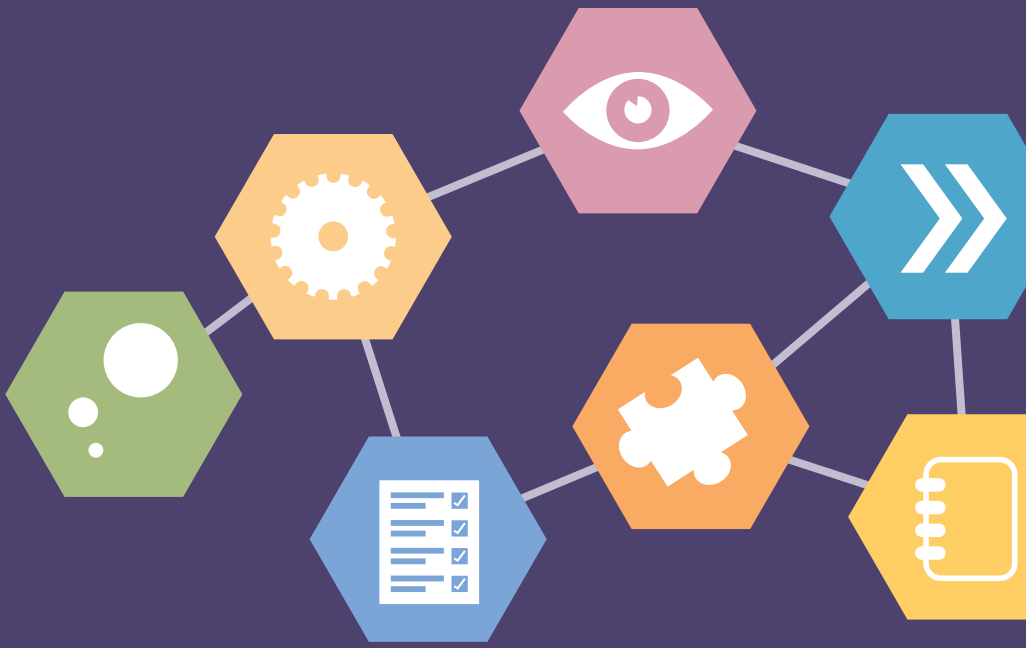
What does my pathology report mean?



For more information on anything covered in this booklet talk to your specialist, doctor or nurse, or visit www.cancertreatments.co.nz

CONTENTS

Introduction

Understanding your Breast Cancer

Introduction

Making sense of it all

The process of diagnosis can take weeks and involve many different types of tests. Waiting for results can cause anxiety but when you receive and understand your pathology report, you and your doctors are better placed to make important decisions about the way to move forward.

Remember: Your pathology report contains information about your cancer. No matter what the report says there may be many options available to treat your type of cancer.

Understanding your pathology report

For a number of reasons it can be a bit daunting reading a pathology report. Many of the words may be complicated and difficult to understand. Often different words can be used to describe the same thing. On page 15 you'll find a glossary to help you understand many of the terms commonly used in pathology reports. Remember, if you are still unsure what certain words mean, be sure to ask your doctor.

Why your pathology report is important

A pathology report is a report that is written when a tissue sample is removed from the body to check for cancer. The sample may come from a biopsy or be from a section of the tissue removed during surgery. The information in these reports is important as it helps you and your doctor to understand your type of cancer. A pathology report is the first step for you and your doctor to work out the best treatment for you.

Talk to your doctor

To reduce your anxiety and stress it is important to get the most from visits to your doctor. Ideally your doctor will answer your questions and give you as much or as little information as you feel comfortable with. Try to prepare for your appointment, and don't be afraid to ask the questions you want answered. Another good idea is to write down questions to take with you to the appointment.

Introduction

Before you make a decision, get all the facts

It is important that you are comfortable with the treatment path you take. The best way for this to happen is to make sure you have all the information and test results you need before you make a final decision about your treatment. You need to be patient, it takes time to put all the results together and some tests take longer than others. Not all tests are done by the same lab. Your doctor can let you know when the results of tests come in. If you don't hear from your doctor, give them or your breast care nurse a call.

