



乳癌檢驗 面面觀

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30 4 2011

乳癌檢驗 面面觀

Imaging
醫學影像

Tissue diagnosis

抽組織

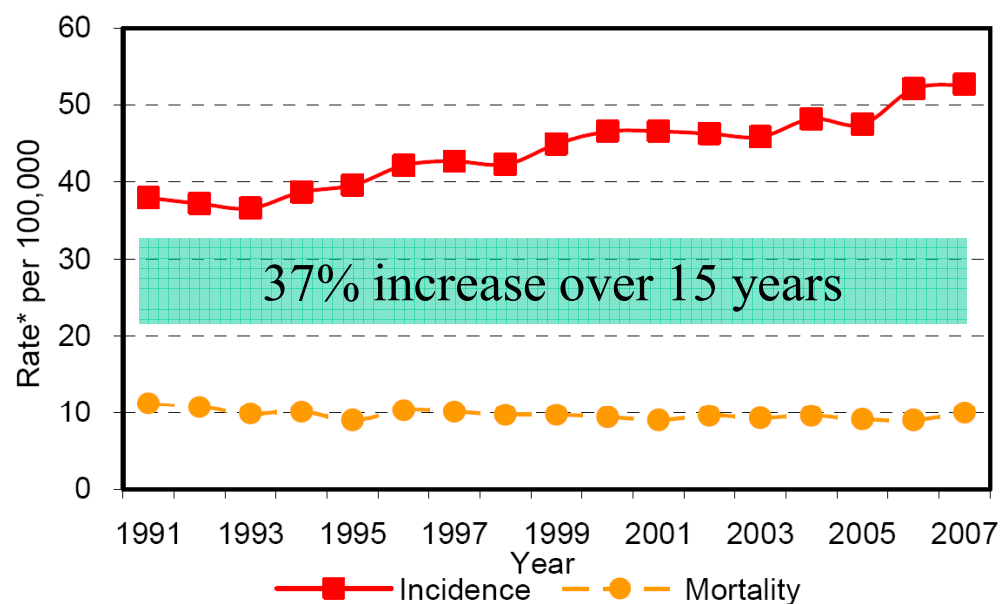
Blood test

抽血

香港癌症資料統計中心 2007

	New Case	Death
Number of cases registered	2,701	526
Rank	1	3
Proportion of all cancer	23.9%	11.2%
Median age (years)	52	59
Crude rate*	74.2	14.5
Age-standardized rate (World)*	52.7	10.0
Lifetime risk before age 75	1 in 20	1 in 102
Mortality : Incidence ratio	0.19	

* All rates are expressed per 100,000

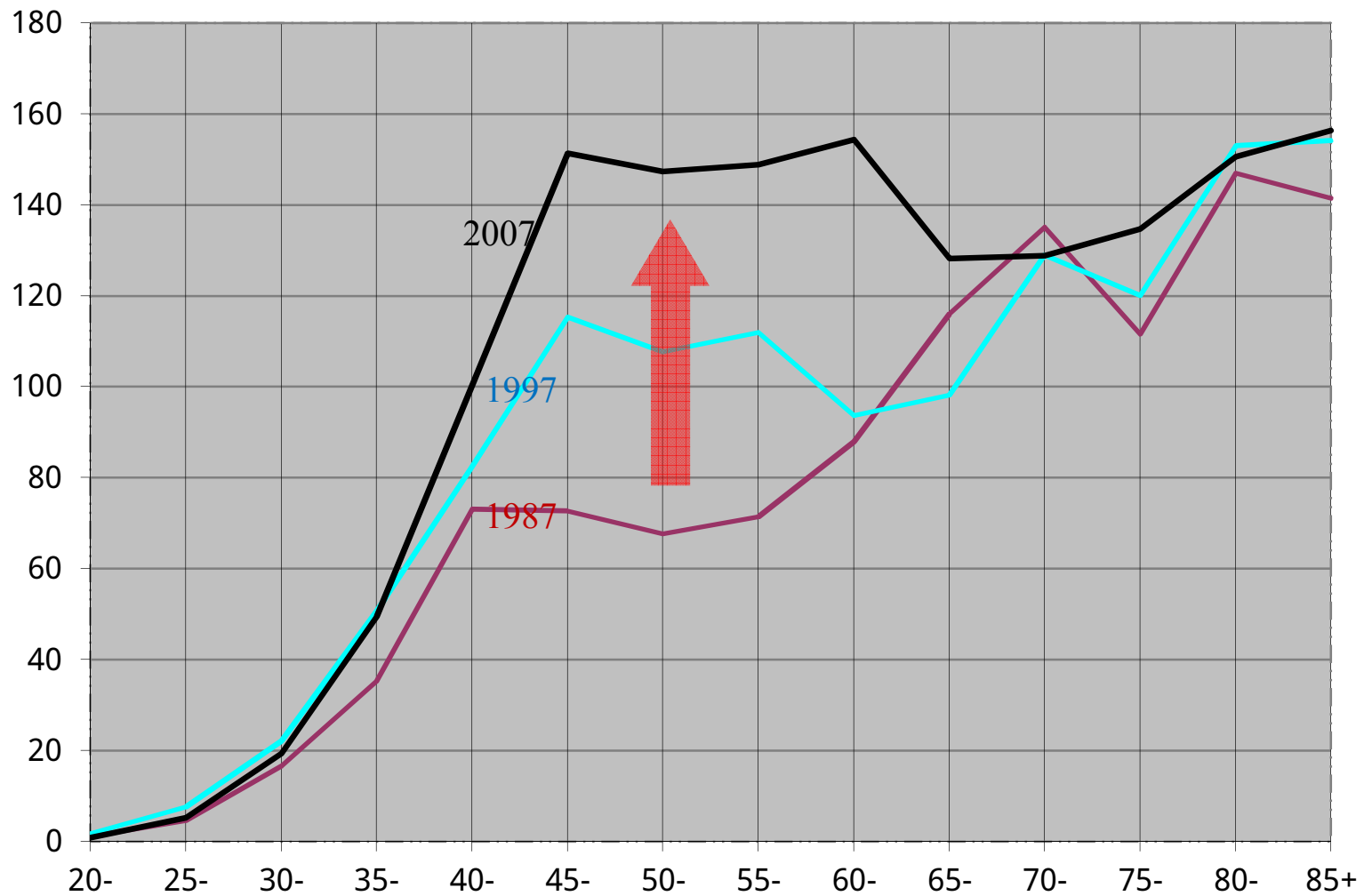


*Rates are standardized to the year 2000 world standard population.

Figure 10c. Incidence and Mortality Trends for Female Breast Cancer, 1991-2007

年齡別 發生率

age-specific incidence rate (per 100 000 women)





