Histological and Molecular Characteristics

Invasive breast cancer

Table 6 depicted the histological types of invasive breast cancer. The 5 most common histological types of invasive breast cancer were ductal (82.7%), lobular (5.3%), mucinous (3.4%), microinvasive (1.8%), mixed ductal & lobular (1.5%) and tubular (1.3%).

Grade 3 invasive breast cancer was found in 47% of the cases . Lymphovascular invasion was found in 39% of invasive breast cancer. Nineteen percent of the subjects had more than one invasive breast tumours and 5% of the subjects had tumours involving more than one quadrant of the breast.

Table 6. Histological type, grading, multifocality and multicentricity of invasive breast cancer

	Relative percentage (%)
Histological type	
Ductal	82.7%
Lobular	5.3%
Mucinous (colloid)	3.4%
Microinvasive	1.8%
Mixed ductal & lobular	1.5%
Tubular	1.3%
Borderline/ malignant phyllodes	0.9%
Medullary	0.9%
Papillary	0.6%
Micropapillary	0.6%
Paget's disease of nipple	0.1%
Cribiform carcinoma	0.3%
Neuroendocrine carcinoma	0.2%
Adenoid cystic carcinoma	0.2%
Inflammatory	0.1%
Metaplastic carcinoma	0.1%
Grading	
1	16%
2	37%
3	47%
Lymphovascular invasion	
Yes	39%
No	61%
Multifocality	
Yes	19%
No	81%
Number of foci	
2	51%
3-4	33%
≥5	16%
Multicentricity	
Yes	5%
No	95%
Number of quadrants	
2	81%
3	17%
4	2%

Molecular characteristics of breast cancer may provide crucial information for clinicians to decide appropriate treatment for breast cancer patients.

Positive results of estrogen receptor (ER+) or progesterone receptor (PR+) biomarker tests indicate cancer may respond well to hormone treatment. Overexpression of c-erbB2 (HER2+) indicates cancer may respond well to targeted therapy against HER 1&2. High level of Ki-67 index indicates a highly proliferative cancer.

Table 7 and Table 8 summarized molecular characteristics of breast cancer including estrogen receptor (ER), progesterone receptor (PR), c-erbB2 and Ki-67 index for invasive breast cancer cases.

乳癌組織學及分子學特性

入侵性乳癌

表6列出各入侵性乳癌的組織學分類特性。首五種最常見的入侵性乳癌組織學類別爲乳腺管(82.7%)、乳小葉 (5.3%)、黏液性 (3.4%)、微侵襲癌 (1.8%)、乳腺管及乳小葉混合型癌 (1.5%)及管狀癌 (1.3%)。

47%個案屬入侵性乳癌的第3級。39%入侵性乳癌患者出現淋巴血管侵蝕現象。19%病人有超過一個入侵性乳癌腫瘤，5%病人的癌腫瘤涉及超過一個乳房部位。

表6. 入侵性乳癌病人的組織學類別、分級、腫瘤多灶性及腫瘤多中心性

	所佔百份比（%）
組織學分類	
乳腺管癌	82.7%
乳小葉癌	5.3%
黏液性癌	3.4%
微侵襲癌	1.8%
乳腺管及乳小葉混合型癌	1.5%
管狀癌	1.3%
臨界性/惡性葉狀莖瘤	0.9%
髓狀癌	0.9%
乳突狀癌	0.6%
微小乳突狀癌	0.6%
乳頭柏哲氏病	0.1%
篩狀癌	0.3%
神經內分泌癌	0.2%
腺樣囊狀癌	0.2%
炎性癌	0.1%
化生癌	0.1%
分級	
1	16%
2	37%
3	47%
淋巴血管侵蝕	
有	39%
否	61%
腫瘤多灶性	
Yes	19%
No	81%
腫瘤病灶數目	
2	51%
3-4	33%
≥5	16%
腫瘤多中心性	
有	5%
否	95%
涉及乳房部位數目	
2	81%
3	17%
4	2%