Reading your pathology report

1. At the top of pathology reports you will likely find details including your name, NHI number, date of birth, date of your operation and the type of operation you had. Check the details to ensure they are correct.

2. When you have an operation, you may receive more than one pathology report. This is because after looking at your cancer cells, the pathologist may decide they need to do some extra tests.

3. It is important to keep all your pathology reports together. When you go to see your doctor, you may need to take your pathology reports with you.

Introduction

Understanding different parts of your report

To best understand your report, it is important to understand each section of the report, and the type of information contained in each section. The information below outlines sections commonly included in a pathology report.

Clinical history/information. This is a short description of you, how the breast abnormality was found and the kind of surgery that was performed.

Specimen. Describes the tissue sample. Tissue samples could have been taken from the breast, the lymph nodes under your arm (axillary or sentinel), or all three.

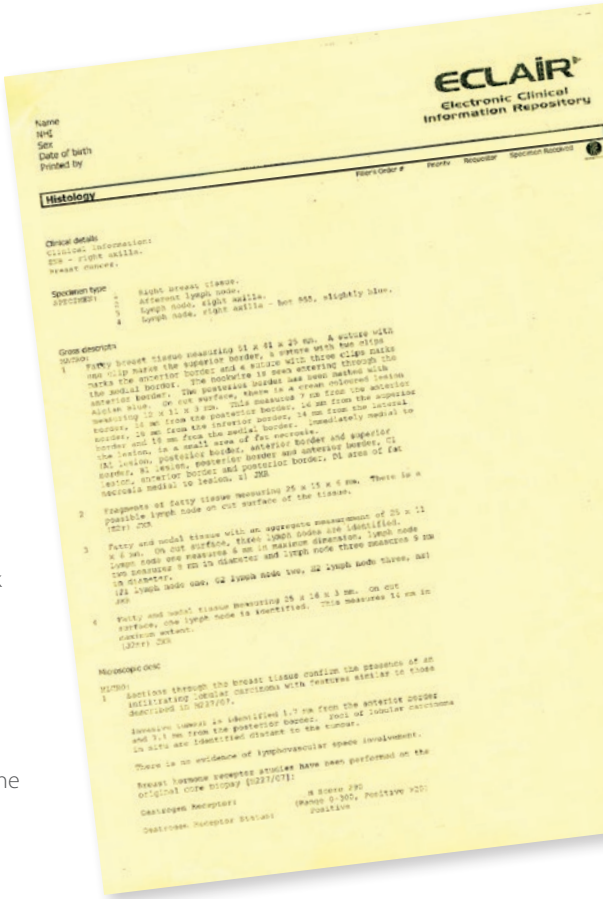
Clinical diagnosis. This refers to the initial diagnosis determined by the doctor before your tissue sample was tested.

Gross description (Macro). Describes the specimen; more specifically the size, weight, and the appearance to the naked eye.

Microscopic description (Micro). This refers to the way the tumour cells look under the microscope. This may include results of special tests.

Special tests or markers. These tell us what receptors are present on the surface of the tumour cell, which helps to determine how the cells will behave.

Summary or final diagnosis. This is the short description of all the important findings in each tissue sample.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Electronic Clinical Information Repository
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Histology

Understanding your breast cancer

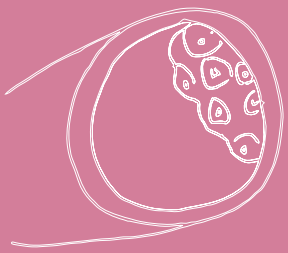
1. Is your tumour cancer?

A tumour is a growth of abnormal cells. This growth can be either benign (non-spreading) or malignant (spreading).

2. Is your tumour

In Situ (Non-invasive)?