Imaging 醫學影像

乳腺X光造影 mammogram

超聲波 ultrasound

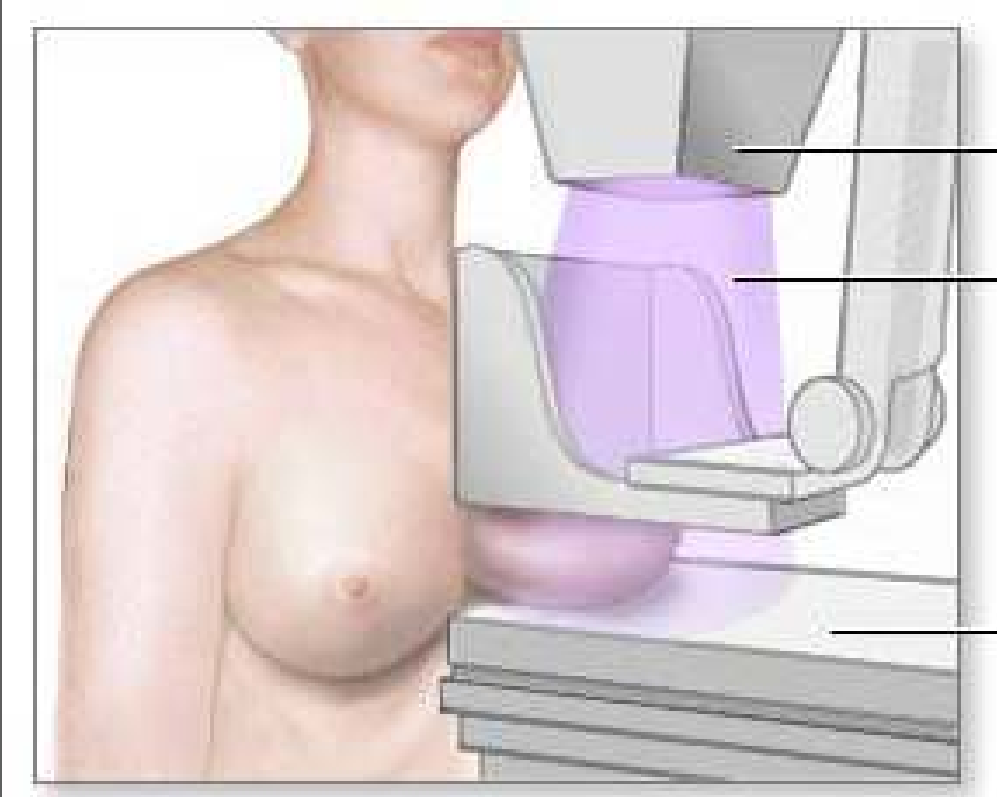
磁力共振 MRI

數碼 乳腺X光造影

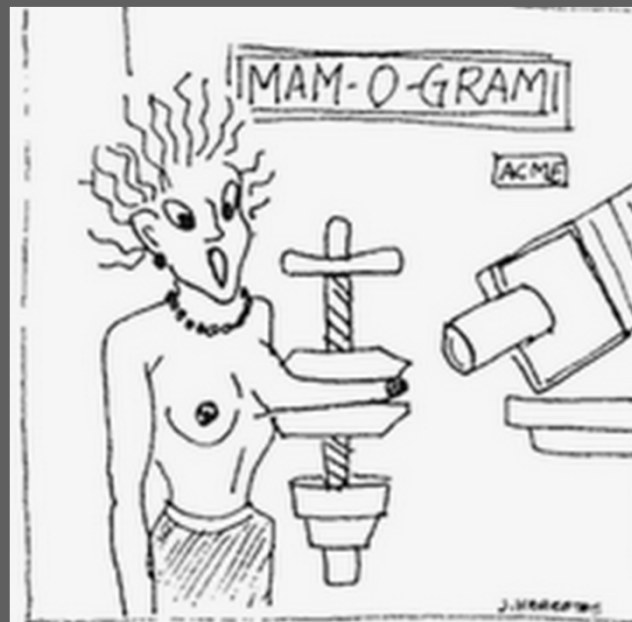
Digital mammography



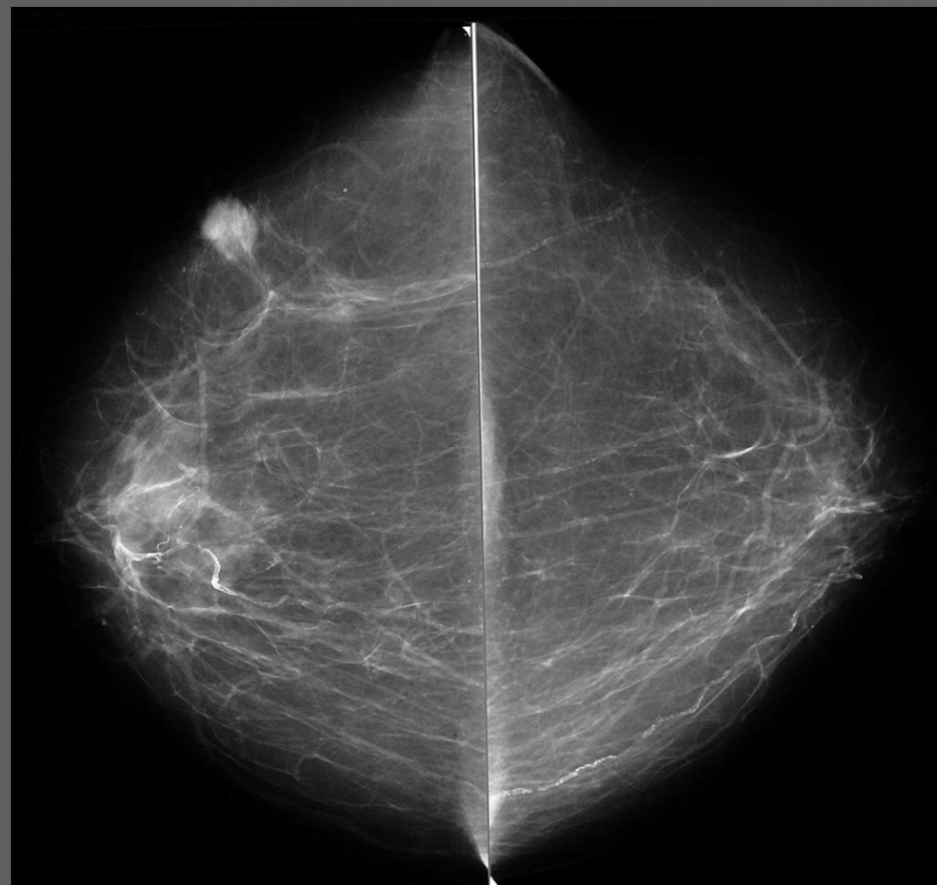
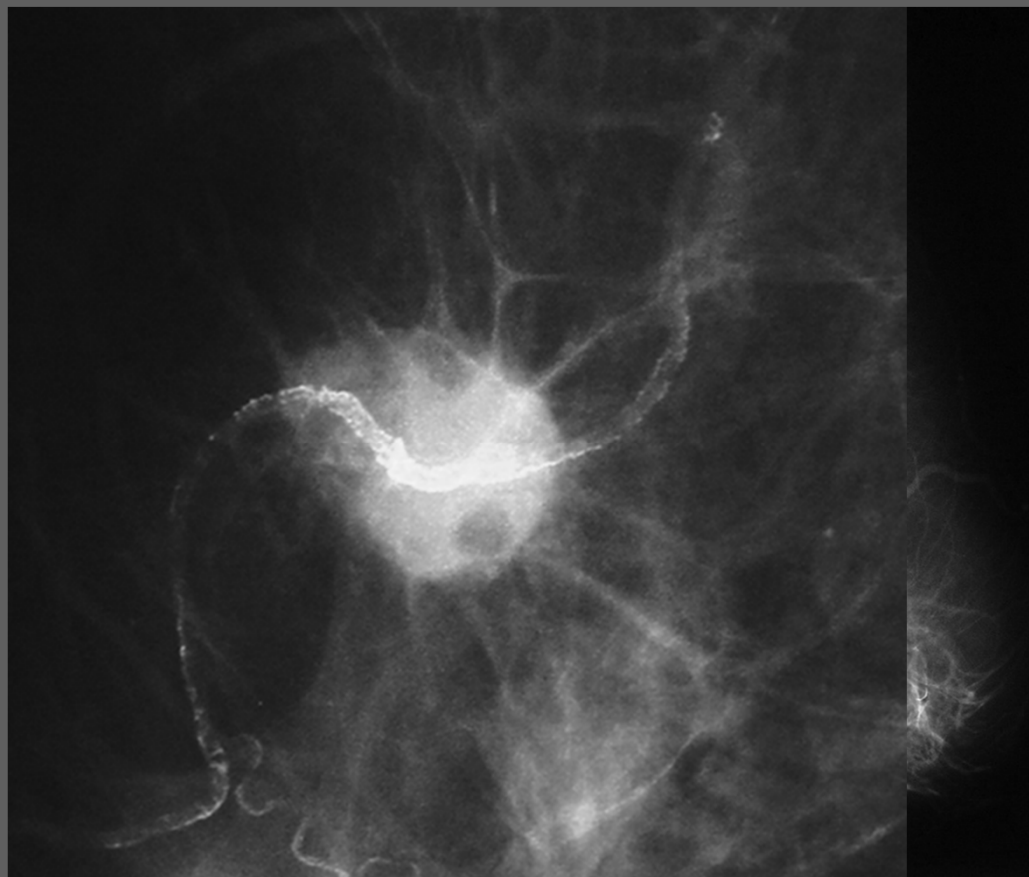
乳腺X光造影 mammogram



