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Radiology and Breast Imaging

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References:
1. Ignaut DA, Schwartz SL, Sarwat S and Murphy HL. *Diabetes Educ* 2009;35:789-798.
2. Ignaut DA, Opincar M and Lenox S. *J Diabetes Sci Technol* 2008;2:533-537.

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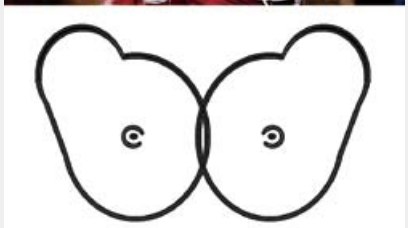

My Tiffany

Photo taken in Tanzania during a tribal dance. 2 young girls are splendidly dressed up in their best costumes and jewellery. The image has been taken with a fisheye lens, emphasising the contours of the 2 girls' shaven heads. This perspective distorts the normal image. As a radiologist with a keen interest in breast imaging, the artist could not help noticing how similar these contours are to women's breasts. This photos has been widely exhibited in British, USA, Hong Kong, Australia and Europe. It is being collected by the Photographic Society of America.

Dr Amy LM PANG
MBBS(HK),FRCR,
FHKCR,FHKAM(Radiology)
Specialist in Radiology

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Breast Imaging

Dr Wendy WM LAM

MBBS(HK), FRCR(UK), FHKCR,
FHKAM(Radiology)
Chief of Service, Department of Radiology, Queen Mary Hospital
Service Director(Radiology), HK West Cluster Hospitals

Editor

Dr Wendy WM LAM

Breast cancer has become the most common cancer affecting women in Hong Kong since 1993. Female breast cancer cases diagnosed in Hong Kong have tripled from 1,152 in 1993 to 3,419 in 2011. On average, about 9 women are diagnosed with breast cancer every day. The number of male cases has also increased from 4 to 21.

The survival rate is much higher if the cancer is detected early, so early diagnoses can save on medical costs and reduce the impact on the patient. There is no doubt of a revolutionary contribution of modern technology to overall ease in diagnosis. It has helped shorten morbidity, reduced mortality and improve quality of life.

Mammography is a form of X-ray imaging used for screening and detection of masses or calcifications that might indicate breast cancer. However, it involves irradiation. Breast ultrasound can add important information to the results of mammogram and also may provide information that is not found with a mammogram. Very often, mammogram and breast ultrasound are done in conjunction to maximise the detection rate of early breast cancer.

MRI can generate more detailed images than X-rays. MRI, used with mammography and breast ultrasound, can be a useful diagnostic tool. Recent research has found that MRI can locate some small breast lesions sometimes missed by mammography. It can also help detect breast cancer in women with breast implants and in younger women who tend to have dense breast tissue.

This issue of the ***Hong Kong Medical Diary*** features a few articles on the use of mammography, ultrasound and MRI in breast imaging, as well as breast intervention. I am honoured to have invited and would like to thank Dr Gladys Lo to write on MRI of the breast, Dr Tina Lam to write on US breast, Dr Jeffrey Chiu to write on Mammography and Dr Lorraine Sinn to write on breast intervention. I wish the articles can help the clinicians to have a better understanding of the indications of different kinds of breast imaging, and would provide readers in our health care profession ideas of applications, radiation risks and strategies to help our patients.

I would also like to thank Dr Helen She for the article on skiing in France and Dr Amy Pang for providing us with the magnificent cover photo for this issue.

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Breast Ultrasound Imaging

Dr Tina PW LAM

MBBS(HK), FRCR(UK), FHKAM(Rad)

Consultant Radiologist, Department of Radiology, Tung Wah Hospital, HKWC

This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 31 March 2014.

Abstract

Ultrasound is a useful adjunct to physical examination and mammography, especially in women with dense breasts. It not only reliably distinguishes cystic from solid breast masses, but also characterises solid masses, differentiating accurately between benign and malignant lesions, guiding biopsy and interventions. Addition of an ultrasound examination to screening mammography significantly increases the detection of breast cancers.

This article presents a general overview on ultrasound equipment, scanning techniques and sonographic features of benign and malignant breast conditions. New developments such as volume scanners with three dimensional image reformation, elastography and contrast enhancement sonography are also introduced.

Sonographic characteristics of malignant lesions are irregular shape, ill-defined spiculated or microlobulated outlines, abundant internal vascularity, increased height to width ratio, acoustic shadowing, perifocal echogenic halo and associated architectural distortion while round or oval shapes, gentle lobulations, well defined outlines, homogeneous internal echotexture, vascularity around lesion margins and through sound transmission all favour benignity. Detection and differentiation of these conditions correlating with presenting symptoms and physical examination are discussed and highlighted with abundant illustrations. Pitfalls and artefacts encountered at practice, as well as ways to overcome them are provided and tabulated for clarity.

Technical considerations

Equipment

Hand-held scanner

Real-time handheld scanners with high frequency broad bandwidth linear array transducer in the range of 7-13MHz provide convenient and rapid evaluation of the breasts. Beam attenuation and diffraction in the deeper tissue can be compensated with graded increases in the time-gain compensation and appropriate focal zone settings.

Colour and Power Doppler

Colour dopplers and Power dopplers are essential to complete evaluation of breast lesions. These depict the presence of vascular flow or debris movement. While colour dopplers provides information on the flow direction, power dopplers are more sensitive to very low flow velocities[1].

3 Dimensional Volume Scanner

Three dimensional scan with volume rendering and multi-planar image reformation is a newer feature where one of its invaluable features includes assessments of the breasts in the coronal plane, which is usually not depicted with conventional equipment. Hand-held 2D transducers with 3D feature is convenient to use, while the automated breast volume scanners (ABVS) can be performed in a screening setting to acquire volume data that could be analysed at convenience. There are however no statistically significant differences between conventional hand-held scanners and ABVS in the differentiation between benign and malignant masses[2,3,4].

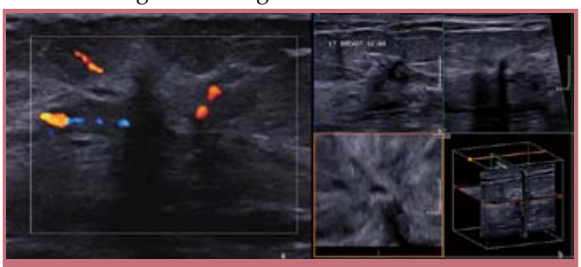

Figure 1, 3D volume imaging. a, invasive ductal carcinoma in conventional projection. 1b,same tumour reformatted in longitudinal, transverse and coronal planes.

Elastography

Elastography is another recent advance that evaluates lesion stiffness and has a significant role in the management of small <5mm non-palpable lesions (5). Tissue stiffness can be measured by two different mechanisms, strain elastography by compression or shear wave elastography by acoustic radiation force impulse (ARFI).

Strain elastography is performed by manual compression of the breast tissue using the ultrasound tranducer. This has the disadvantage of being operator dependent. Stiffness of the targeted mass is compared with surrounding tissues, and the result is expressed as a strain ratio.