Non-invasive cancers stay within the borders of the breast structure where they originated (milk ducts or milk lobules) and have not grown into the surrounding breast tissue. Non-invasive cancers are called in situ carcinomas (tumours that remain in the original site).



Invasive?

This means the cancer has grown beyond the confined breast structure where it started. Sometimes cancer cells can also spread to other parts of the body through the blood or lymph system. This is called metastatic breast cancer.

3. Understanding tumour types

There are various 3 and 4 letter abbreviations to describe different types of tumours. These types are distinguished by their appearances and growth pattern under the microscope.

Non Invasive

DCIS (Ductal Carcinoma In Situ)

The cancer cells remain confined to the ducts.

LCIS (Lobular Carcinoma In Situ)

At present, this is not regarded as cancer, but is a marker of increased risk of developing cancer in both breasts.

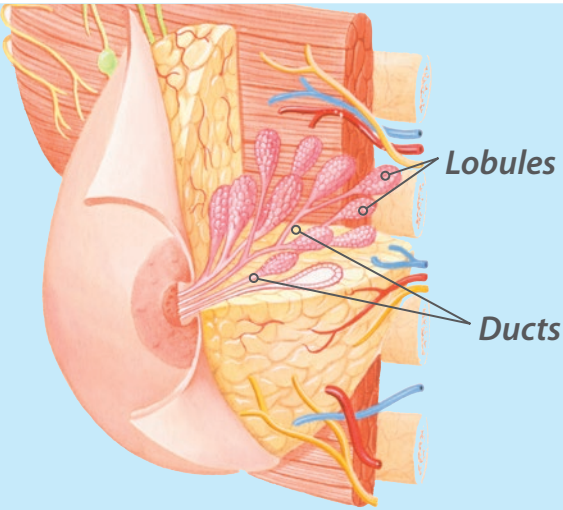
Invasive

Ductal Carcinoma

This is the most common type of invasive breast cancer.

Lobular Carcinoma

This is the second most common type of invasive breast cancer.



The type of cancer I have is

Understanding your breast cancer

4. Grades of cancer

Pathologists look at cancers under the microscope to see how the cells look compared to normal cells.

Grade 1 Well Differentiated:

Grade 1 cancer cells are usually slow growing and still resemble normal cells.

Grade 2 Moderately Differentiated:

Grade 2 cancer cells look less like normal cells and tend to grow faster.

Grade 3 Poorly Differentiated/ Undifferentiated:

Grade 3 cancer cells are usually fast growing and do not resemble normal cells.

The grade of my cancer is:
(tick one)

☐ Grade 1 ☐ Grade 2 ☐ Grade 3

5. Grades of DCIS

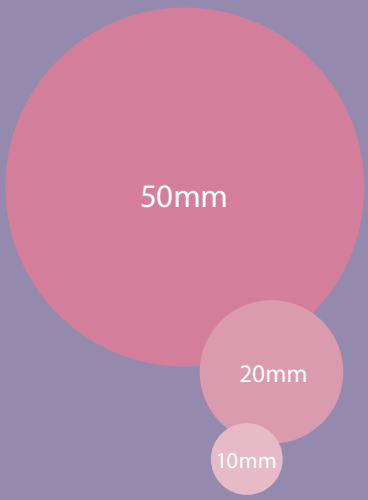
DCIS is graded differently to invasive cancers. DCIS will typically be classified as low, intermediate or high grade.

The grade of my DCIS is:
(tick one)

☐ Low ☐ Intermediate ☐ High

6. What size is your cancer?

Cancers are measured in millimetres (mm). The size of the tumour is one factor that can help doctors to determine what stage your cancer is, however other factors can also contribute to final diagnosis.



My report says: The size of the cancer I have is:

_____ mm

7. Has all of your cancer been removed?

When removing cancer from the breast, the surgeon will take out the tumour as well as an area of normal tissue surrounding the tumour.

This "extra" tissue is to try and ensure all the cancer cells have been removed and is known as the "margin".