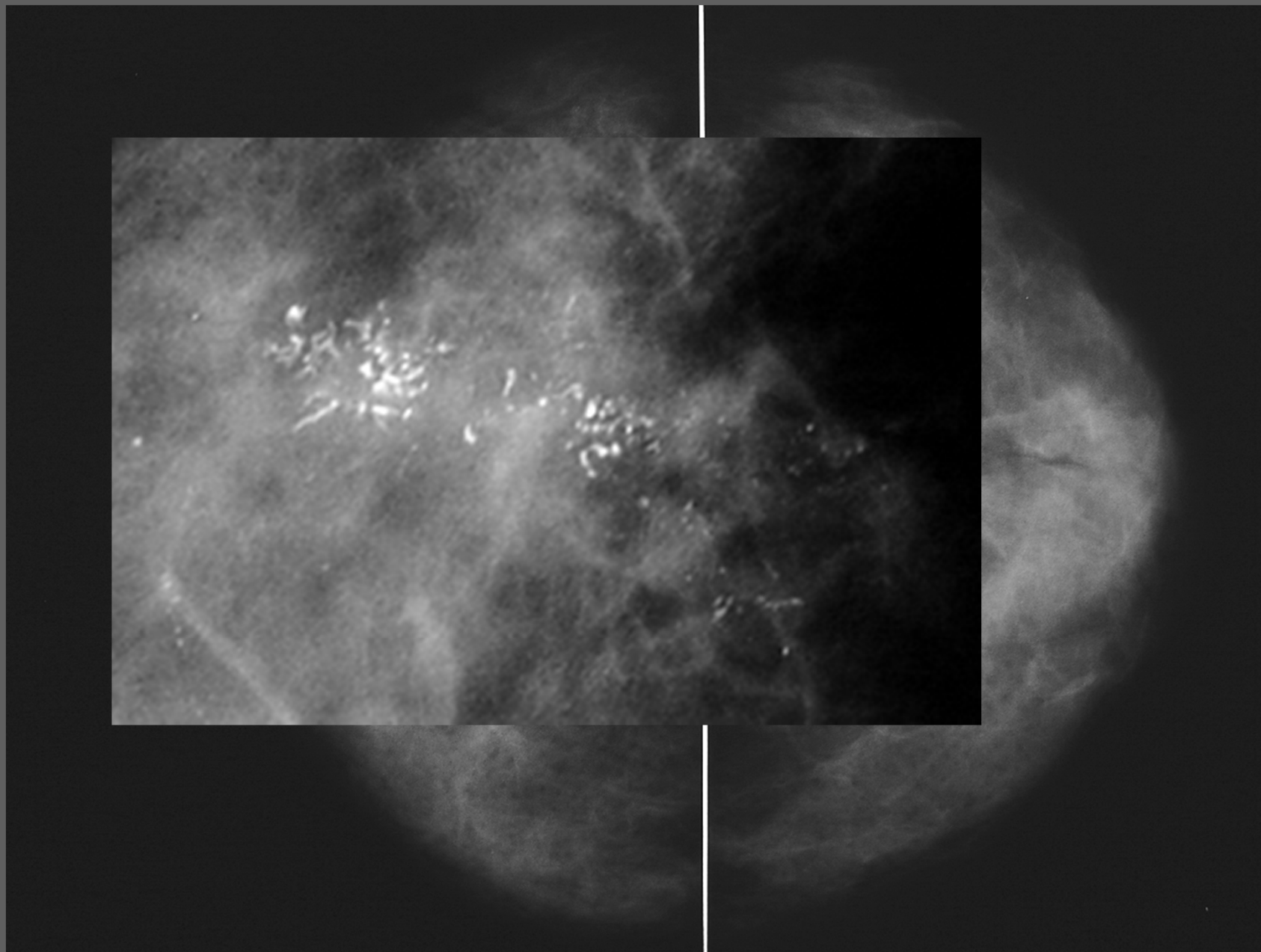
乳腺X光造影 mammogram



乳腺X光造影 mammogram



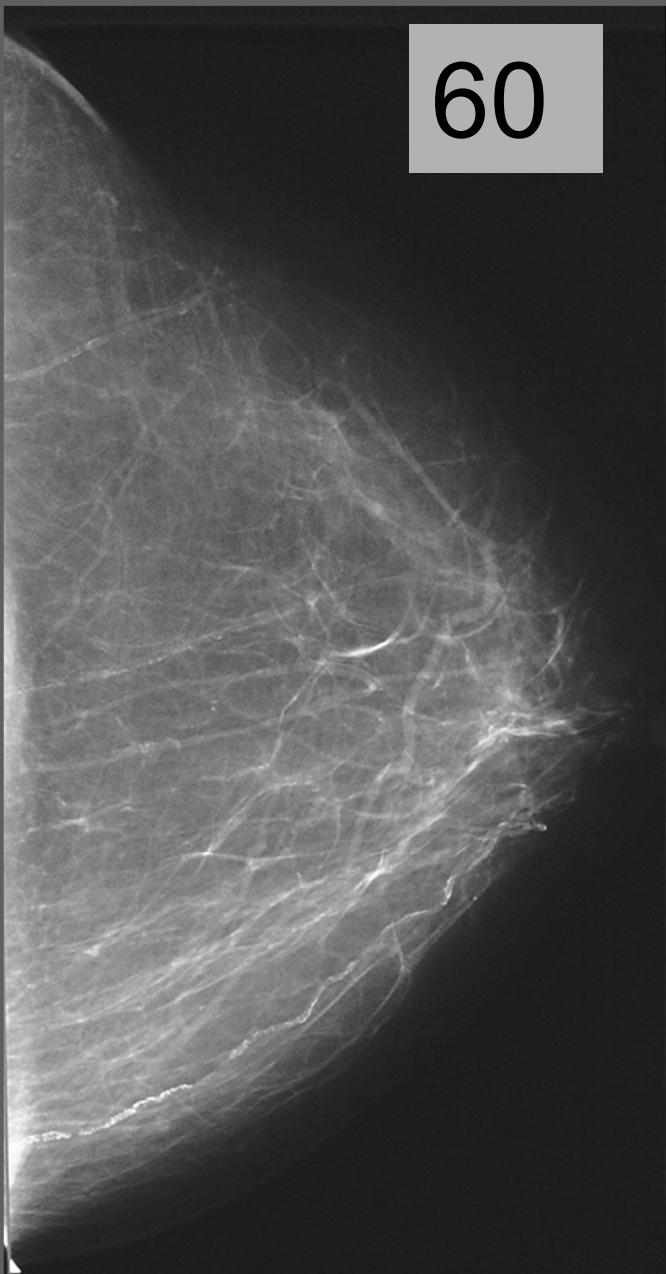
乳腺X光造影 mammogram



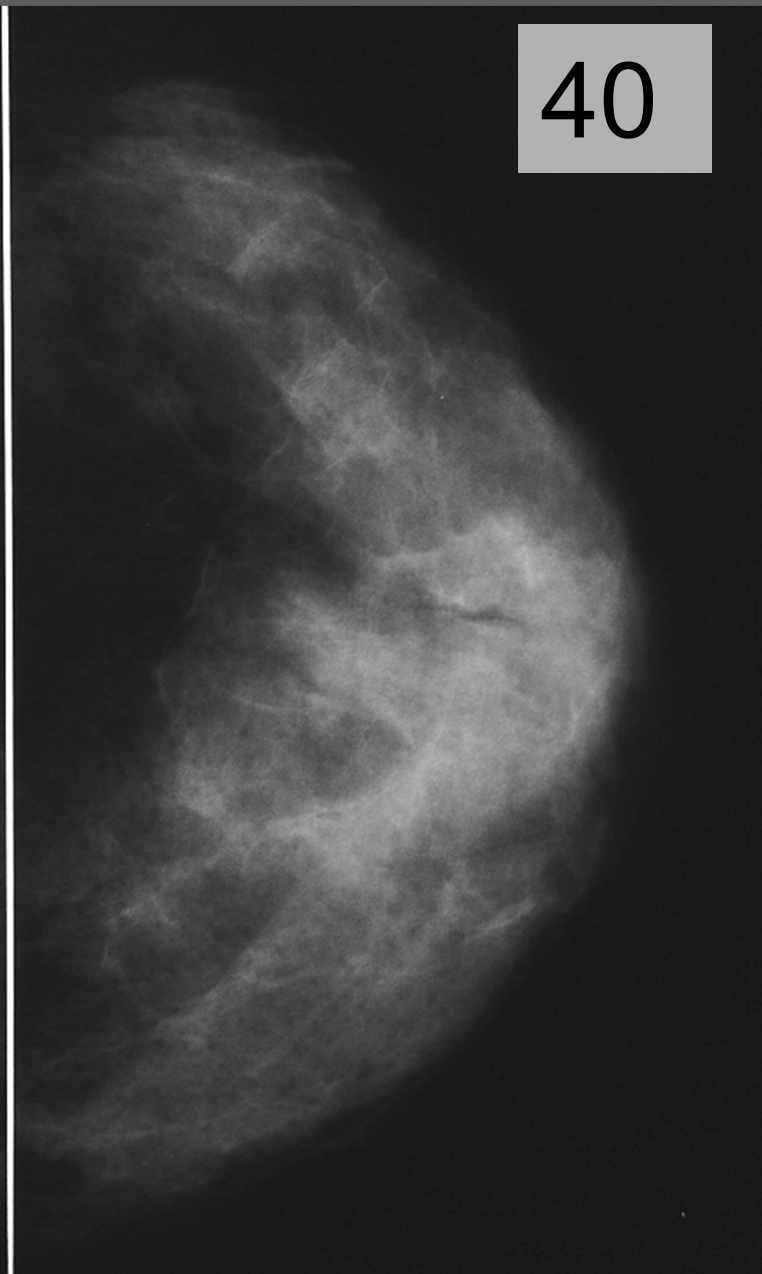
乳腺密度

breast density

60



40

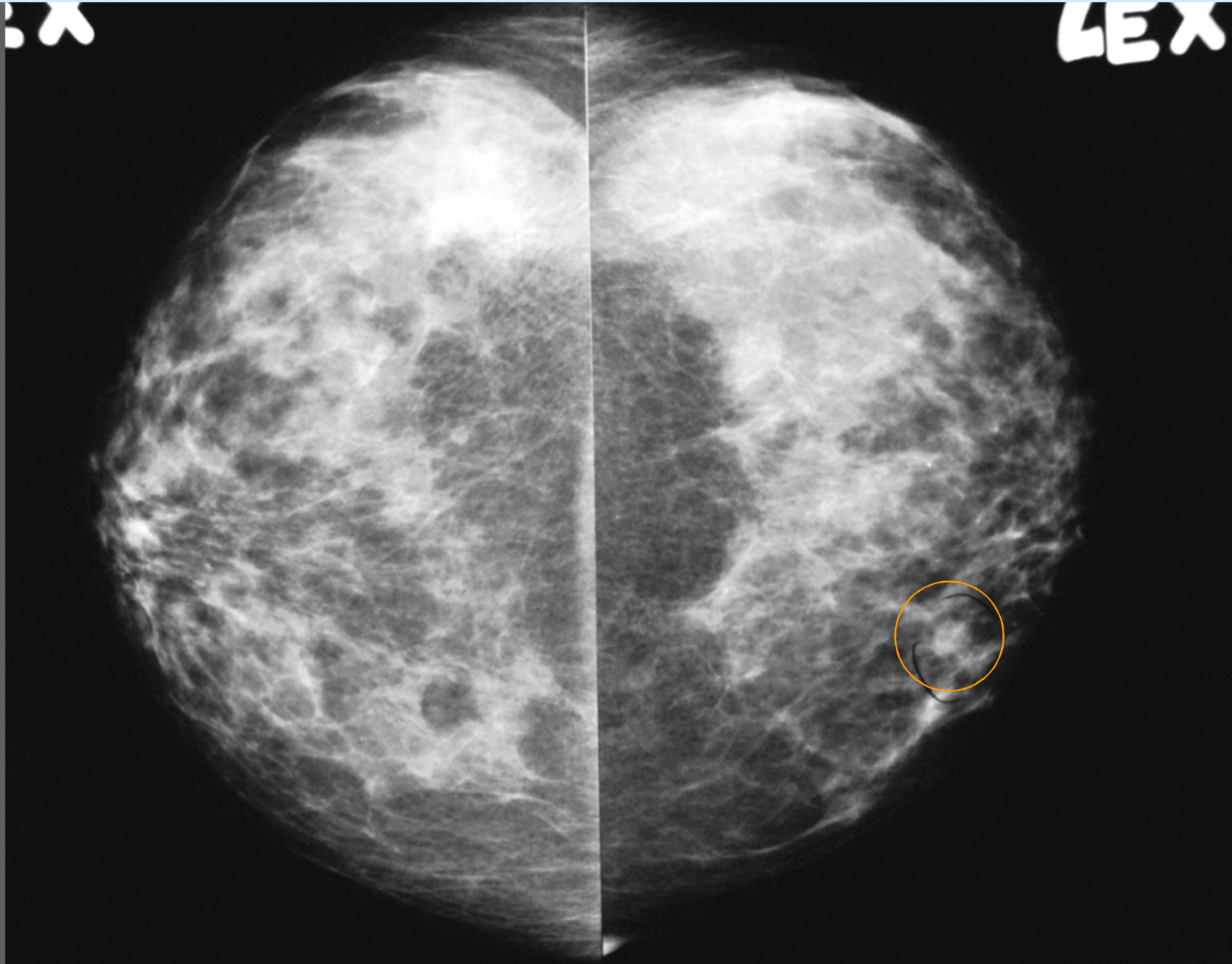


假陰性

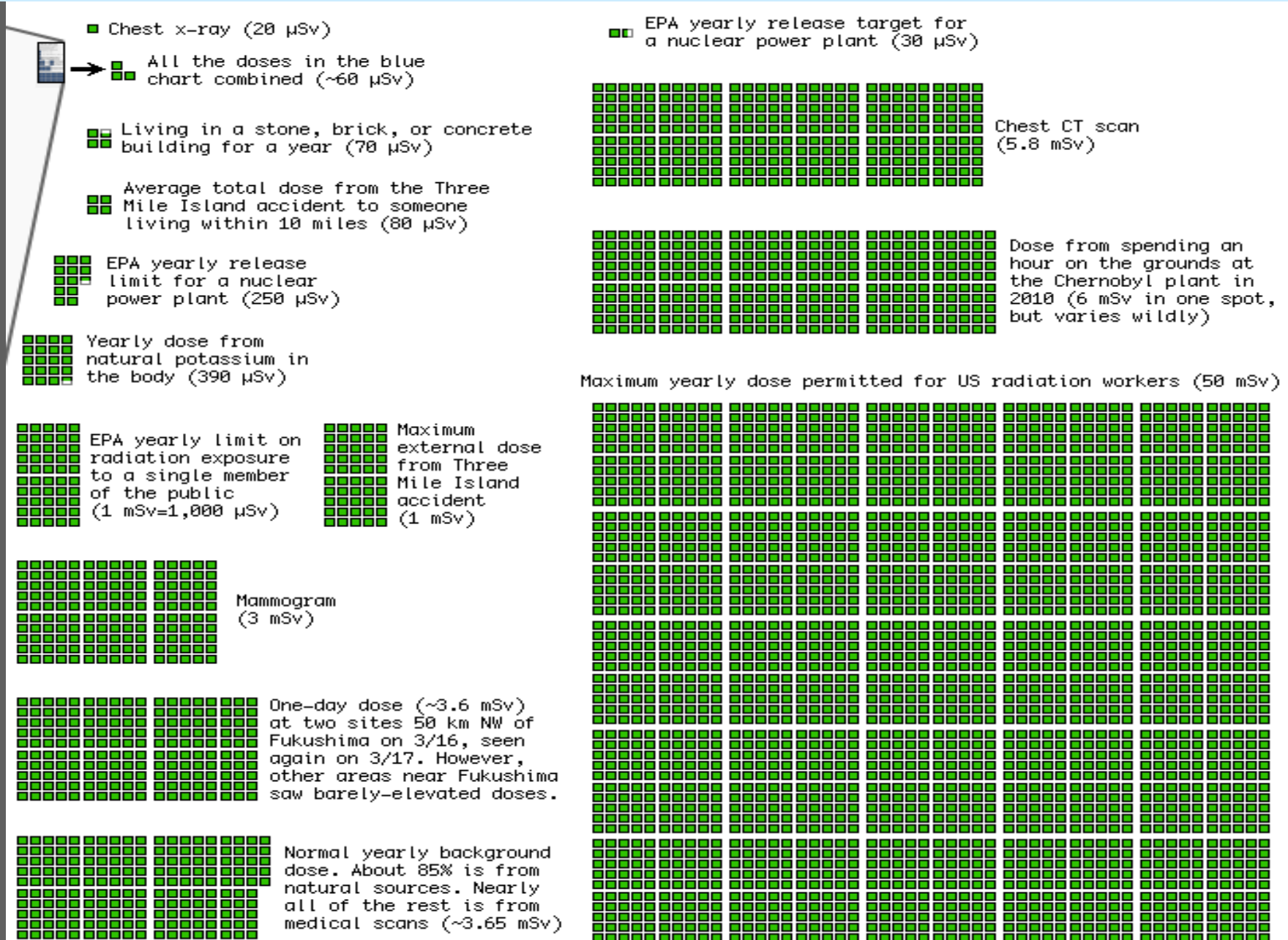
false negative rate

10%

8mm lesion



乳腺X光造影 - 輻射



乳腺X光造影 - 輻射

- 一次輻射 份量極小
- 由40歲開始, 每年一次X光
- 好處多於壞處



Radiation dose of mammogram

- excess breast cancers have been demonstrated in women receiving doses of 0.25-20 Gy
- These high-level exposures to the breast occurred from the 1930s to the 1950s due to atomic bomb radiation, multiple chest fluoroscopies, and radiation therapy treatments for benign disease
- Using a risk estimate provided by the Biological Effects of Ionizing Radiation (BEIR) V Report of the National Academy of Sciences
- a mean breast glandular dose of 4 mGy from a two-view per breast bilateral mammogram
- annual mammography of 100,000 women for 10 consecutive years beginning at age 40 will result in at most 8 breast cancer deaths during their lifetime
- On the other hand, researchers have shown a 24% mortality reduction from biennial screening of women in this age group
- this will result in a benefit-to-risk ratio of 48.5 lives saved per life lost
- An assumed mortality reduction of 36% from annual screening would result in 36.5 lives saved per life lost
- Thus, the theoretical radiation risk from screening mammography is extremely small compared with the established benefit from this life-saving procedure and should not unduly distract women under age 50 who are considering screening.

