What is Breast Cancer?
What is cancer?
Cells

- Every part of the body is made of up of “cells”
- Like bricks of a wall
- Microscopic
Growth

Cells grow by “mitosis” or “cell division”

1 parent cell divides into 2 daughter cells,
2 divide into 4, etc…
Normal cell growth

- Different cells of the body grow at different rates
  - Some cells grow all the time, e.g. skin, blood cells
  - Some have potential to grow some of the time, e.g. liver
  - Some don’t grow at all any more, e.g. brain cells
- Cells grow in an orderly fashion
- Cell growth is precisely regulated
- Signals instruct cells when to grow and when to not grow
What is cancer?

• Starts as one single cell that loses the regulation of growth control
• One cell divides to make numerous daughter cells that grow into a tumor
• Grows without constraints
• Hallmarks of “malignant” tumor:
  – Invasion
  – Metastases
Skin

The cells are organized.
What do tumors look like?
Warts - benign skin tumors
Warts - benign skin tumors

Too many cells growing in abundance, but still organized

- Prominent granular layer
- Hyperkeratosis
- Papillomatous hyperplasia
- Inward bending of rete

Prominent granular layer
- Hyperkeratosis
Squamous cell carcinoma
Too many cells, disorganized, invading into the body
Squamous Cell Carcinoma

Milikowski p. 503

Wheater p. 224
Clinical Hallmarks of Cancer

Invasion
Metastasis

Malignant vs Benign
Invasion and Metastasis

1. Cancer cells invade surrounding tissues and blood vessels.
2. Cancer cells are transported by the circulatory system to distant sites.
3. Cancer cells reinvade and grow at new location.

Metastasis (spread) is what makes cancer life threatening.
How to best prevent that

• Catch it early
  – Early detection (Dr. Philpotts)
    • Mammograms
    • Self breast exams
    • Clinical (doctor) breast exams

• Cut it out (Dr. Lannin)

• Make sure there’s none left
  – Radiation to the breast/chest if needed (Dr. Weiidhaas)
  – Medicine (adjuvant therapy) if needed
What is Breast Cancer?

Figure 25-1. Diagram of main anatomic structures (top) and major lesions affecting different structures. (Modified from Azzopardi, J. G.: Problems in Breast Pathology. London, W. B. Saunders Co., 1979, pp. 9-10.)
What does breast cancer look like?

Bathsheba (Rembrandt) 1654

Under the microscope: Dr. Bossuyt