The doctor or pathologist will carefully examine the tumour tissue and "margin" to ensure they have removed all of the cancer cells.

My report says the cancer is:
(tick one)

- ☐ Clear
- ☐ Positive
- ☐ Close

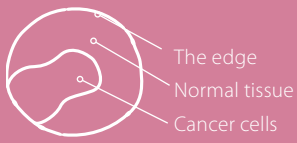
Margins around a cancer are described in three ways:

Clear (Negative)

The area of tissue around the removed tumour is free of cancer cells.

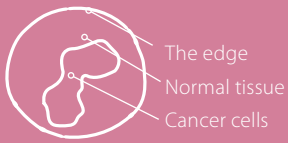
Positive (Transected)

Tissue (or margin) around the removed tumour contains cancer cells that spread right to the edge of the normal tissue that has been removed. More treatment will be needed.



Close:

Tissue (or margin) around the removed tumour contains cancer cells that are close to the edge of the normal tissue that has been removed. More treatment will most likely be needed.



8. Do you have cancer cells in your blood or lymph vessels?

The breast has a system of blood vessels and lymphatic vessels that connect breast tissue to other parts of the body. These vessels carry nutrients and remove waste products from tissue. The lymph vessels connect to lymph nodes. The underarm area contains many lymph nodes and cancer may spread to these nodes. This is discussed further in section 9.

The term "lymphatic involvement" is used when cancer cells have spread from the place where they started to the surrounding lymph and blood vessels.

This is the way in which cancer cells may travel to other areas of the body.

The presence or absence of cancer cells in these vessels is one of the factors your doctor will look at when deciding whether you require further treatment after surgery. Depending on the level of lymphatic involvement you have, your doctor may recommend treatment to your whole body (systemic treatment such as chemotherapy), rather than local treatment, that just treats the breast area (such as radiotherapy).

Depending on where you are, your test result will look like one of these:
LVI (Lymphatic vascular invasion),
VSI (Vascular space invasion).

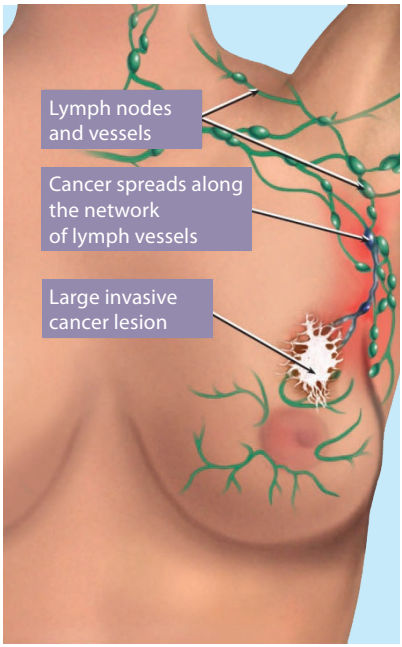
My report says lymphatic or vascular invasion is:
(tick one)

☐ Present ☐ Absent

9. Do you have cancer cells in your lymph nodes?

An important factor in staging cancer and determining treatment options is establishing whether cancer cells are present in your lymph nodes. Lymph node involvement can be associated with an increased risk of the cancer spreading. Your doctor will establish if you have lymph node involvement by either removing a sentinel node or performing an axillary clearance.

If there is no evidence of cancer your report will state that your nodes are free or clear of cancer and these test results are called node negative. If there is evidence of cancer in your lymph nodes your test result will state that your cancer is node positive.



My report says my lymph nodes are:
(tick one)

☐ Positive ☐ Negative

10. How many lymph nodes are involved?

The more lymph nodes that have cancer cells in them, the higher the risk of the cancer cells spreading to other parts of the body. For this reason, doctors will often make treatment decisions based on the number of lymph nodes affected.

If my report says my lymph nodes are positive:

The number of involved nodes is:

11. Are your cancer cells hormone receptor positive?

Hormone receptors are like little switches on breast cells that are activated by signals from hormones. These signals trigger growth in the breast cells that have these receptors.