- Feig SA JNCI Mono 1997;22:119-24

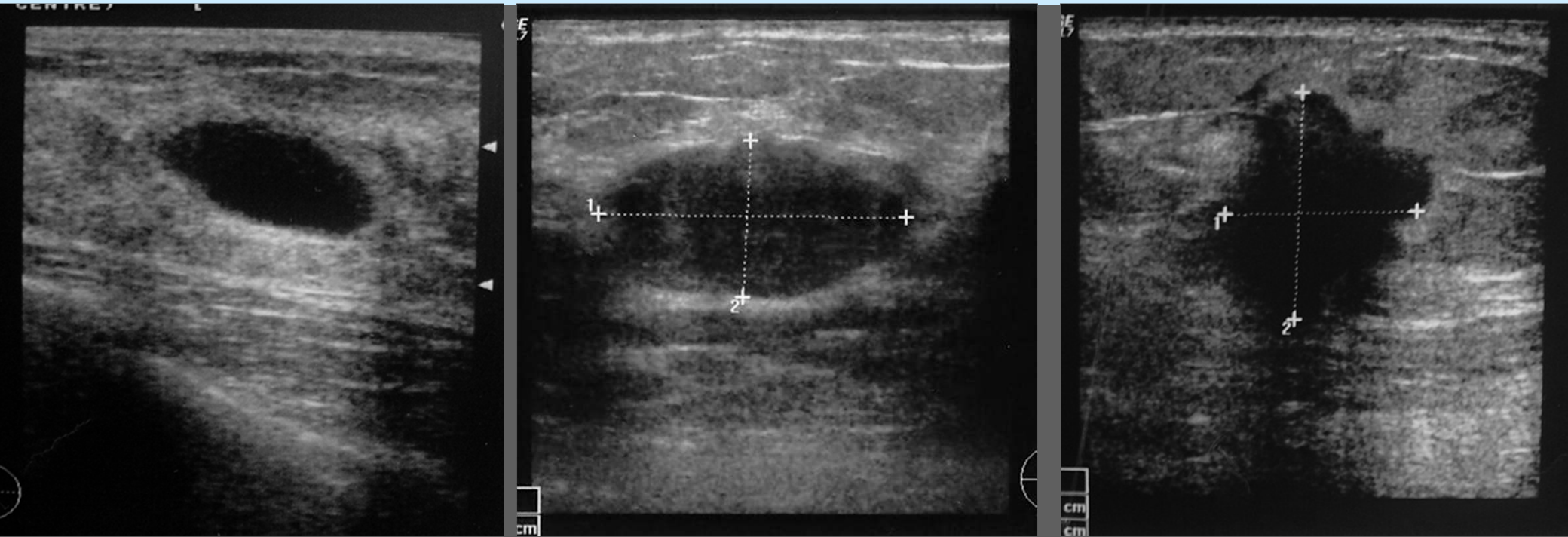
超聲波

ultrasound



超聲波

ultrasound



水囊 / 囊腫

纖維瘤

乳癌

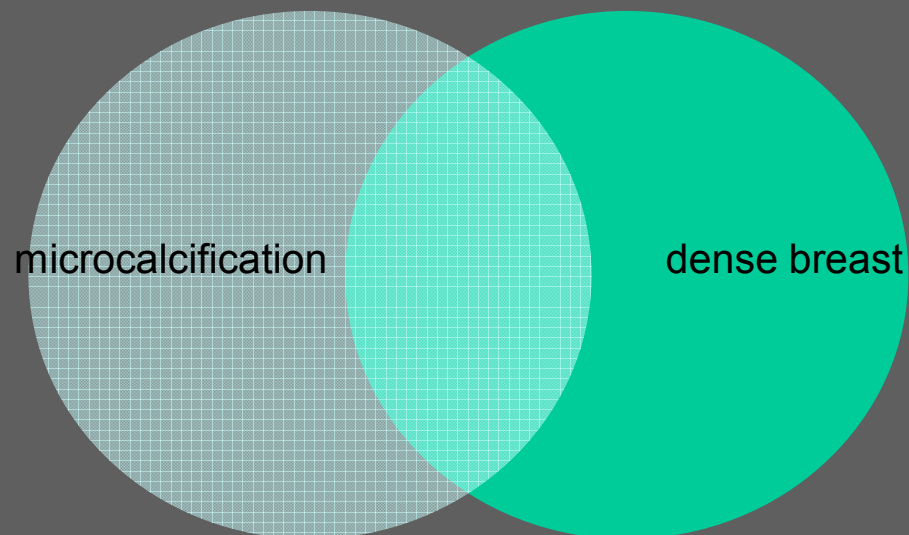
超聲波

ultrasound

- 好處:

- 沒有痛楚
- 適用於 稠密乳腺
- 能診斷 水瘤
- 能加強 抽針 準確性

- X光造影 - 超聲波 互補不足

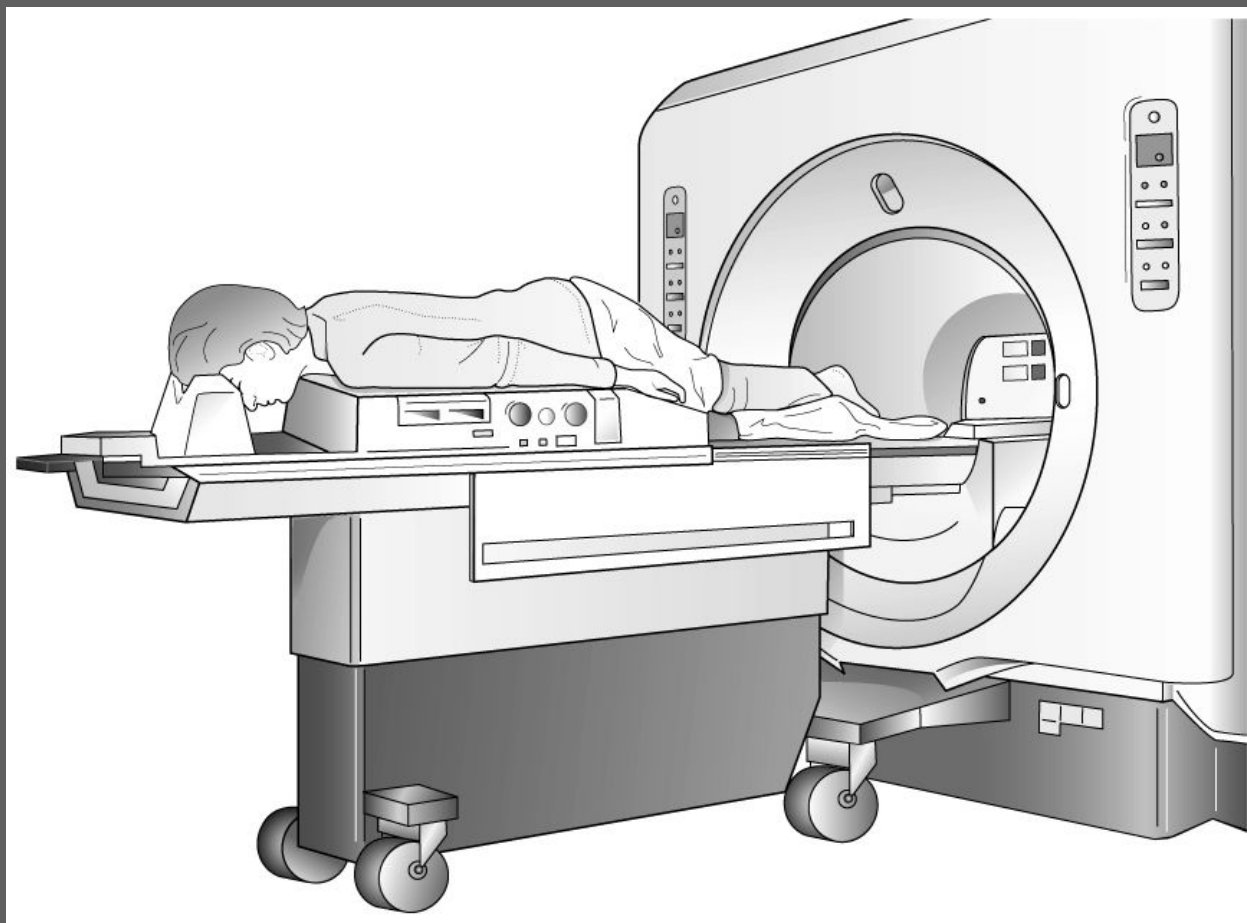


磁力共振 MRI



無輻射

顯影劑 contrast

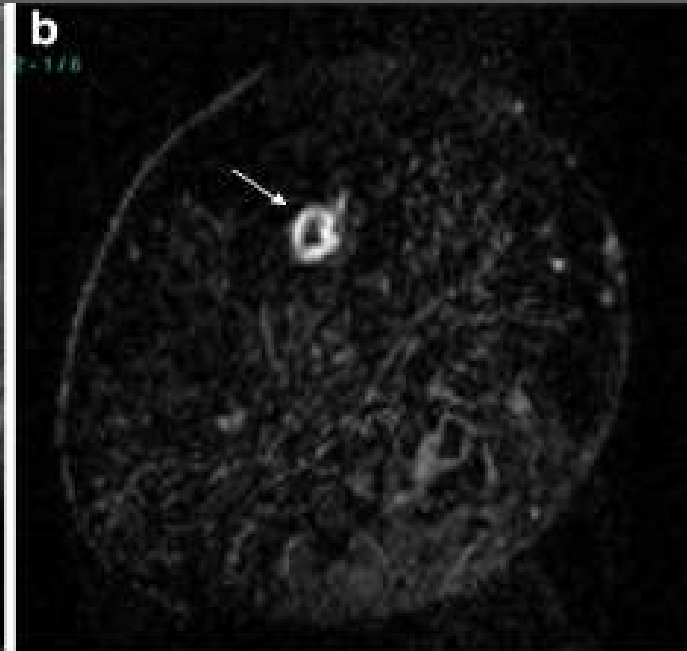
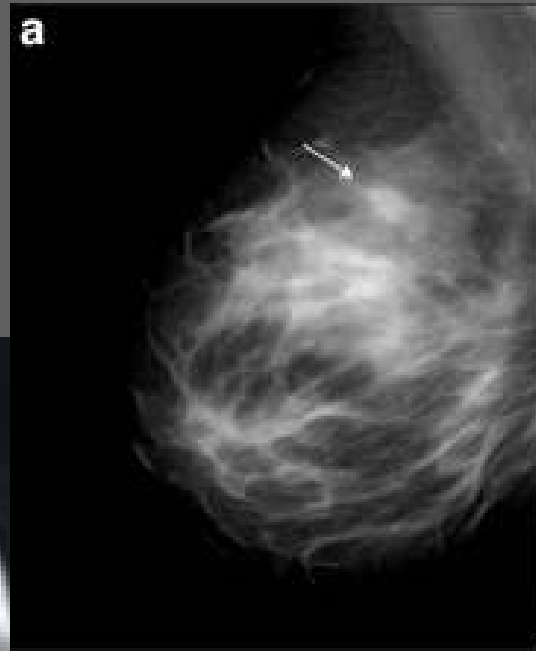


磁力共振 MRI

非常高 敏感性(sensitivity)

低 特異性(specificity)

- (many benign biopsy)



