**Breast Pathology**

**Overview and Approach**

**What is the breast?**

* Modified skin appendage (sweat gland) –
	+ Terminal duct lobular unit – small ducts and lobules lined by specialized bilayered epithelium
		- Myoepithelial – outer, against basement membrane
		- Epithelial- inner – facing lumen – many epithelial proliferations and neoplasms arise from this
	+ Specialised intralobular stroma
		- Can become neoplastic and induce proliferation of epithelial cells too 🡪 develop fibroepithelial neoplasms (eg. fibroadenoma, phyllodes tumour)
	+ These two components are hormonally responsive and may undergo morphologcal changes during various parts of the menstrual cycle, as well as during lactation

Large ducts and lactiferous ducts – larger ducts also lined by bilayered epithelium, the latter open into the nipple. Benign, in-situ and malignant neoplasms can also arise from these (may cause bloody nipple discharge)

**Functions of the breast**

* Produce milk and nourishment for offspring
* Provide immunological source of protection for offspring

**Important clinical considerations**

* As breast cancer is the commonest malignancy in women, one of the key questions when approaching a female patient with a breast complaint is: **Is this malignant?**
* Even benign lesions (eg. benign epithelial proliferations) may carry an increased **risk of malignancy**, so these need to be followed-up
* Family history and past history are very important when evaluating a patient for possible breast malignancy
* The **triple test**– a combination of clinical evaluation (History and physical examination); diagnostic imaging and tissue biopsy, is the mainstay of the diagnostic approach to breast cancer.

**Main disease categories**

1. **Inflammatory/Infectious**
2. **Traumatic**
3. **Benign epithelial lesions**
* Arise from TDLU, some have increased risk of malignancy
* These are subdivided into Proliferative vs Non-proliferative lesions; with or without atypia
1. **Neoplasms**
* Benign vs Malignant (in-situ vs invasive)
* Which component do they arise from – epithelium or stroma?
* These are often picked up early because of our National Breast Screening Programme
1. **Developmental disorders**
2. **Hormone related conditions**(eg. gynaecomastia in males)

**Mindmaps;**

<http://blog.nus.edu.sg/pathotest2/breast-pathology/ii-main-diseases-of-the-breast/>

I. Overview of conditions of the breast

II. Neoplasms of the breast:

**Clinicopathologic Correlations**

Refer to the table on the next page for examples of conditions and their clinical features.

Another very important clinical presentation is the **asymptomatic patient with imaging abnormalities from breast screening.**

* Why screen? – Detect smaller (earlier) lesions – threshold size for detection is around 1cm (compared to palpation which is around 2cm)
* 2 main parameters evaluated:

1. Densities

2. Calcifications (worrying: small, irregular, numerous, clustered; linear branching (DCIS))

Don’t forget **Systemic symptoms**too, which can occur in advanced disseminated malignancy; or infections, as well as hormonal or developmental conditions.

**Mindmap:** Main clinical presentations

<http://blog.nus.edu.sg/pathotest2/breast-pathology/iii-clinicopathologic-correlation/>

Figure out the underlying pathology for each lemon:

<https://blog.nus.edu.sg/pathotest2/files/2017/01/knowyourlemonsdotcom-12signs-29d918y.png>

**Talking POTS and Slides**

<http://blog.nus.edu.sg/pathotest2/breast-pathology/iv-talking-pots-and-slides/>

**Quiz**

<http://blog.nus.edu.sg/pathotest2/breast-pathology/v-breast-pathology-quiz/>

**Real Life Case Example**

See how a team of doctors manages a patient with a breast lump. At each step, think about what your role would be if you were the GP, or the medical officer in the specialist clinic

<http://blog.nus.edu.sg/pathotest2/real-life-case-a-breast-mass/>

**Table on Clinicopathologic Correlations**