A cancer is called "ER-positive" if it has receptors for the hormone oestrogen (ER). It is called "PR-positive" if it has receptors for the hormone progesterone (PR). Breast cells that do not have receptors are "negative" for these hormones.

Breast cancers that are either ER-positive or PR-positive, or both, are often treated with hormone therapy. If the cancer has no hormone receptors, there are other effective treatments available.

12. Understanding hormone receptor status

The results of your hormone receptor test may be presented in different ways including a number between a range, a percentage, or simply as positive or negative. Typically the words "positive" or "negative" tell you if your cancer is likely or unlikely to respond to hormone therapy.

Your doctor will be able to advise you whether hormone therapy will be right for you.

My report says hormone receptors are:
(tick two)

- ☐ ER-positive
- ☐ ER-negative
- ☐ PR-positive
- ☐ PR-negative

13. Understanding HER2 status

HER2 status (also called HER2/neu).

HER2 is a growth factor that is found on the surface of cells and plays a role in controlling how cells grow and divide.

The HER2 gene directs the production of special proteins, called HER2 receptors. It is these HER2 receptors that are found on the surfaces of cells.

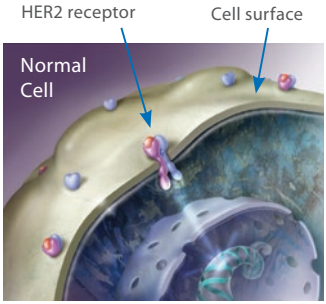
About 1 in 4 breast cancers are HER2-positive, meaning the cells have a large number of HER2 receptors.

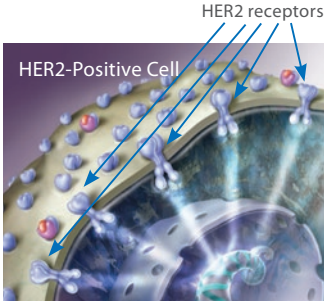
Cancers with too many copies of the HER2 gene or too many HER2 receptors tend to grow quickly and are thought to be more aggressive.

HER2-positive cancers may respond to treatments that work against HER2. This kind of treatment is called anti-HER2 antibody therapy and your treatment options may depend on the stage of your cancer (see page 12 for more information on stages of breast cancer).

For more information on HER2 treatments go to www.cancertreatments.co.nz

Your doctor will advise you whether these treatments are suitable for you.





The HER2 status reported for my cancer is:
(tick one)

- ☐ Positive
- ☐ Negative

The test/s used to identify this were:
(tick one or both)

- ☐ Immunohistochemistry (IHC)
- ☐ Fluorescence in situ hybridisation (FISH)

There are two tests for HER2:

IHC test

IHC stands for ImmunoHistoChemistry

- measures the number of HER2 receptor proteins found on the cancer cells
- results can be 0 (negative), 1+ (negative), 2+ (equivocal), or 3+ (positive)

FISH test

FISH stands for Fluorescence In Situ Hybridisation

- measures the number of copies of the HER2 gene inside the cancer cells
- results can be "positive" (extra copies) or "negative" (normal number of copies)

It's important to know which of the above HER2 tests has been tested on your cancer.

Only cancers that test IHC "3+" or FISH "positive" may respond to a specific HER2 targeted treatment.

An IHC 2+ test result is called equivocal. If you have a 2+ result, the tissue sample should be re-tested using the FISH test. This happens routinely in most New Zealand cancer centres but if you are not sure ask your doctor or nurse whether this test is right for you.

14. The stages of breast cancer

Once breast cancer has been diagnosed, your doctors will stage your cancer based on information obtained from test results. This staging helps them work out the best treatment plan for you.

Internationally, there are four stages of cancer. Stage 0-III is considered to be early breast cancer. Stage IV is termed metastatic.