- Contrast-enhancement

磁力共振 MRI

- 癌症範圍

局部切除 – 適應性



- 小於 3cm
- 非多發性 (multifocal)
- 離開乳頭

磁力共振 MRI

- 癌症範圍
- 手術後 跟進 scar / recurrence

磁力共振 MRI

- 癌症範圍
- 手術後 跟進 scar / recurrence
- 矽袋隆胸 implants



磁力共振 MRI

- 癌症範圍
- 手術後 跟進 scar / recurrence
- 矽袋隆胸 implants
- 乳腺稠密 dense breast

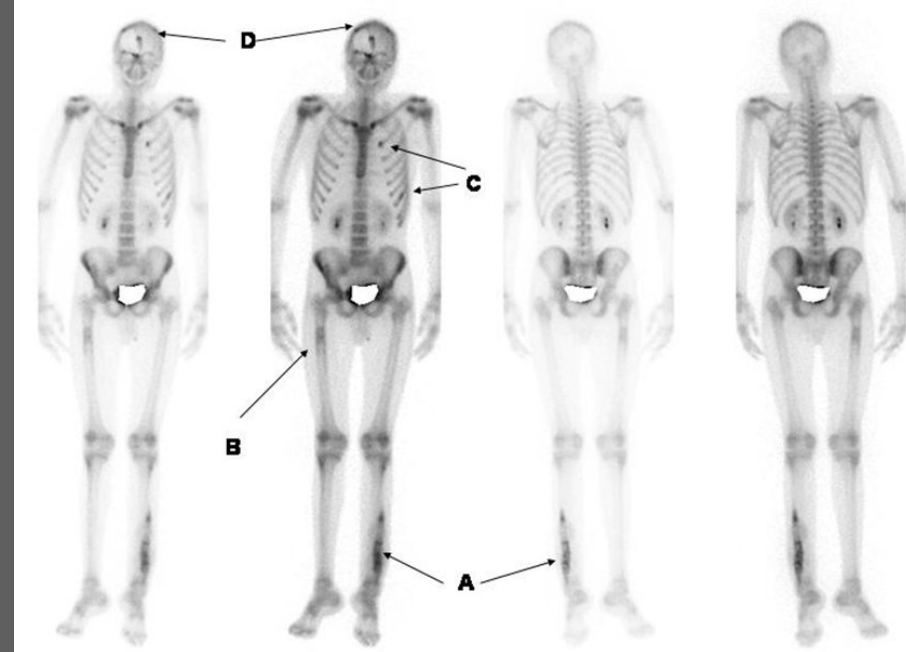
磁力共振 MRI

- 高危女士
 - *BRCA1* or *BRCA2* mutations (annually starting at 30)
- 比 MMG & US 更敏感
- American Cancer Society (ACS):
- 建議每年 MRI



骨掃描

Bone scan



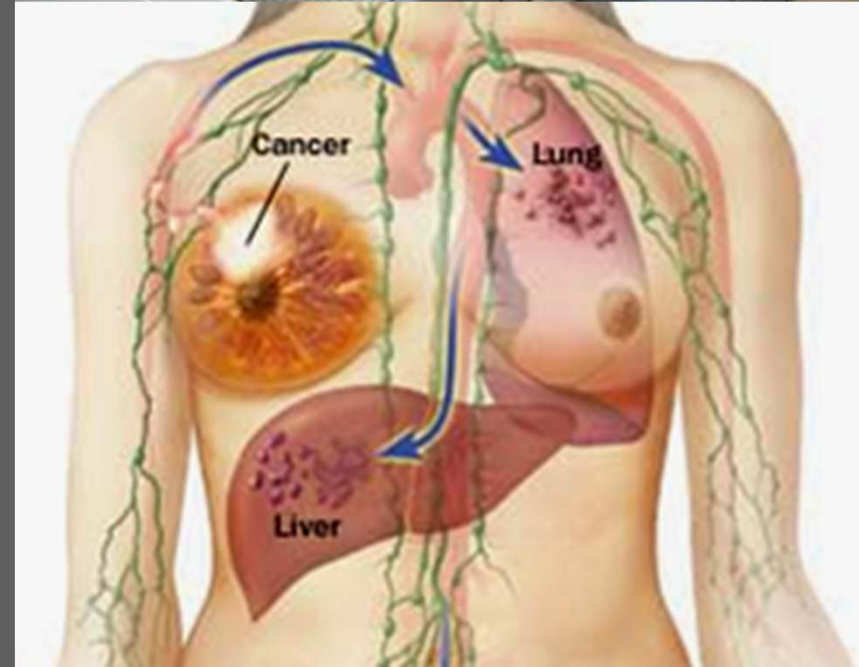
同位素 radioisotope

骨轉移

正電子掃描

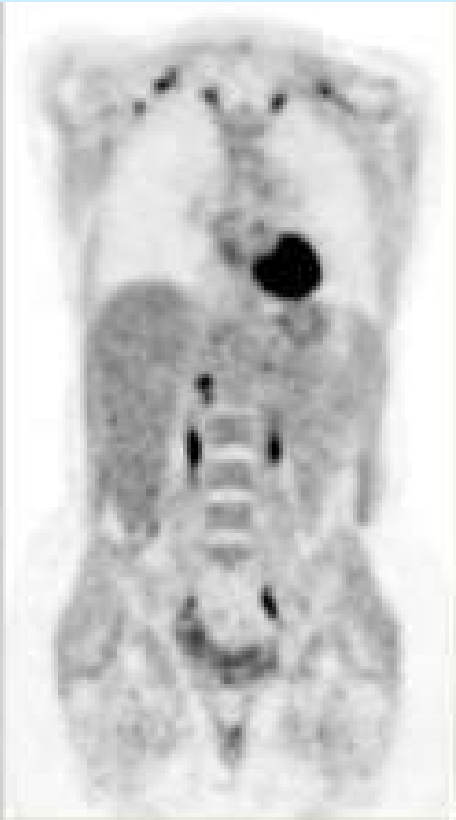
PET scan

- 全身性掃描
- 全身性轉移
- 淋巴掃描
- 局部



正電子 + 電腦掃描

PET-CT



PET image



CT image



Fused PET/CT image

骨質密度

bone density / DEXA scan

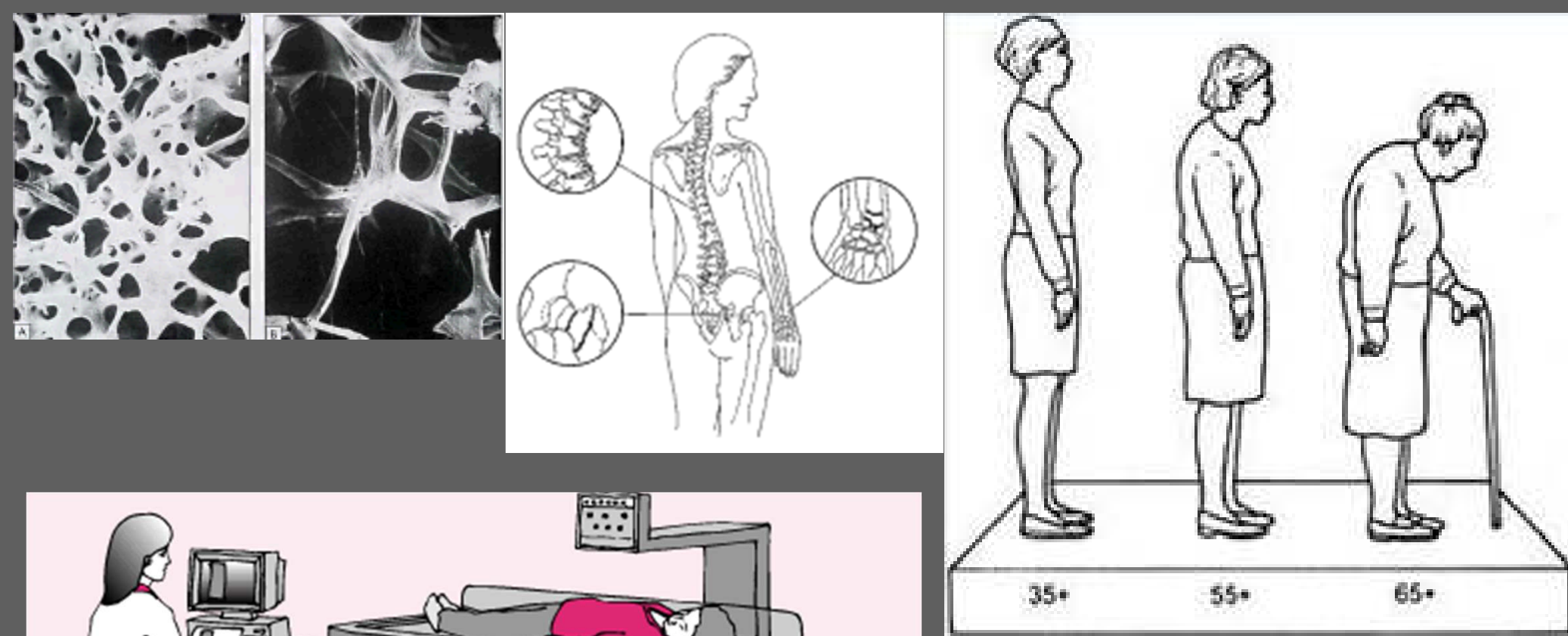


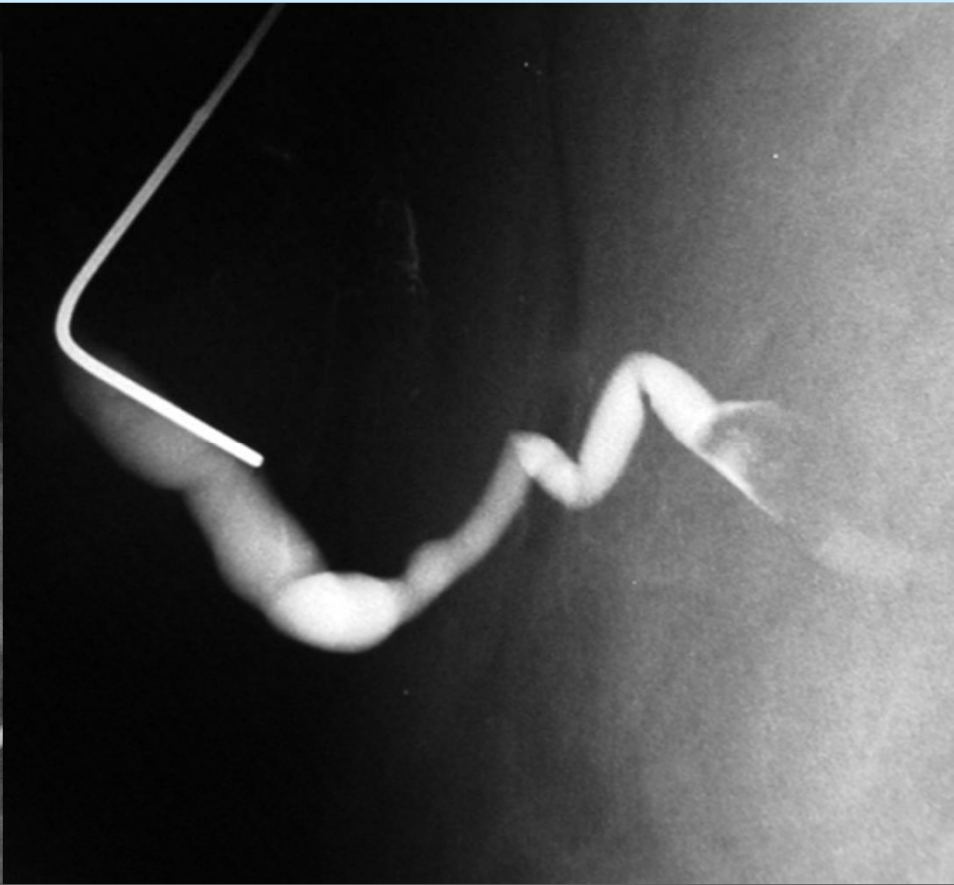
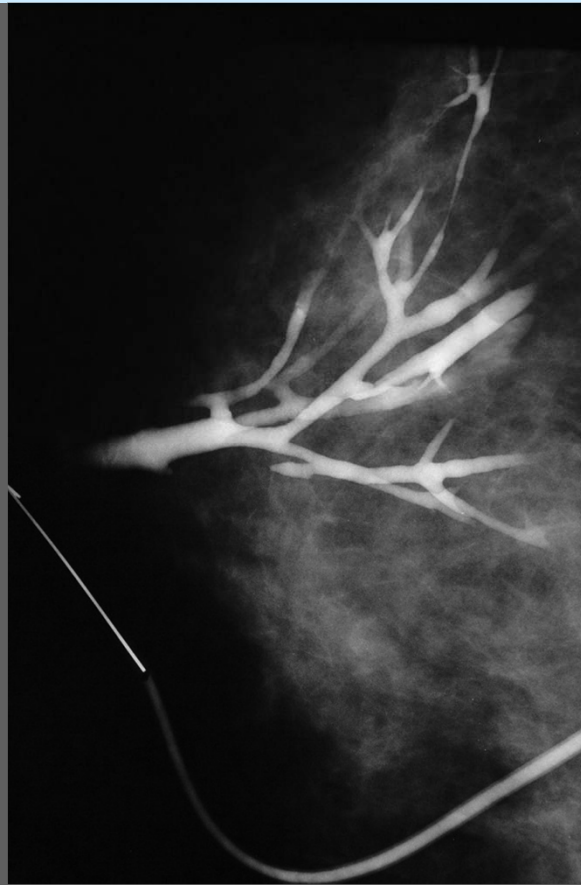
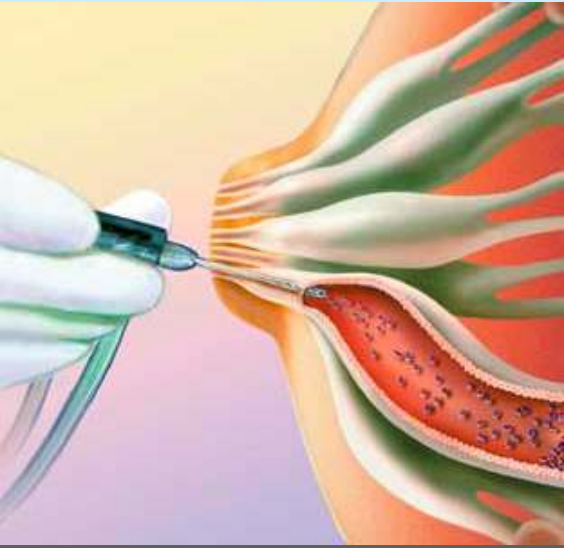
Figure 3. Your doctor can ask for a bone scan to be carried out to test the strength or density of the bones.

