quickly they are multiplying. Differentiation is a term used to describe how specialized a cell is to perform a specific job in a certain tissue. The less differentiated the cell is, the more atypical it is said to be. Also, of concern in the microscopic report is whether or not it appears that all abnormal cells were

removed from the biopsy site. To do so the pathologist uses the microscope to look at the borders of the biopsy. If there is a border of normal cells around the abnormal cells then the biopsy is said to have clear margins and it is assumed that all atypical cells were removed. If however there appears to be abnormal cells that lie at the edge of the removed tissue then the margins are not clear and the pathology report would contain further instruction to your physician. It would include specific information about regions that should receive further treatment, such as, additional surgery or other treatment. More on surgery and 'margins'.

Diagnosis
Normally a pathology report includes one last section, the diagnosis. In this portion the pathologist would give a technical diagnosis that would indicate whether the biopsy is benign or malignant. If it is determined that the biopsy is benign then the pathologist would most likely give insight into what level of risk the removed tissue presents to the patient's health in the future and the likeliness that this or other tumors like it would develop into more harmful malignant tumors. If it is determined that the biopsy contains malignant tissue then the pathologist would provide an indication of the cancer's severity based on findings presented in other sections of the report.

In some cases, an additional "comments" section might conclude the report that would list any other testing to be done on the biopsy and any other tests that still have incomplete results. Cancers of some organs are associated with additional specific tests. These additional tests would be included in the report.1, 2

FAQ Cancer Pathology

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What is pathology?

Pathology is a branch of medicine that studies the cause and nature of disease. In breast cancer pathology, a pathologist examines tissue samples obtained by biopsy or surgery.

How do pathologists get their samples?

In breast cancer pathology samples are taken from breast lesions by means of biopsy or surgery. The types of biopsy used for breast cancer are fine needle aspiration (FNA), core needle biopsy, and excision biopsy.

What do pathologists do with the samples they get?

When a pathologist gets a sample they chemically preserve the tissue and process it for examination. After processing the pathologist examines the sample with a microscope. Different stains are used to reveal important characteristics of the sample.

How do pathologists stage a tumor?

Pathologists use a variety of techniques to determine the stage of a tumor. Pathologists study the characteristics of cancer cells as well as the overall structure of the sample. Pathologists determine the mitotic index (how many of the cells are dividing) and the histologic 'grade', a measure of how abnormal the cells appear. One system used to stage some cancer types tumor is the TNM method, which stands for:

- **T**umor - the size of the tumor
- Lymph **N**odes - whether the cancer has spread to regional lymph nodes
- **M**etastasis - whether or not cancer has spread to other parts of the body

Learn more about cancer staging on our page dedicated to that topic.

What is immunohistochemistry (IHC)?

Immunohistochemistry is a technique used to determine the presence and level of specific cellular proteins. IHC measures **protein levels** using specially labeled antibodies that can bind to the proteins of interest. Samples with more protein will bind more antibody and give a stronger signal (stain). This allows the test to reveal not only whether a protein is present but also the relative amount of the protein. Test results are based on the strength of the staining and the percent of cells stained.

What is fluorescence *in situ* hybridization (FISH)?

FISH is a technique that measures gene amplification and chromosomal abnormalities using fluorescently labeled DNA probes. The fluorescently labeled DNA matches certain regions of DNA and when the matching regions come in contact they bind with each other. Presence of the stuck probe marks the areas of interest. The amount and location of the of bound probe are then analyzed to identify genes that have been copied abnormally or altered in some major way.

Know the Flow: Pathology

Know the Flow is an interactive game for you to test your knowledge. To play:

- Drag the appropriate choices from the column on the right and place them in order in the boxes on the left. Note that you will only use five of the six choices to complete the game.
- When done, click on 'Check' to see how many you got correct.
- For incorrect answers, click on 'Description' to review information about the processes.
- To try again, choose 'Reset' and start over.

Know the Flow: Pathology
Processes in order

- 1
- 2
- 3
- 4
- 5

Processes

- Learn more
  Biopsy
- Learn more
  The Pathology Report: Macroscopic Report
- Learn more
  The Pathology Report : Microscopic Report
- Learn more
  The Pathology Report: Diagnosis
- Learn more
  Cancer Staging
- Learn more
  The Pathology Report: Differentiation

Check answers 重設

You did it!
The process is in the correct order!

Play again

This game does not currently fit on this width of screen.
Please visit us on a larger screen to play this game.

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1 College of American Pathologists [http://www.cap.org/]
2 The Biopsy Report: A Patient's Guide [http://www.cancerguide.org/pathology.html]