With shear wave elastography, manual compression is not required. An ARFI is generated by the untrasound tranducer travelled through the region of interest,

generating transverse pressure waves as they propagate and deform the tissue. The propagation velocity and attenuation of the waves are related to tissue stiffness which can be quantified. Operator dependence and interobserver variabilities are reduced in comparison to the manual compression method.

With the exceptions of calcified fibroadenomas and intracystic, necrotic or medullary cancers, malignant masses are almost always stiffer than benign ones. Ultrasound elastography shows promising results differentiating benign from malignant masses with an accuracy comparable to conventional methods[5,6,7]. However, histological correlations should not be excluded solely by the elastography score.

Contrast enhanced sonography with Doppler study
Microbubble ultrasound contrast improves imaging of angiogenesis, intensely increasing the signal level of breast lesions and characterises the vascular patterns of benign and malignant lesions. Enhancement patterns of malignant lesions are shown to be similar to MRI with wash-in and wash-out phases. Apart from its use in differentiating benign from malignant masses, it is also useful in the assessment of local tumour extent and for monitoring of chemotherapy responses.[8,9]

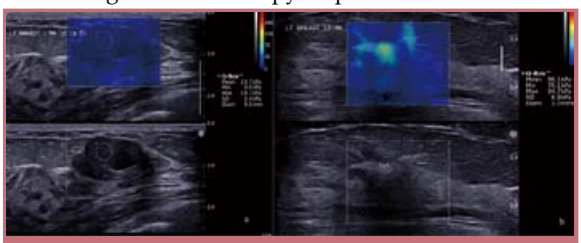

Figure 2, elastography a, fibroadenoma, 2b invasive ductal carcinoma.

Scanning technique[10]

High frequency ultrasound used in breast examination is easily attenuated with depth and thus breast tissue in the quadrant of interest should be flattened evenly as much as possible during scanning. For the upper-outer quadrant, it is performed with the patient supine and rolled contralateral to a posterior-oblique position, her back supported by a soft wedge pad. For the lower half of pendulous breasts, the ipsilateral arm should be raised over the patient's head. For the medial quadrants, the patient may just lie flat on her back. Moderate compression by the transducer during scanning helps to decrease breast thickness and further improves image quality. As the transducer negotiates the convex breast contour, it is important to maintain constant even contact with the breast to ensure maximal beam penetration.

To ensure all of the breast parenchyma from the skin to the chest wall is imaged, the pectoralis muscle and chest wall should be imaged at the bottom of the screen in any field of view.

The whole anatomical location of the breast, which spans from the second to sixth ribs, and from the midline to the mid axillary line should be systematically scanned. This is best performed in a radial or antiradial direction like the spokes of a wheel, starting from the nipple to the breast periphery, or reverse. The nipple-areolar complex can be evaluated with the transducer angled along the side of the nipple, rather than flat over the top of it.

The axillary regions should also be routinely included to assess the regional lymph nodes and the not so uncommon accessory axillary breasts.

A genuine abnormality should be demonstrable in at least two projections, its location documented using a clock notation and distance from the nipple. Complete lesion evaluation should include the shape, outline characteristics, internal echotexture and vascularity.

As architectural distortion and microcalcifications are less readily appreciated with sonography, correlations with mammogram (except in very young patients) is a good practice.

Normal Breast Anatomy

The breasts are composed of glandular, fibrous stroma and adipose components, the proportions vary with individuals, hormonal status, age and parity.

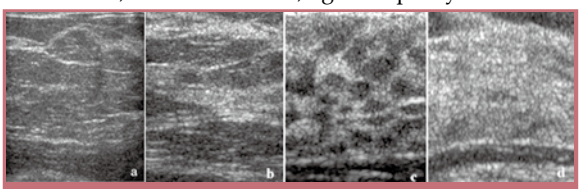

Figure 3a-d, sonography of different breast compositions

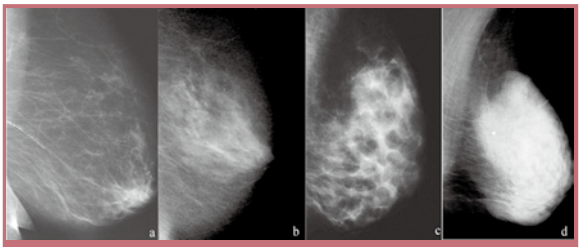

Figure 4a-d, mammography of different breast compositions corresponding to Figure 3.

Skin and subcutaneous fat

Normal skin is 2-3mm thick, echogenic and sharply defined from the underlying hypoechoic subcutaneous fat. Fat lobules are hypoechoic with horizontal linear echogenic strands of supporting stroma within.

Cooper's ligament

Cooper's ligaments are not ligaments at all. These are strand-like fibrous stroma or glandular tissue extending to the skin across the subcutaneous fat layer. As these are perpendicular to the skin with the long axis parallel to the US beam, resulting edge artefacts and acoustic shadowing may obscure the occasional masses just deep to it.

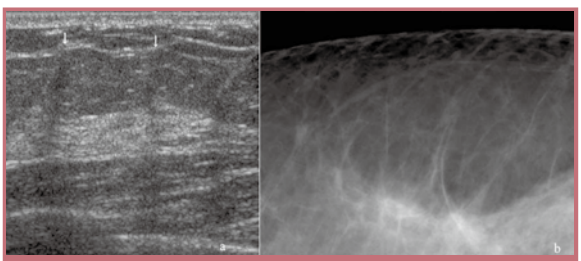

Figure 5a arrows indicate site of Cooper's ligaments and edge artefacts, 5b Cooper's ligament on mammogram

Nipple
The nipple is a dense connective tissue structure and is hypoechoic. The normal or inverted nipple may be mistaken for a mass if the transducer is placed flat over it. The retroareolar region with the converging ducts is normally vascular, when imaged across, should not be mistaken for a spiculated lesion.

Glandular component
The glandular component is echogenic with the hypoechoic ductal system running through it, convergent at the nipples. These ducts appear as tubular branching hypoechoic structures with an internal linear echogenic ductal epithelium, round or oval with central echogenic dots in cross-section.

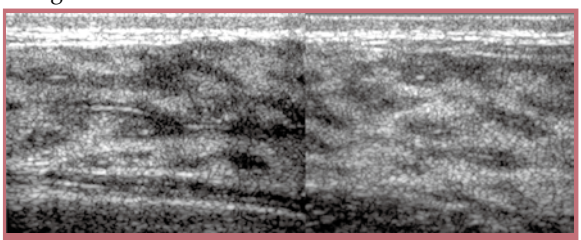

Figure 6, normal appearance of lactiferous ducts with linear echogenic ductal epithelium in longitudinal projection, and echogenic dots in cross-section.

Fat lobules within the glandular component can be distinguished from genuine mass lesions by scanning in different projections, as they are usually more undulated and blend into the surrounding tissues when viewed at other angles.

Lymph node
Normal lymph nodes may be occasionally identified within the breasts. They are oval in shape, with a rim of hypoechoic cortex and hyperechoic fatty hila. A small hilar vessel may be depicted with colour Dopplers.