骨質疏鬆 osteoporosis

芳香酶 抑制劑 aromatase inhibitor

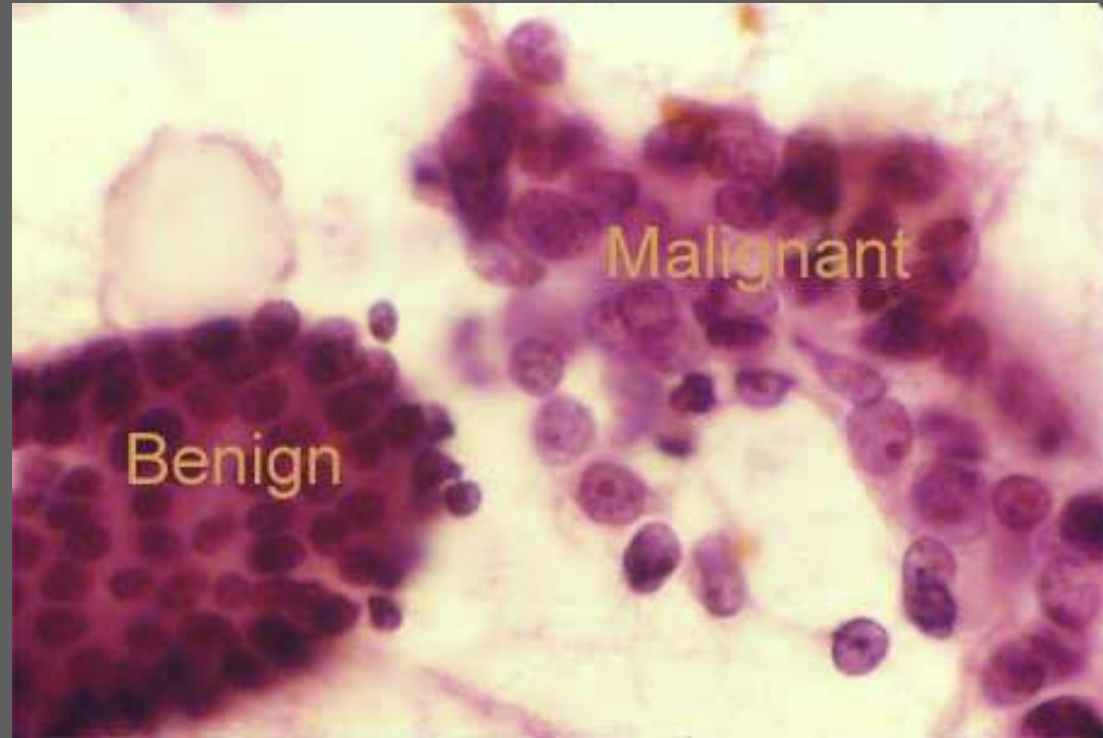


乳頭分泌 — 乳管造影 / ductogram



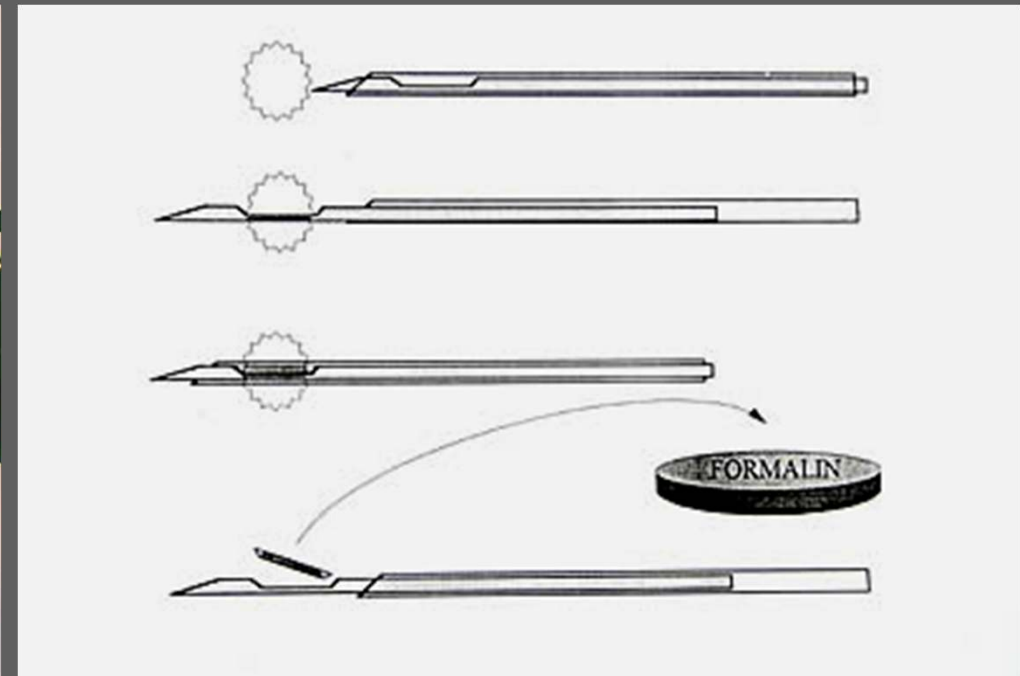
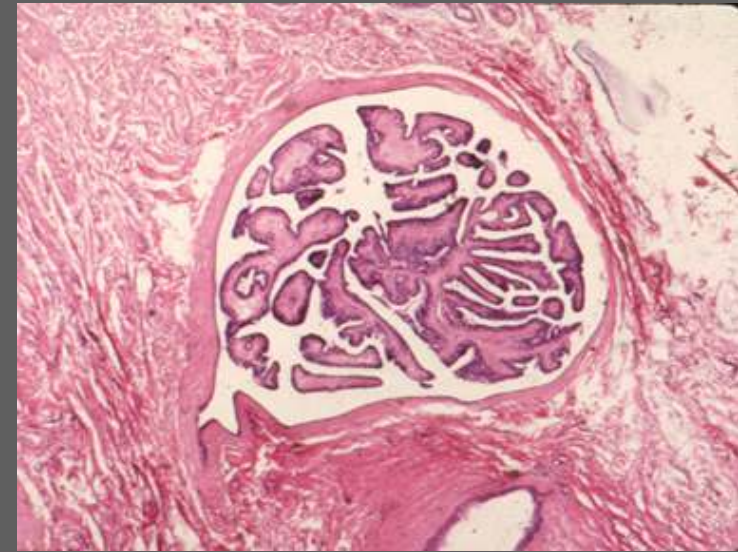


幼針 穿刺 / FNAC



粗針 / core biopsy

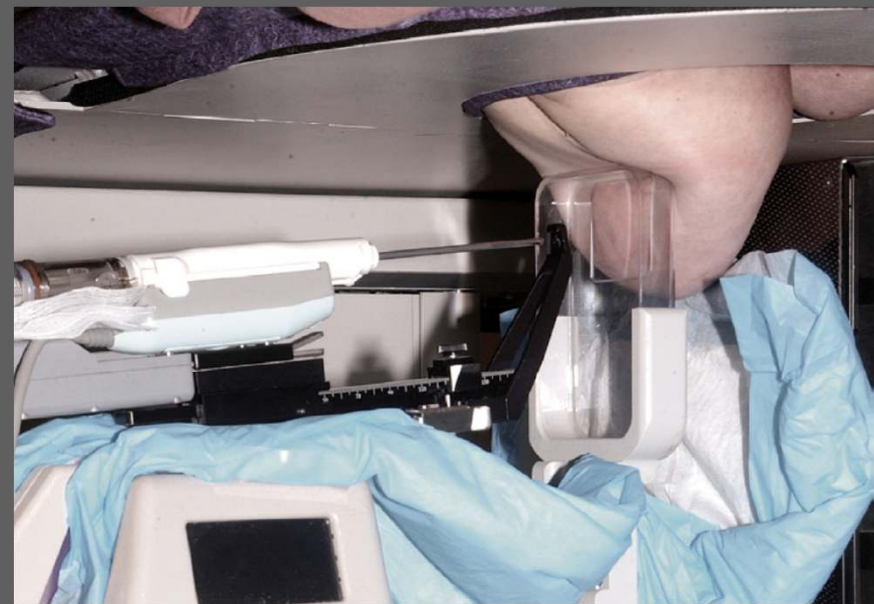
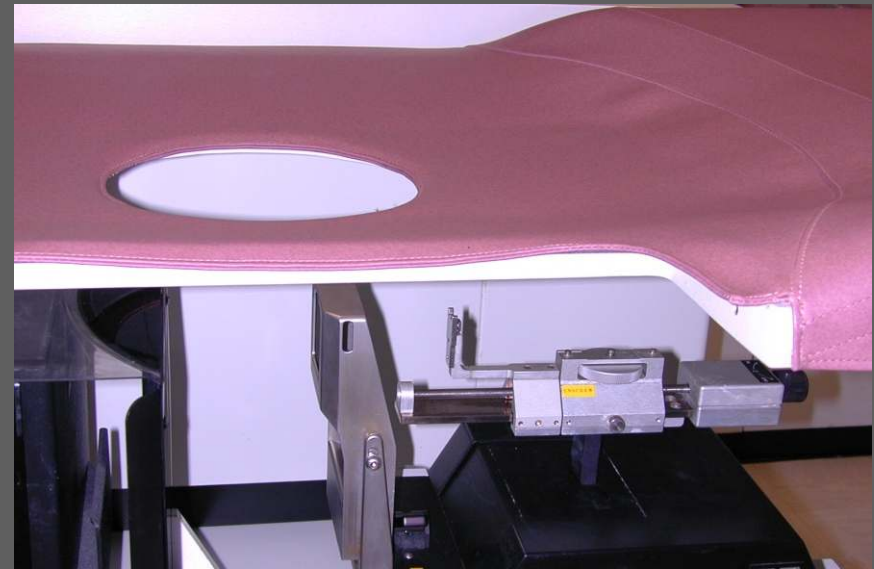
- 比較準確
- 多組織 更多測試
- 診斷 原位癌