分辨乳癌的分子學特性，可讓醫生爲病人制訂更有效率的治療方案。

如在雌激素及黃體素生物標籤測試中，雌激素受體 (ER+) 或黃體素受體 (PR+) 呈陽性反應，代表荷爾蒙抑制治療對癌細胞的效果理想。上皮生長素受體呈陽性 (HER2+) 的過度表現，則代表上皮生長素治療對HER 1及2的治療反應理想。至於Ki-67指數愈高，代表體內癌症屬高繁殖性。

表7及表8綜合了各種入侵性乳癌的分子學類別，包括雌激素受體(ER)、黃體素受體(PR)、上皮生長素受體及Ki-67 指數。

Table 7. Molecular characteristics of invasive breast cancer

	Positive	Negative	
Estrogen Receptor (ER)	77%	23%	
Progesterone Receptor (PR)	62%	38%	
c-erbB2	19%	81%	
	<12%	12-50%	>50%
Ki67 index	50%	38%	12%

Table 8. Characteristics of molecular subtypes of estrogen receptor, progesterone receptor and HER2 receptor in the patients of invasive breast cancer

	Relative percentage(%)
ER+PR+HER2+	6%
ER+PR+HER2-	55%
ER+PR-HER2+	4%
ER+PR-HER2-	12%
ER-PR+HER2+	1%
ER-PR+HER2-	1%
ER-PR-HER2+	8%
ER-PR-HER2-	13%

ER+: estrogen receptor positive; ER-: estrogen receptor negative; PR+: progesterone receptor positive; PR-: progesterone receptor negative HER2+: human epidermal growth factor receptor 2 positive; HER2-: human epidermal growth factor receptor 2 negative

In situ breast cancer only

Table 9 depicted the histological type of in situ breast cancer only. The most common histological type of in situ breast cancer was ductal (95.5%), followed by papillary (2.6%), lobular (1.3%) and Paget's disease of nipple (0.6%). In situ breast cancer of high nuclear grade was found in 45% of the cases. Ten percent of the subjects had more than one focus of cancer and 3% of the subjects had tumours involved more than one quadrant of the breast. Microcalcification was present in 59% of in situ cancers only (Figure 35).

Table 9. Histological type, grade, multifocality and multicentricity of in situ breast cancer only

	Relative percentage (%)
Histological type	
Ductal	95.5%
Papillary	2.6%
Lobular	1.3%
Paget's disease of nipple	0.6%
Necrosis	
Yes	70%
No	30%
Nuclear Grade	
Low	18%
Intermediate	37%
High	45%
Multifocality	
Yes	10%
No	90%
Number of foci	
2	75%
3	17%
4	8%
Multicentricity	
Yes	3%
No	97%
Number of quadrants	
2	75%
3	25%

表7. 入侵性乳癌的分子學類別

	陽性	陰性	
雌激素受體 (ER)	77%	23%	
黃體素受體 (PR)	62%	38%	
上皮生長素受體 (c-erbB2)	19%	81%	
	<12%	12-50%	>50%
Ki67指數	50%	38%	12%

表8. 入侵性乳癌中雌激素受體、黃體素受體及上皮生長素受體的分子學副品種

	所佔百份比(%)
ER+PR+HER2+	6%
ER+PR+HER2-	55%
ER+PR-HER2+	4%
ER+PR-HER2-	12%
ER-PR+HER2+	1%
ER-PR+HER2-	1%
ER-PR-HER2+	8%
ER-PR-HER2-	13%

ER+: 雌激素受體呈陽性; ER-:雌激素受體呈陰性,
PR+: 黃體素受體呈陽性; PR-:黃體素受體呈陰性,
HER2+:上皮生長素受體呈陽性; HER2-:上皮生長素受體呈陰性