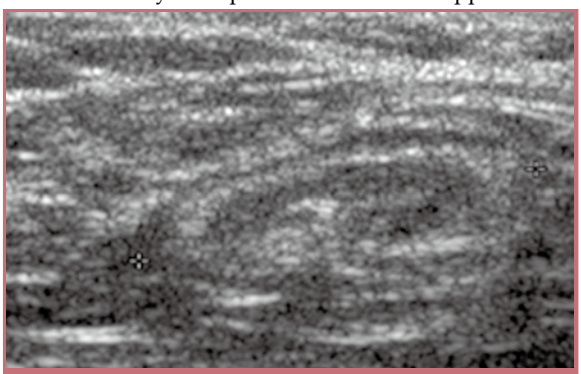

Figure 7, A normal lymph node with a thin rim of hypoechoic cortex and normal fatty hilum of mixed echogenicity.

Submammary fat and chest wall
Deep to the fibroglandular component is a variable thickness of hypoechoic submammary fat. Posterior to it, the pectoralis muscle fibres are hypoechoic with linear echogenic strands along its long axis. Ribs are seen at regular intervals deep to the pectoralis muscle. They are oval in cross-section, hypoechoic with intense acoustic shadows, contained within the intercostal muscles.

The pleura, pericardium, and effusions in these compartments may be noted in relevant individuals.

Malignant solid mass

Invasive ductal carcinoma
The typical sonographic appearance of an invasive cancer is an irregular mass with microlobulated or spiculated margins and marked hypoechogenicity. It is usually 'taller than wide' as it grows across rather than along normal tissue planes[11].

Doppler study is usually able to depict tortuous dilated high flowing vessels within it, as contrary to the peripheral vascularity of benign tumours. Desmoplastic reaction is sometimes apparent as a perilesional echogenic halo.

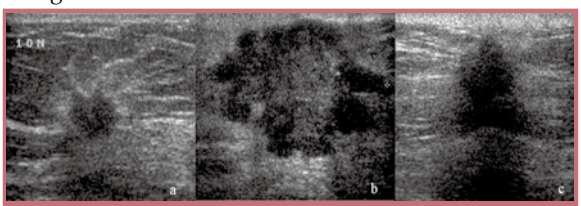

Figure 8, typical malignant tumours with a, spiculated, and b, microlobulated outlines, and c, taller than wide ratio.

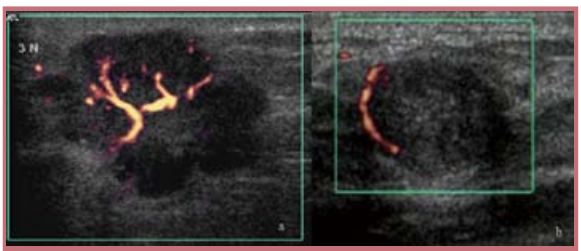

Figure 9a, malignant tumour with large vessel within the centre, 9b, benign mass with peripheral vascularity.

Disruption of surrounding architecture, ductal extension and microcalcifications indicate more extensive local involvement. Skin tethering, nipple extension and breached submammary fat dsignify more advanced disease.

Architectural disruption is apparent as abnormal angulations of the Cooper's ligaments and abnormal ductal courses. Microcalcifications are clustered bright specks that are more readily identified within the hypoechoic tumour than in the background of the hyperechoic glandular tissue.

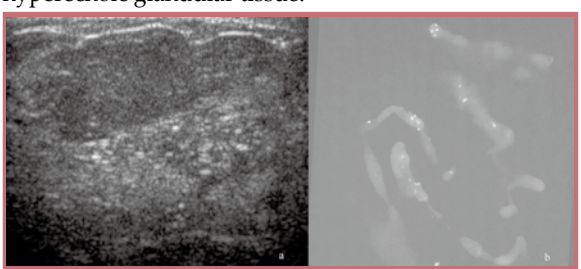

Figure 10, DCIS with microcalcifications. a, clusters of echogenic microcalcifications within hypoechoic tumour; b, radiograph of biopsy specimen of the same lesion

Not all cancers present with such typical appearances. Intracystic papillary cancers and softer mucinous or medullary cancers usually have well defined margins and flat orientations. Medullary cancers may be markedly ehypoechoic through transmissions mimicking complex cysts.

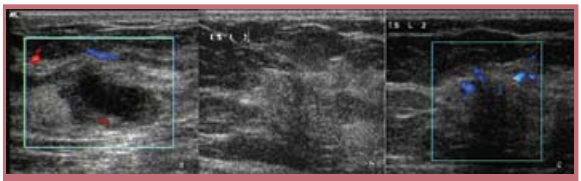

Figure 11 a, medullary carcinoma with thick irregular wall and necrotic centre mimicking a cyst. b, subtle sonography appearance of invasive lobular carcinoma as a thickened area with acoustic shadowing. C, Colour Doppler depicts abnormal vessels convergent into the thickened area.

Invasive lobular carcinoma

Invasive lobular carcinomas are difficult to diagnose, as the sonographic sign may only be a thickened area of sonic shadow. Dopplers may detect abnormal vessels convergent into the abnormal area.

Ductal carcinoma in situ

Ductal carcinomas in situ are another difficult area, especially when there are no associated microcalcifications. The mass-forming type shows features overlapping benign masses, while the non-mass-forming type shows thickened ducts, arbourisation or ductal dilatation with intraductal nodules[12].

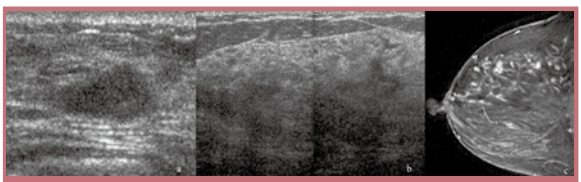

Figure 12, ductal carcinoma in situ. a, mass-forming DCIS showing features of benignity such as horizontal orientation and lack of acoustic shadowing. b, thickened area with thickened ducts on sonography. c, same tumour on MRI with clumped branching enhancements typical of DCIS.

Metastasis

Metastases to the breasts are most often from melanoma, leukaemia, lymphoma or lung carcinoma. They are often well defined and rounded. The leukaemic origin is typically associated with an echogenic component[13,14].

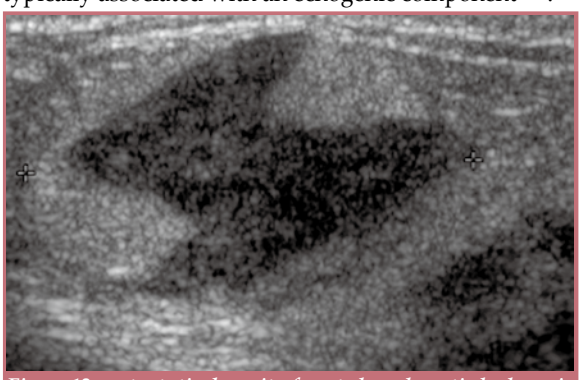

Figure 13, metastatic deposit of acute lymphocytic leukaemia in breast.

Inflammatory breast cancer and lymphoedema

There are various causes of lymphoedema, such as lymphatic obstruction from regional metastatic lymphadenopathy, inflammatory breast cancer or just post irradiation treatment. The skin becomes thick with peau d'orange appearance, sonographically evident as a blurred interface between the underlying subcutaneous fat, distended subdermal lymphatic channels, grey subcutaneous fat and ill-defined Cooper's ligaments.