組織檢查 - 比較

	幼針 穿刺	粗針	手術切除
所需時間	+	++	+++
傷口	-	+	+++
創傷性	+	++	+++
費用	+	++	+++
分辨原位癌	NO	YES	YES
準確性	++	++	+++

立體定位 活組織檢查 / stereotactic biopsy



手術切除 / surgical excision

- 適應性:

- 癌症
- 未能排除癌症

- 選擇:

- 微創乳腺手術
- Minimally invasive breast surgery (MIBS)



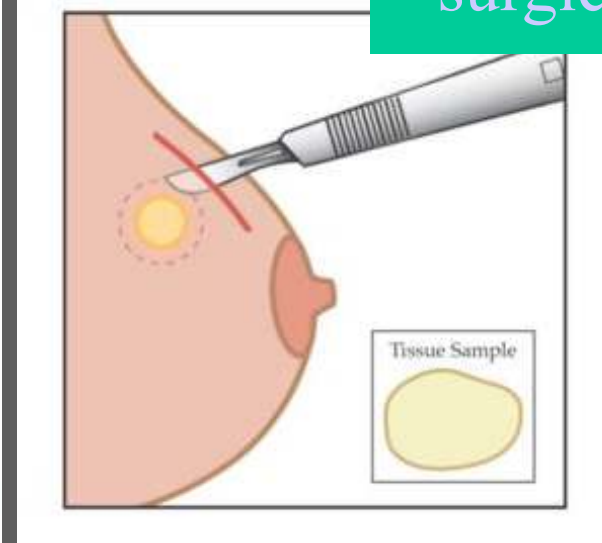
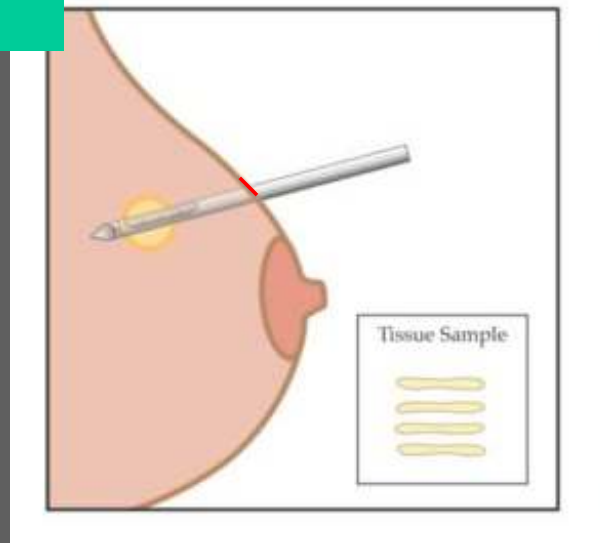
微創乳腺手術 / MIBS



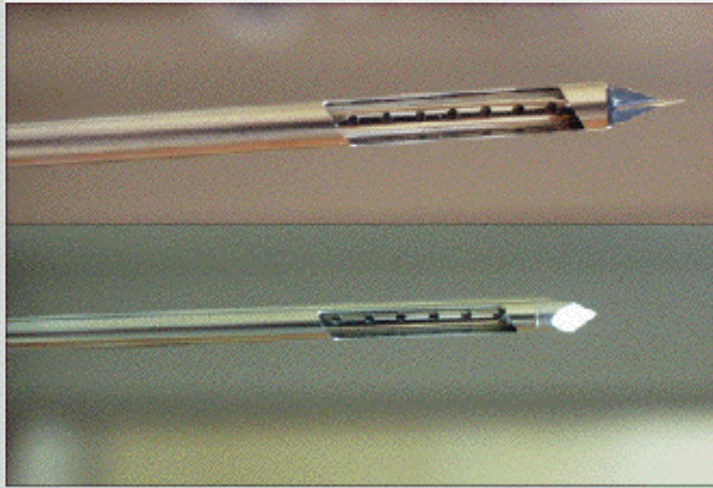
VAB



surgical biopsy



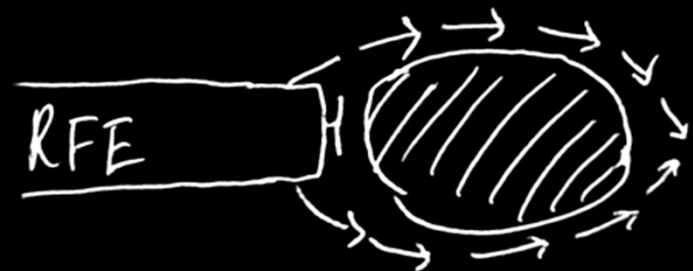
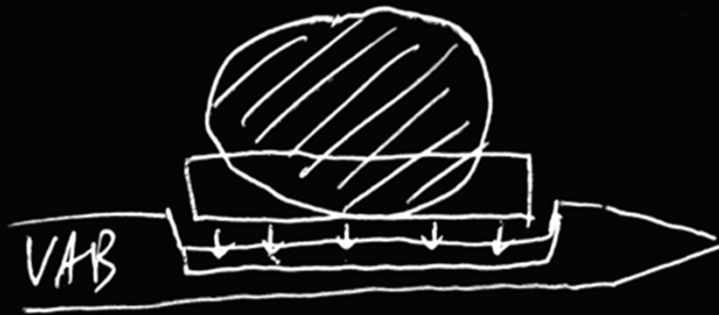
微創乳腺手術 / MIBS



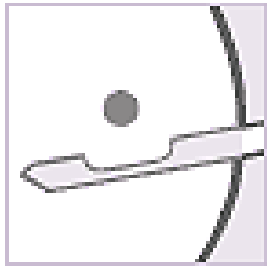
Vacuum-assisted biopsy (VAB)
Mammotome[®]



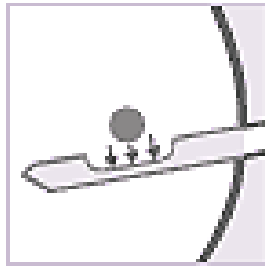
Radiofrequency-assisted excision device
Intact[®]



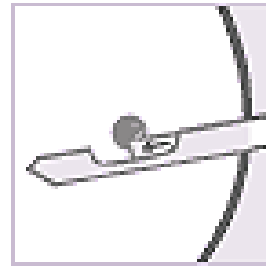
Mammotome[®]



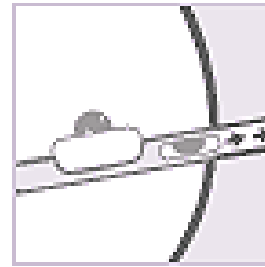
position



vacuum



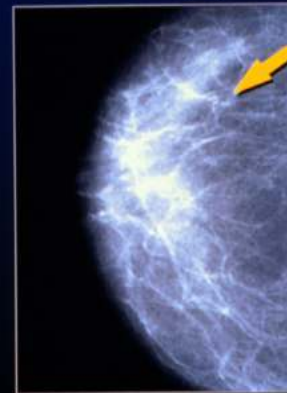
cut



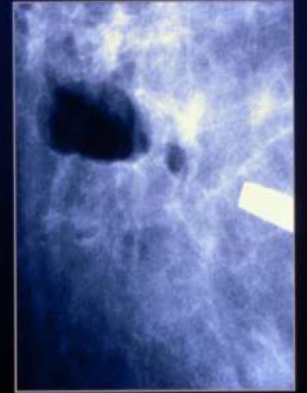
remove

Mammotome Procedure

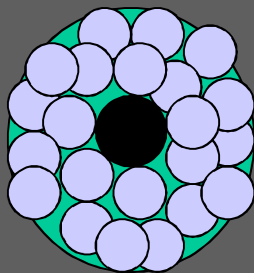
Pre-Biopsy



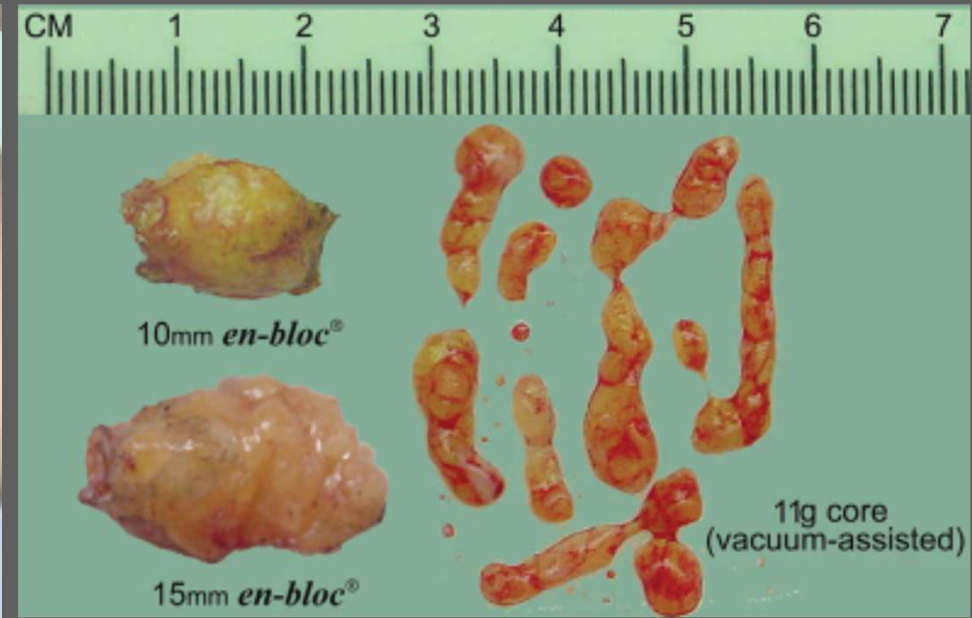
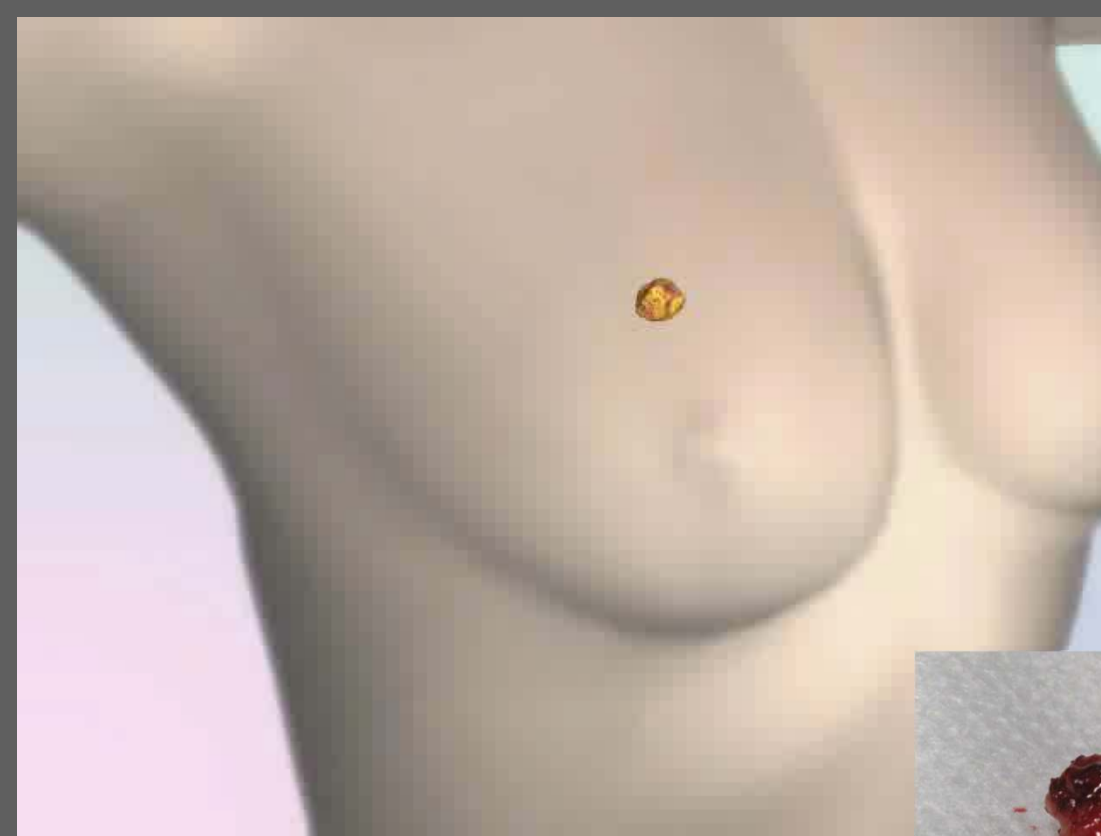
Post-Biopsy



piecemeal removal



radiofrequency excision (RFE)