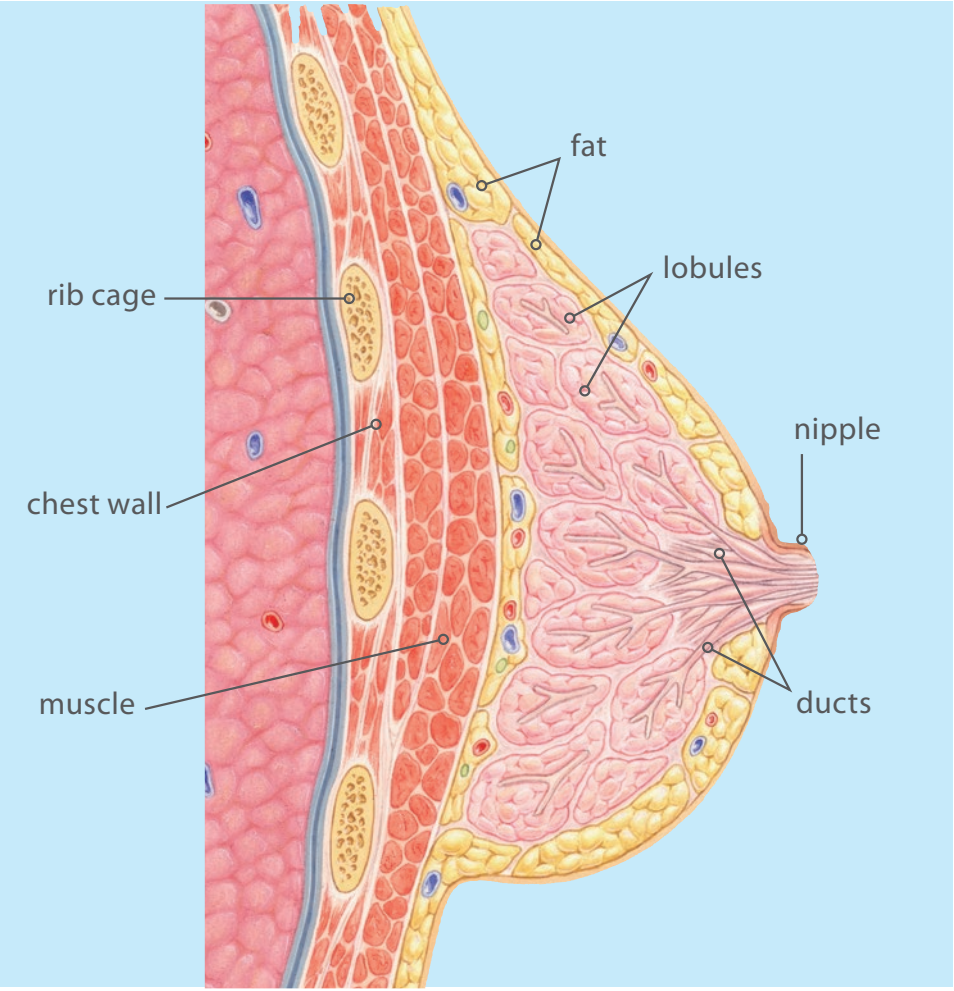
In New Zealand, cancer is typically staged using a system called TNM (Tumour, Nodes, Metastases):

- Tumour describes the size of the tumour.
- Nodes describes the presence/absence of cancer cells in the lymph nodes and, if positive, the number involved.
- Metastases describes the presence or absence of distant metastatic disease.

The staging is initially done by a pathologist, and this is denoted by a little 'p'. The oncologists will then do a clinical staging based on your pathology report and other test results. This is the final staging on which your treatment plan will be based.

Understanding your breast cancer

What the inside of the breast looks like



The TNM staging reported for my cancer is:

T N M

QUESTIONS TO ASK YOUR DOCTOR

Below are some questions that may be useful to ask your doctor:

1. Has my cancer spread to my lymph nodes? If so, how many nodes are involved?
2. What did the hormone receptor test show?
3. Were the margins negative, close, or positive?
4. Was the HER2 test positive or negative?
5. What other lab tests were done on the tumour tissue?
6. What did these tests show?
7. Is any further surgery recommended based on these results?
8. What types of treatment are most likely to work for my specific cancer?