Inflammatory breast carcinomas are an infrequent fulminant form of invasive breast carcinomas that manifests clinically with a rapid onset of breast tenderness, induration, warmth, erythema, and oedema. Ultrasound is sensitive in depicting the skin thickening, masses masked by the oedema, as well as local skin or chest wall invasions and axillary involvement[15].

Metastatic lymph nodes

Metastatic cells in the afferent lymphatic channels first embed in the marginal sinuses at the cortex of a lymph node, then drains to the hilum, and thus cortical thickening could be an indication of early metastasis[16]. Absence of a fatty hilum develops later and is considered the most specific finding of metastases. However, sonography cannot reliably differentiate inflammatory lymph nodes from ones that contain lymphoma or metastases.

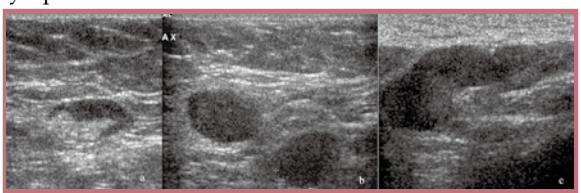

Figure 14a, metastatic lymph node with irregularly thickened cortex. b, two metastatic lymph nodes with increased width to length ratio and absent fatty hila. c, inflammatory lymph nodes related to extensive skin eczema.

Benign cystic mass

Simple cyst

Ultrasound can accurately distinguish cysts from solid masses up to 98-100%. Ultrasound criteria for a simple cyst are well-defined margins, round or oval contour, sharp anterior and posterior walls, posterior acoustic enhancement and absence of internal echoes.

Cyst with low level echogenic content

Cysts may contain specks of low level echoes from milk of calcium, crystalline cholesterol, pus or haemorrhage. Presence of fluid-debris levels, or movements of these echoes related to the patient's postural change would distinguish them from genuine solid lesions.

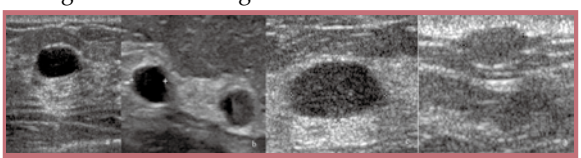

Figure 15a-d. a, typical sonographic appearance of a simple cyst with well-defined margin, anechoic content and through sound transmission. b, cysts with fluid-debris levels. c, low level echogenic cyst content due to crystalline cholesterol d, sebaceous cyst within the skin, abutting subcutaneous fat.

Sebaceous cysts are not cysts but are keratin plugged sebaceous glands. These are located within the skin, abutting the subcutaneous fat. Close scrutiny by ultrasound or a physical examination will usually identify the punctum. As these present no malignant potential, reassurance is preferable to biopsy.

Calcified cyst walls or contents causing acoustic shadows that simulate malignancy can be easily excluded when correlated with mammography. Thick, ill-defined cysts due to previous aspiration or inflammation may present more challenges, requiring needle biopsies to differentiation from intracystic tumours or necrotic cancers.

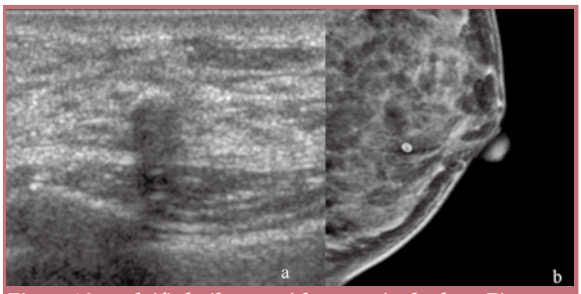

Figure 16a, calcified oil cyst with acoustic shadow. Figure 16b, same cyst on mammogram.

Septate cyst

Thin septa could be walls between simple cysts, but thick septa, especially if vascular on Doppler, require a biopsy to exclude malignancy. Similarly, clusters of numerous tiny cysts with complex echogenic contents or unresolvable cystic outlines should be biopsied to exclude papillary lesions.

Intracystic tumour and tumour with cystic component

Solid intracystic masses may be distinguished from sludge or debris if internal vascularity is identified with the use of Doppler. Differentiation between a benign papilloma and a papillary carcinoma is not always possible, unless the latter has invaded outside the cystic confine. Ductal extension, if present, is more readily identified if scanned radially or antiradially in the plane of the ductal system.

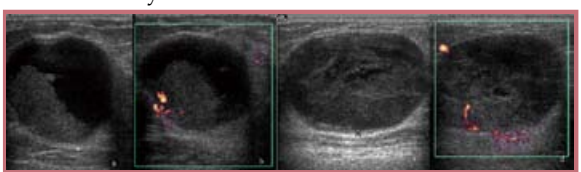

Figure 17, two examples of intracystic papillary tumours. a, apparent fluid-debris level, b, haemorrhagic cyst content. b&d, Power Doppler depicts vascularity of solid components.

Post-operative or post traumatic haematoma, seroma and fat necrosis

Seromas are not uncommon after major operations. When present, they are cystic collections with anechoic or low level internal echoes, closely related to the surgical bed or along surgical scars and could persist for months. Haematomas have a more complex or solid appearance, such as thick wall cysts containing fluid debris levels, or partially organised with heterogeneous hypoechoic contents.

Post traumatic haematomas may be associated with skin bruises, surrounding oedema and ill-defined outlines. These should resolve at follow-up, as contrary to persistent or enlarging tumours incidentally discovered by the initial examination.

Fat necrosis is more varied in appearance and usually less well circumscribed. When cystic, it is usually irregular containing an echogenic necrotic mass and speckled echogenicities from the oily suspension. At a later stage, acoustic shadows from dystrophic calcifications may pose difficulties in differentiating local tumour recurrence. Though coarse calcifications typical of fat necrosis can be confirmed by mammography, this may not be possible if it occurred at the margins of mastectomy scars. Careful evaluation of the clinical course and evolving ultrasound features will usually give the correct diagnosis.

Benign solid mass

Hypoechoic mass

Lipoma

Lipomas are benign tumours composed entirely of adipose tissue. They are usually superficially located and present as soft palpable masses. Sonographically they are circumscribed and encapsulated, with an echotexture indentical or slightly hyperechoic than adjacent fat lobules.

Fibroadenoma

Fibroadenomas are the commonest solid benign mass in young women under 30 years old. They are round or oval, well circumscribed masses that are wider than tall with homogeneous internal echoes. Presence of less than four gentle lobulations and a thin echogenic pseudocapsule are other reliable signs of benignity[17].

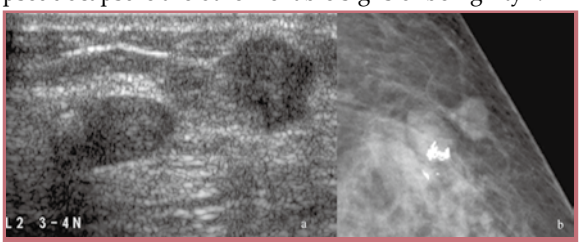

Figure 18a, sonography of partially calcified fibroadenoma (left) and adjacent invasive ductal carcinoma (right) b, same masses on mammogram

Degenerated fibroadenomas with coarse calcifications cause acoustic shadows that occasionally will result in diagnostic difficulty. This could be easily clarified with mammographic correlations.