原位癌

表9列出原位癌乳癌病人的組織學類別。最常見的原位癌乳癌組織學類別爲乳腺管癌(95.5%)，接著是乳突狀癌(2.6%)、乳小葉癌(1.3%)及乳頭柏哲氏病(0.6%)。原位癌的核分級爲最高級數佔45%。10%病人有超過一個原位乳癌病灶，3%病人的乳癌腫瘤涉及多於一個乳房部位。59%原位癌病人出現乳房微鈣化徵狀。(圖35)

表9. 原位癌病人組織學分類、分級、腫瘤多灶性及腫瘤多中心性

	所佔百份比 %
組織學分類	
乳腺管癌	95.5%
乳突狀癌	2.6%
乳小葉癌	1.3%
乳頭柏哲氏病	0.6%
壞疽	
有	70%
否	30%
核分級	
低	18%
中度	37%
高	45%
腫瘤多灶性	
有	10%
否	90%
腫瘤病灶數目	
2	75%
3	17%
4	8%
腫瘤多中心性	
有	3%
否	97%
涉及乳房部位數目	
2	75%
3	25%

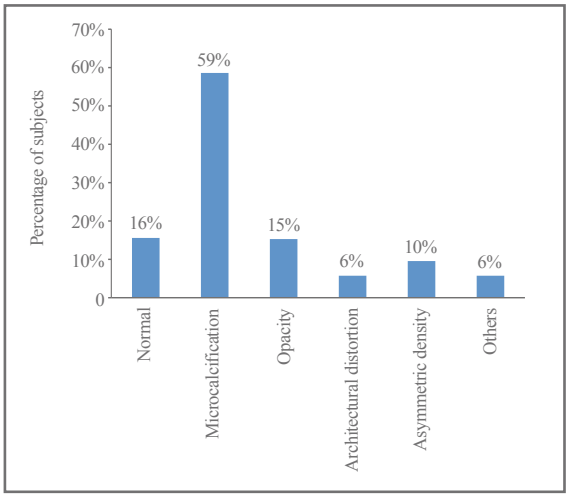

Figure 35. Mammographic findings of in situ breast cancer only
*Note: * = percentages add to more than 100% because more than one response could be checked*

Table 10 summarized the molecular characteristics including estrogen receptor, progesterone receptor, c-erbB2 and Ki67 index for in situ breast cancers only.

Table 10. Molecular characteristics of in situ breast cancer only

	Positive	Negative	
Estrogen Receptor (ER)	77%	23%	
Progesterone Receptor (PR)	67%	33%	
c-erbB2	33%	67%	
	<12%	12-50%	>50%
Ki67 index	63%	34%	3%

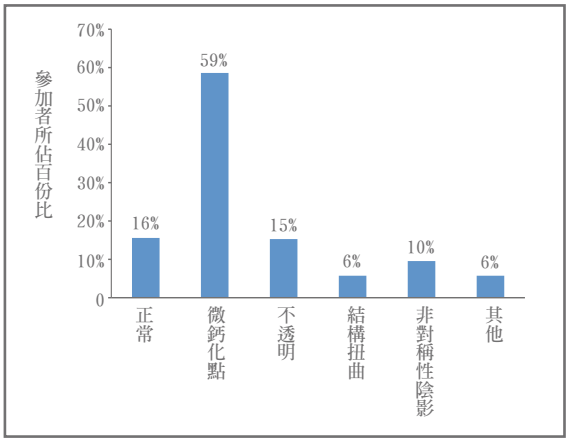

圖35. 原位癌個案進行乳房X光造影的發現
備注： =因參加者可作多於一個選擇，故百份比高於100%*

表10列出乳癌原位癌病人的病人分子學特性，包括雌激素受體、黃體素受體、上皮生長素受體及Ki67指數。

表10. 乳癌原位癌病人分子學特性

	陽性	陰性	
雌激素受體(ER)	77%	23%	
黃體素受體 (PR)	67%	33%	
上皮生長素受體(c-erbB2)	33%	67%	
	<12%	12-50%	>50%
Ki67指數	63%	34%	3%