Glossary of terms

Abnormal cells: cells that have changed appearance and behave differently from the healthy cells of the body.

Advanced (metastatic) breast cancer: when cancer cells have spread to other parts of the body.

Anti-HER2 therapy: a medicine used to treat a certain type of breast cancer known as HER2 positive.

Axillary clearance: Removal of multiple lymph nodes under your arm.

Axillary lymph nodes: lymph nodes under your arms.

Benign: not cancerous.

Biopsy: an operation in which a sample of tissue is removed. If cancer is suspected, a biopsy is performed to check if the tumour is in fact, cancer.

C-erbB-2: means the same as HER2.

Clear margins: the area of tissue around the removed tumour that is free of cancer cells.

Close margin: tissue around the removed tumour contains cancer cells that are close to the edge of the normal tissue.

Ducts: tiny tubes in the breast through which milk flows to the nipple.

Ductal Carcinoma: an invasive cancer that begins in the milk duct but the cancer cells also grow into the surrounding normal tissue within the breast. This is the most common type of breast cancer.

Ductal Carcinoma In Situ (DCIS): a non-invasive cancer that is confined to the milk ducts.

Early breast cancer: cancer has not spread outside the breast tissue or the lymph nodes in the armpit.

ER-negative: a cancer that does not have oestrogen receptors.

ER-positive: a cancer that does have oestrogen receptors.

Excision: The surgical removal of tissue.

FISH (Fluorescence In Situ Hybridisation) test: a test used to determine whether abnormal amounts of the HER2 gene are present.

Gene: located in the nucleus of each of the body's cells and responsible for the control of growth and development of new cells.

Grade: indicates how different/abnormal the tumour cells are compared to normal cells.

HER2: a growth factor that is found on the surface of cells and plays a role in normal cell growth and division.

HER2 positive: a type of breast cancer where there are too many HER2 genes or receptors. This causes the cell to grow and divide more rapidly than it otherwise would.

HER2-negative: breast cancer cells have a normal number of copies of the HER2 gene. The cell doesn't grow and divide more rapidly than normal.

Hormone receptors: receptors on the cell surface that hormones attach to so that they can exert their effect.

IHC (immunohistochemistry) test: a test used to determine if HER2 receptor proteins are overexpressed.

Lapatinib: a medicine which works by targeting specific sites in HER2-positive cancer cells.

Lobular Carcinoma: an invasive cancer that begins in the milk-making part (lobules) of the breast, but grows into the surrounding normal tissue within the breast.

LCIS (Lobular Carcinoma In Situ): a cancer that is not invasive. The cancer cells stay inside the lobules.

Lymphatic invasion: when cancer cells have spread from the place where they started to the lymphatic vessels or nodes.

Lymph nodes: filters situated along the lymphatic vessels, that catch and trap cells that are foreign (such as cancer cells or bacteria) before they reach other parts of the body.

Malignant: Cells that demonstrate the potential for uncontrolled growth.

Margins: the area of normal tissue that surrounds the removed tumour.

Metastatic (spreading) breast cancer: see Advanced breast cancer.

Lobules: milk-making glands in the breast.

Pathologist: a specialist who examines cells at a microscopic level.

Positive margin: tissue (or margin) around the removed tumour contains cancer cells that spread right to the edge of the normal tissue that has been removed. More surgery may be needed.

PR-negative: no progesterone receptors are present on the cancer cells.

PR-positive: progesterone receptors are present on the cancer cells.

Sentinel Node: the first lymph node that a tumour drains into through the lymphatic system.

Sentinel Node Biopsy: Removal of the sentinel node to check if a full axillary clearance is required.

Transected: Postive Margin.

Vascular invasion: when cancer cells have spread from the place where they started to the blood vessels.

Notes/Questions I want to ask

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