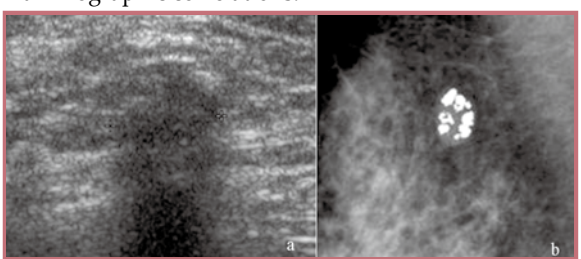

Figure 19a - heavily calcified degenerated fibroadenoma with ill-defined outline and acoustic shadow, mimics a malignant mass. b, same fibroadenoma showing typical benign popcorn calcifications on mammogram.

Though predominantly composed of a fibrous element, cancers can rarely arise from the small proportion of glandular element in fibroadenomas. Suspicious features include microlobulations, microcalcifications, angular margins or marked hypoechogenicity. Conversely, well-circumscribed carcinomas may simulate fibroadenomas.

Phylloides tumour
Phylloides tumours resemble fibroadenomas both sonographically and histologically. They are further categoried into benign, borderline or malignant by histological features. These tumours never calcify, sometimes containing cystic clefts. The usual presentation is a rapidly enlarging mass in the slightly older age group than fibroadenomas. Sonography or a needle biopsy is unreliable for differentiation between the different categories or from giant fibroadenomas.

Mixed hypoechoic and hyperechoic mass

Hamartoma
Hamartomas or adenolipomas are benign circumscribed masses composed of variable proportions of glandular, fibrous and adipose tissues, As they are similar to normal breast composition, they are also known as hamartomas. Compressed normal tissues around these lesions form a pseudocapsule appearance. Internal echotexture is variable, either hyperechoic or mixed echogenicity, depending on the proportion of its components. There are no internal microcalcifications, retrotumoural acoustic enhancement or shadowing. Mammography is more diagnostic, showing the mixed glandular and adipose components with a 'breast within breast' appearance.

Diabetic mastopathy
This is a form of lymphocytic mastitis and stromal fibrosis characterised by palpable masses in women with long-standing type I - insulin-dependent diabetes (IDDM). Dense fibrosis and predominantly B-cell lymphocytic infiltrates surround the ducts, lobules and vessels resulting in ill-defined hypoechoic masses with marked acoustic shadowing. These features mimic cancer and invariably prompt a biopsy.

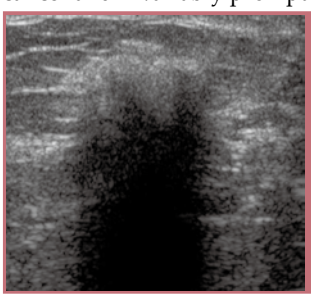

Figure 20, ill-defined hypovascular mass with strong acoustic shadowing in patient with long standing type I diabetes mellitus.

Pseudoangiomatous stromal hyperplasia
Pseudoangiomatous stromal hyperplasia (PASH) is a benign entity not uncommon in young pre-menopausal women, but its tumoural form is rare. Histologically, it is a non-calcific mass with a complex slit-like network within a background of stromal hyperplasia. There is a variety of sonographic appearances, commonly a circumscribed hypoechoic mass. Rarely they may appear as heterogeneous or echogenic areas with irregular or poorly defined borders[18]. Needle biopsies can be frequently inconclusive and major differentiation is from angiosarcomas, which the ill-defined form of PASH resembles. Excision is recommended if the mass is rapidly growing.

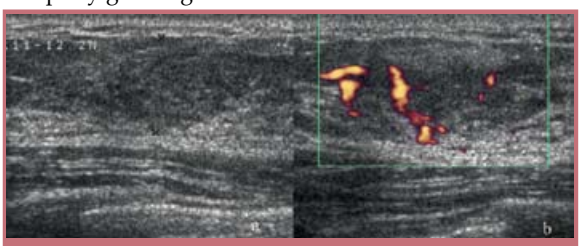

Figure 21a, angiosarcoma as ill-defined hypoechoic thickening, b, hypervascularity demonstrated at Power Doppler.

Other benign breast conditions

Mastitis and Breast abscess

Mastitis maybe further categorised into lactational or non-lactational, either form may progress with formation of abscesses. Abscesses may be acute suppurative, presenting typically with tender, fluctuant breast masses, warm and erythematous skin changes and associated fever; or granulomatous, which runs a more protracted course with non-tender firm masses.

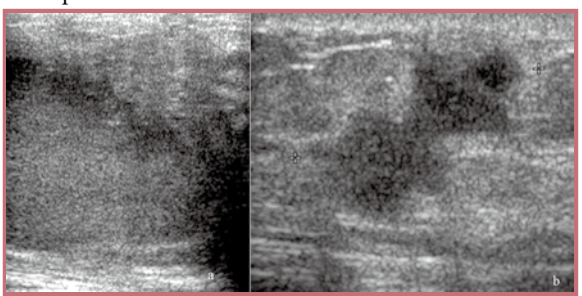

Figure 22a – suppurative abscess, b- granulomatous abscess

Pregnancy or lactation related changes

The glandular component of the breast during late pregnancy and lactation becomes homogeneously hypoechoic, assuming similar an echotexture approaching that of fat lobules. This hypoechoic background renders identification of well-defined hypoechoic masses rather difficult.

Dilated lactiferous ducts are especially marked surrounding the nipple area. Galactocoeles with echogenic fat-fluid levels may be present.

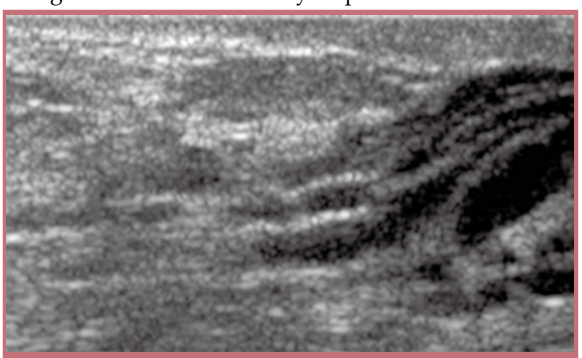

Figure 23, Normal lactating breast with homogeneous hypoechoic glandular change and dilated lactiferous ducts.

Specific Clinical Problems

Nipple Discharge

Physiological nipple discharge is usually bilateral from multiple orifices, milky or yellowish, sometimes only with breast compression. More sinister causes have to be considered if this is spontaneous, bloody or clear discharge from a single orifice. Fortunately up to 97% of bloody nipple discharges are caused by benign intraductal papillomas. Although these are usually very small, their frequent association with a focally dilated duct would prompt scrutiny around the nipple areolar complex and eventual detection of intraductal nodules. Even if the ultrasound study is normal, the possibility of occult neoplasms such as ductal carcinomas in situ has to be excluded with other investigations such as MRI.

Palpable abnormality not detected by ultrasound

A palpable lump where ultrasound shows only normal tissue has to be evaluated on clinical grounds, Though dense glandular tissue or prominent fat lobules may be the cause of the lump, invasive lobular carcinoma or non-mass DICS that are notoriously subtle cannot be confidently excluded even with a normal mammogram. The decision for biopsy has to be based on physical examination and degree of clinical suspicion.