癌指數 / tumour marker

CA 15-3

CEA

CA 27.29

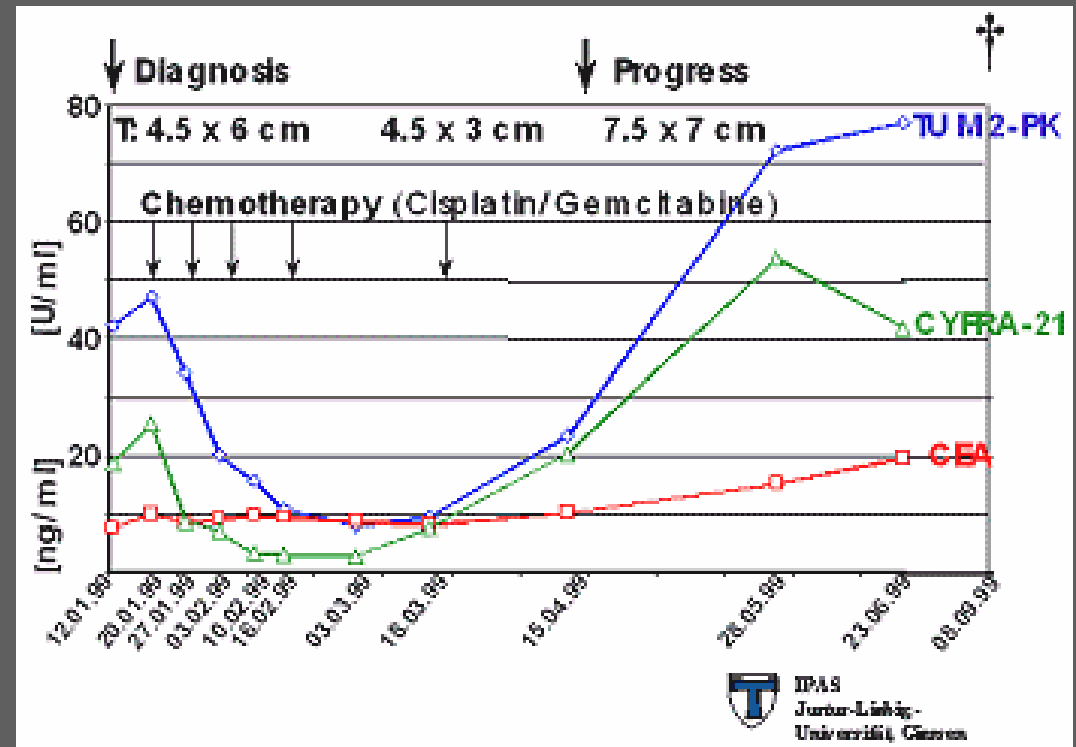


癌指數 / tumour marker

- 低敏感性 (不能用作診斷或普查)
 - Stage I 10%
 - Stage II 20%
 - Stage III 40%
 - Stage IV 75%
- 低 特異性
 - 身體正常 (5%)
 - 肝病 或 其它癌症

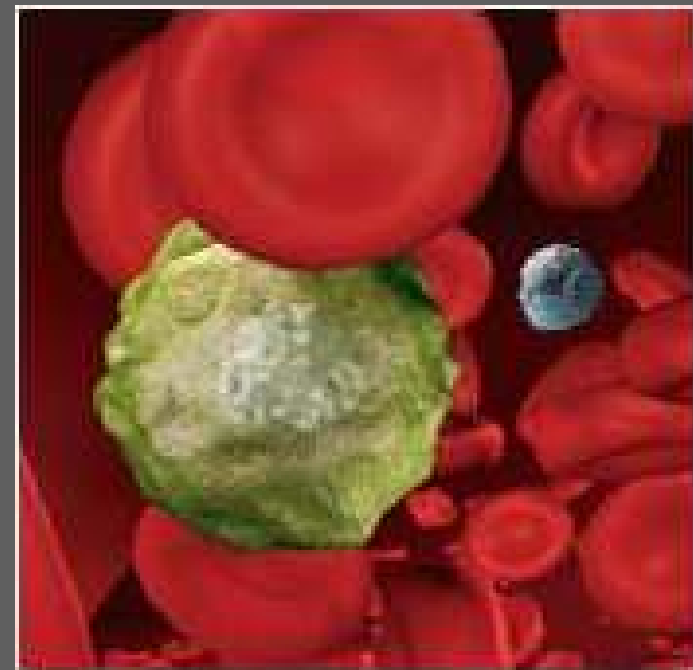
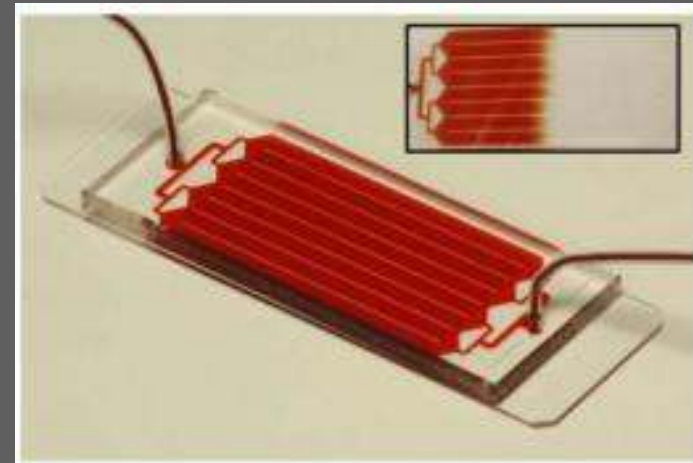
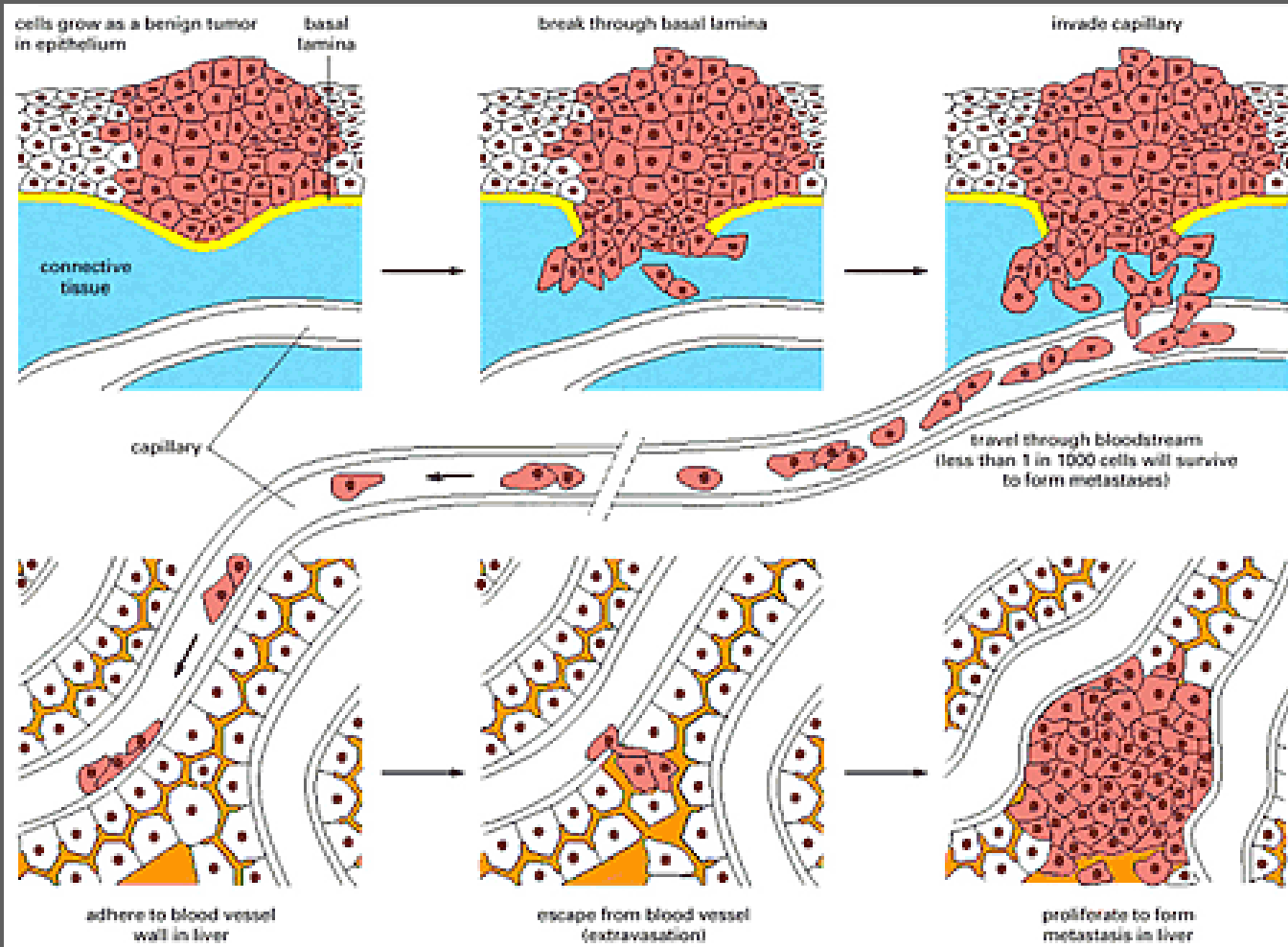
癌指數 / tumour marker

- 發生擴散 機會較高
- 監察復發
 - 提早發現
 - 可以提高存活率?
- 監察治療反應
 - difficult to assess lesions (bone disease and pleural effusion)



循環腫瘤細胞

Circulating Tumour Cells



循環腫瘤細胞

Circulating Tumour Cells

- CellSearch® (JJ)
- CTC occur in early breast cancer (9-48%), support early dissemination theory
- CTC \neq metastases (not all CTC develop metastases)
- CTC characteristics \neq primary tumour (HER2 status)
- CTC predicts survival
- Cutoff value: 5 CTC/7.5ml blood
- Elevated CTC during tx \Rightarrow \downarrow survival (in MBC)
- CTC monitoring during tx \Rightarrow allow change of tx if elevated CTC in MBC (SWOG S0500)