The augmented breast

This can be categorised into implant or non-implant (free injection) augmentations. Implants may be pre-pectoral or, more commonly, subpectoral in location, and implants could be single or double lumen, with saline or silicone gel. If fluid is detected between the radial folds or outside the implant capsule, it signifies an intracapsular rupture. The crumpled implant envelope may assume a stepladder appearance, equivalent to the MRI linguine sign. With an extra-capsular rupture, the implant material will leak into the breast parenchyma through the breached fibrous capsule and will result in ill-defined cysic collections and acoustic shadowing descripted as snowstorm.

Non-implant free injection augmentplasty includes autologous fat graft injection, polyacrylamide gel (PAAG) paraffin and liquid silicone. Ultrasound features vary according to the materials and any associated granulomatous reaction or calcifications. Paraffinomas typically cause diffuse snowstorm appearance of the breasts with diffuse acoustic shadows, while PAAG will appear as complex cystic collections with low level echogenicity. Fat necrosis and calcifications may be associated with autologous fat graft injections.

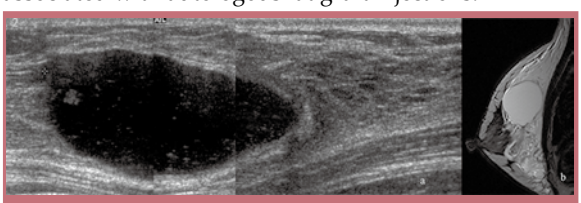

Figure 24a- PAAG collections, figure b- MRI examination of same patient shows collections deep to breast parenchyma.

The male breast

Normally consists of major ducts only, a variety of conditions or treatment side-effects could induce ductal proliferation and stromal hyperplasia, resulting in gynaecomastia. The usual presentation is a unilateral or bilateral tender subareolar masses that wax and wane. Sonographically, the glandular proliferations appear as hypoechoic triangular or finger-like structures extending posteriorly from the nipple to the chest wall.

Pseudogynaecomastia is a fatty proliferation of the breasts without development of the glandular components.

Ultrasound for breast cancer screening

Ultrasound is a valuable adjunct to mammography especially in women with dense breasts [12a], but should not replace mammography in screening of asymptomatic women. Addition of an ultrasound examination to screening mammogram increases up to 28% of cancers detected, but this has not been shown to decrease the mortality rate. It was also noted that consequently, the false positive rate and biopsy rate also significantly increased[19,20].

Table 1. Sonographic Features of Benign and Malignant Masses

	benign	malignant
shape	Round, oval or less than 4 gentle lobulations	Irregular
margin	Smooth, well defined, thin echogenic pseudocapsule	Spiculated, microlobulated, angular, echogenic halo from desmoplastic reaction
Height width ratio	Horizontal growth, wider than tall	Grow across tissue planes thus taller than wide
Internal echoes	homogeneous	Markedly hypoechoic, heterogeneous if internal haemorrhage or necrosis
vascularity	Usually hypovascular, small vessels around margin	Usually hypervascular, dilated tortuous vessels in centre, abnormal peripheral convergent vessels
Acoustic shadow	Acoustic enhancement or no change	Acoustic shadow unless necrotic with cystic component

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "Breast Ultrasound Imaging" by Dr Tina PW LAM and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 31 March 2014. Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. On differentiating benign from malignant breast masses, automated Breast Volume Scanners are more reliable than conventional hand-held scanners with statistically significant differences.
2. Performance of strain elastography does not require manual compression of the breast parenchyma, the results are also more reproducible.
3. Ultrasound contrast agents improve imaging of angiogenesis and are useful in assessment of post chemotherapy tumour vascularity.
4. The inverted nipple is usually associated with a retroareolar mass , which can be imaged when the transducer is placed flat over the nipple.
5. The typical sonographic appearance of an invasive cancer is an irregular mass with marked hypoechogenicity, a taller than wide ratio and tortuous, high flowing vessels within it.
6. Cancers with sonographic appearances mimicking a benign mass include intracystic papillary cancers, mucinous and medullary cancers.
7. Inflammatory breast cancers are a fulminant form of invasive cancers that manifests with symptoms overlapping those of mastitis.
8. Phylloides tumours resembles fibroadenomas, usually contains calcifications and cystic clefts.
9. Pseudoangiomatous stromal hyperplasia, not uncommon in young premenopausal women, shows a variety of sonographic appearances. The ill-defined form has to be differentiated from angiosacrinomas, which it resembles.
10. Ultrasound increases detection of breast cancers up to 28% when performed together with screening mammograms.

ANSWER SHEET FOR MARCH 2014

Please return the completed answer sheet to the Federation Secretariat on or before 31 March 2014 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Breast Ultrasound Imaging

Dr Tina PW LAM

MBBS(HK), FRCR(UK), FHKAM(Rad)

Consultant Radiologist, Department of Radiology, Tung Wah Hospital, HKWC

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Answers to February 2014 Issue

From Bariatric to Metabolic Surgery: Is There a Need in Hong Kong

1. F **2.** T **3.** F **4.** F **5.** T **6.** F **7.** T **8.** F **9.** T **10.** F

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Mammography: An Overview

Dr Jeffrey LF CHIU

MBBS (HK), FRCR, FHKCR, FHKAM (Radiology)

Specialist in Radiology
Senior Medical Officer, Department of Radiology & Imaging, Queen Elizabeth Hospital

Dr Jeffrey LF CHIU

Introduction

Breast cancer is currently the most common cancer among women in Hong Kong. In 2011, there were 3,419 newly registered cases of breast cancer of women. It is also the third leading cause of cancer deaths among women in Hong Kong after lung and colorectal cancers, with 552 women dying from this cancer in 2011[1]. Breast cancer among women is on a gradual rising trend in Hong Kong. Although it is not as common as in Western countries, it is catching up fast with an age-standardised incidence rate of 61.0 per 100,000 standard women population in 2011. Lifetime risk before age 75 is 1 in 17.

Breast imaging generally refers to mammography. Mammography is complementary to physical examination, and each can detect a significant number of tumours not found by the other. It is a special type of X-ray imaging used to create detailed image of the breast. Mammography uses low dose X-rays, achieved by using targets made of low atomic weight alloys (for example, molybdenum and rhodium). Filters made of aluminium, molybdenum, beryllium, rhodium or palladium are used. It uses high-contrast, high-resolution (with single-sided emulsion) film to demonstrate microcalcifications smaller than 100μm.

Technique / Procedure

Mammograms are usually obtained in the two standard cranio-caudal (CC) and medial-lateral oblique (MLO) views. The latter, a somewhat tilted lateral view, allows better visualisation of the tail of the breast tissue as it extends out towards the axilla than is possible on a straight lateral view. By convention the identifying markers are placed along the lateral edge of the breast.

The procedure is performed with the woman's upper body undressed. All foreign bodies such as bras, necklaces and piercings must be removed before the procedure. The woman will stand in an upright position in front of the machine. For each projection of each breast, the radiographer will place the breasts on the plate and will apply a progressive compression for 5-10s. Immediately after acquiring the mammogram, the breast will be released from compression. The entire bilateral standard procedure, including preparation, takes approximately 5-10 minutes[2].

Screening and Diagnostic Mammography

There are two types of mammography examinations: screening (for early detection of breast cancer before symptoms) and diagnostic (for diagnosis in patients with symptoms such as a palpable lump). The general aim is to enable early treatment of breast cancer, to improve survival rates and to reduce the need for aggressive treatments such as mastectomy.

Screening Mammography

Between the 1960s and the 1980s, six large population-based screening mammography trials were conducted in the United States and Europe. Relative reduction in breast cancer mortality differed among these trials and ranged from 20-32%[3].

Currently, organised population-based breast cancer screening programmes have been introduced in over 20 countries, including Asian countries such as Singapore. Most of the countries have adopted mammography as a screening tool. There is no such population-based screening programme in Hong Kong. Based on the facts that data of its effectiveness in Asian population is not yet available and the local positive predictive value is relatively low because of a lower prevalence of breast cancer in Hong Kong, the Cancer Expert Working Group on Cancer Prevention and Screening of the Department of Health advises that there is insufficient evidence to recommend for or against routine mammography screening for the general female population in Hong Kong. The group also recommends women at high risk of breast cancer because of BRCA 1/2 deleterious mutations carrier status, a strong family history and/or personal risk factors to have breast cancer screening by mammography every year, and begin screening at age 35 or 10 years prior to the age at diagnosis of the youngest affected relative (for those with a family history), whichever is earlier, but not earlier than 30 years of age[4].

Opportunistic screening for self-referred women is available at the Well Women Clinics of the Tung Wah Group of Hospitals and Department of Health, and at various private hospitals and centres, with mammography done usually once every two years for women aged over 40.

For screening mammography, each breast is imaged separately, typically in both CC and MLO views.

Diagnostic Mammography

Diagnostic mammography is performed in patients presenting with clinical symptoms such as a palpable lump, nipple discharge, or skin or nipple retraction, or to work up a finding detected on screening mammography that requires further imaging evaluation. Diagnostic mammography is more involved and time-consuming than screening mammography and is used to determine the exact size and location of breast abnormalities and to image the surrounding tissue and lymph nodes. Each breast is imaged separately in CC, MLO, and supplemental views tailored to the specific problem. These supplemental views can include lateral-medial (LM) and medial-lateral (ML) views, exaggerated CC views, magnification views, spot compression views, and others. Special skin markers are sometimes used to identify certain lesions, skin abnormalities, the nipple, and other areas. Diagnostic mammography should be performed under the supervision of a radiologist.

For symptomatic patients younger than 35, only bilateral whole breast ultrasonogram (USG) is required. Mammogram (MMG) is performed only if USG result is suggestive of malignancy. For patients older than 35, complementary USG and MMG are needed to supplement each other for diagnosis[5].

Mammogram Reporting

Mammogram identifies abnormal breast tissue as asymmetry, architectural distortion, and calcifications. Calcifications may represent benign or malignancy lesions. Linear and branching calcifications have a higher predictive value for malignancy as compared to granular. The most specific mammographic feature of malignancy, however, is a spiculated soft tissue mass; nearly 90% of these lesions represent invasive cancer (Fig.1).

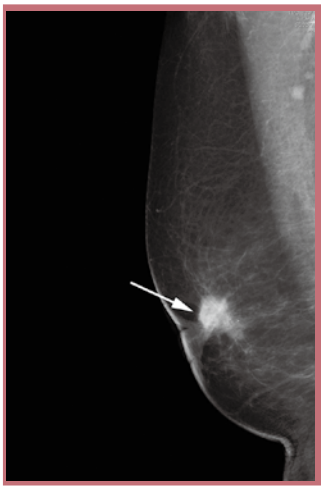

Fig. 1Medial-lateral oblique (MLO) view of the right breast of a 68-year old woman demonstrated a high density iculated mass at the retroareolar region, with overlying nipple raction seen. Subsequent biopsy showed invasive ductal carcinoma.

Clustered microcalcifications are found in about 60% of mammographically detected cancers (Fig.2). Skin thickening, increased breast density, and coarsening of stroma may be detected in patients with inflammatory breast cancer. Smooth round or oval calcifications, rim-like calcifications, large coarse calcifications, vascular calcifications, cigar or rod-shaped calcifications, multiple coarse "popcorn" calcifications are all considered benign[6] (Fig.3).

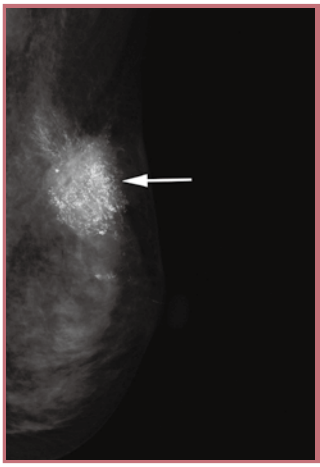

Fig. 2 Medial-lateral oblique (MLO) view of the left breast of a 49-year old woman showed a high density spiculated mass containing extensive clustered pleomorphic micro-calcifications in the upper part of the breast. Biopsy revealed invasive ductal carcinoma with extensive ductal carcinoma in-situ (DCIS) component.

Fig. 3 Medial-lateral oblique (MLO) view of the right breast of a 50-year old woman showed a fibroadenoma with characteristic coarse 'popcorn' calcifications.

Reporting of mammogram is generally adhered to the Breast Imaging Reporting & Data System (BI-RADS) lexicon recommended by the American College of Radiology[5]. [TABLE 1]

TABLE 1 – BI-RADS assessment categories can be summarised as follows:

Category 0	Need additional imaging evaluation
Category 1	Negative
Category 2	Benign finding, non-cancerous
Category 3	Probably benign finding, short-interval follow-up suggested
Category 4	Suspicious abnormality, biopsy considered
Category 5	Highly suggestive of malignancy, appropriate action needed
Category 6	Proven malignancy, appropriate action needed

Diagnostic Performance of Mammography

No diagnostic test is perfect. This rule also applies to mammography. About one-third of cancers can be missed on screening, especially in pre-menopausal women and in those with dense breasts or those with a lot of breast tissue who also have a higher risk for breast cancer[2, 7, 8].

Conversely, not all suspicious findings visualised on a mammogram are cancers. It has been estimated that mammography screening resulted in up to 30% increase in over-diagnosis and over-treatment[4].

Screen Film Vs Digital Mammography

A digital mammography system tends to require a lower radiation dose than screen film mammography for the same image quality. Digital detector converts the X-ray photons to an electronic signal, which is further processed and displayed as a gray scale image. This image can either be electronically sent to a viewing station and displayed on a high-resolution monitor or printed and read on luminant view boxes similar to how the screen film mammograms are read.

The digital system provides greater contrast resolution and thus better visualisation of skin, peripheral breast tissue, and dense breasts. It also allows for changes in zoom, contrast, and brightness, which increase the ability to detect subtle abnormalities[6].

A screen film system does not offer such facilities and also tends to suffer from artifacts during processing and storage. These deficiencies are, however, partly compensated for by the advantages of a higher spatial resolution in screen films as compared to digital systems. In spite of these technological differences, studies have shown that the overall diagnostic accuracy was similar with these two modalities, except for pre-menopausal and peri-menopausal women in whom digital mammography was found to be more accurate[9]. This is at least partly because digital mammography is relatively more sensitive than film mammography in detecting cancer in dense breasts.

Newer Development: Tomosynthesis

Digital tomosynthesis is a further advancement of digital mammography. 3-dimensional digital data are acquired with the help of a moving X-ray source and a digital detector and further processed using computer algorithms to generate thin (generally 1mm) sections of images. This 3-dimensional reconstruction improves the demarcation of a lesion by reducing the overlap from surrounding structures. Available data suggest that this technique may improve both the sensitivity and specificity of mammographic detection of cancer[10,11,12]. However, it requires longer radiation exposure and there remains a concern for increased risk of motion artifact with this technique.

Newer Development: Contrast-enhanced Mammography

The recent development of dual-energy (DE) contrast-enhanced (CE) digital mammography has made the clinical use of intravenous contrast enhancement with mammography a possibility. It is performed by using a digital mammography unit that has been adapted to obtain two images in each view: a low-energy image (below the k edge of iodine [33.2keV]) and a high-energy image (above the k edge). Intravenous injection of an iodinated contrast agent is performed and an intravenous line is disconnected prior to patient positioning. Additional radiation dose is approximately 20% that of routine full-field digital mammography or the equivalent of one additional view. Lesions that show enhancement beyond the breast background are considered to be abnormal. A recent study showed that DE CE digital mammography was feasible and easily accomplished and depicted known primary tumours at a rate comparable to that of conventional digital mammography, and had a lower sensitivity for depicting additional ipsilateral cancers compared with MR imaging, but the specificity was higher[13].

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Clinical Breast MRI

Dr Gladys Goh LO

M.D., Diplomate, American Board of Radiology,
MCPS (Manitoba), FHKAM (Rad) FHKCR

Head of the Department of Diagnostic & Interventional Radiology, Hong Kong Sanatorium & Hospital

Breast MRI has been available for over a decade. It is only now, however, that the examination is recognised as an indispensable adjunct to mammography and ultrasound[1].

Breast MRI imaging protocol is now well established and MRI guided breast biopsy is available and accurate.

How is breast MRI performed? A dedicated breast coil is used and the patient lies in a prone position on the MRI table (Fig. 1). Once inside the magnet, the patient's protons (H+) will line up with the magnetic field. When a radiofrequency pulse is applied through the breast coil, the H+ are tilted to another plane. When the H+ return to the original plane, a signal is given off. The signal is then transmitted to a bank of computers which will generate? an MR image of the breast. The MR protocol consists of pre-contrast and post-IV contrast examinations. The latter is most important to provide pivotal information for tissue characterisation[2]. The protocol is optimised to produce high resolution morphologic (size, shape and margin)(Fig. 2) as well as functional (pattern of enhancement, kinetic graphs, diffusion)(Fig. 3) information[2,3,4]. The examination takes approximately 40 minutes.

What are the current indications of breast MRI?
Indications fall into the following categories:- screening, diagnosis/problem solving, staging and treatment monitoring[5].

Screening:
As a result of recent data, breast MRI screening is now recommended by the American Cancer Society and the American College of Radiology for individuals with greater than 20% lifetime risk of cancer (Table 1) in addition to mammography[6,7](Fig. 4).

Diagnosis & Problem Solving:
Breast MRI detects angiogenesis and therefore, is independent of breast density. It is very useful in patients with dense breasts (65% of patients in Hong Kong have dense breasts compared with 35% in Western countries), in patients with breast augmentation (with prosthesis or injection), in patients with equivocal mammography, ultrasound and/or physical examination, e.g. an abnormality that is seen on only one view of the mammogram (Fig. 5), multiple indeterminate nodules on ultrasound, in patients with bloody nipple discharge and a negative ductogram, in patients with a questionable palpable abnormality with no correlate on mammography or ultrasound and in patients with axillary adenopathy[5].

Table 1. Recommendations for Breast MRI Screening as an Adjunct to Mammography

Recommend Annual MRI screening (Based on Evidence*)
BRCA mutation First-degree relative of BRCA carrier, but untested Lifetime risk ~20 to 25% or greater, as defined by BRCAPRO or other models that are largely dependent on family history
Recommend Annual MRI Screening (Based on Expert Consensus Opinion+)
Radiation to chest between age 10 and 30 years Li-Fraumeni syndrome and first-degree relatives Cowden and Bannayan-Riley-Ruvalcaba syndromes and first-degree relatives

Fig 1. 3 Tesla MRI, Breast Coil placed on table (arrow)

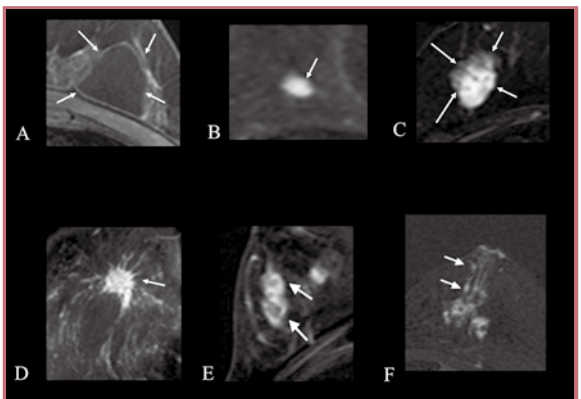

Fig 2. (A) Cyst: smooth oval mass without enhancement (B) Papilloma: smooth round mass with homogeneous enhancement (C) Fibroadenoma: Smooth lobular mass with non-enhancing septae (D) Carcinoma: Spiculated round mass with heterogenous enhancement (E) DCIS: Smooth lobular mass with rim enhancement (F) DCIS: Linear clump enhancement

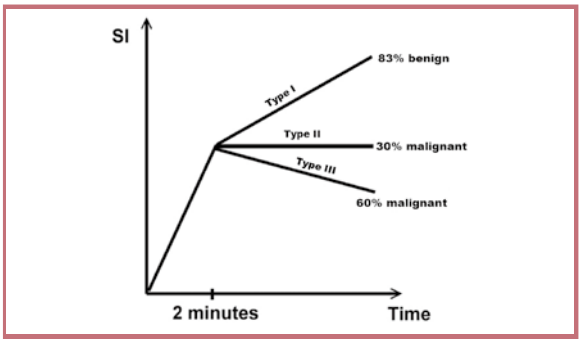

Fig 3a, Kinetic graphs: (Signal-intensity-time graphs)

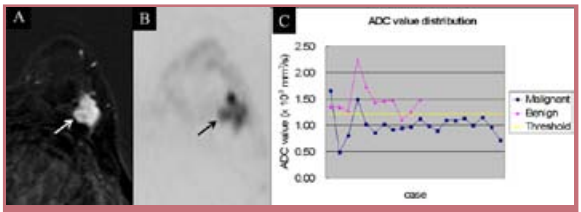

Fig 3b, (A) Carcinoma: Contrast –enhancing left breast mass (B) Positive diffusion (DWI)- mass with ADC value 0.8 x 10-3mm2/sec (C) The threshold ADC value for malignant lesion was determined to be < 1.2 x 10-3mm2/sec[4]

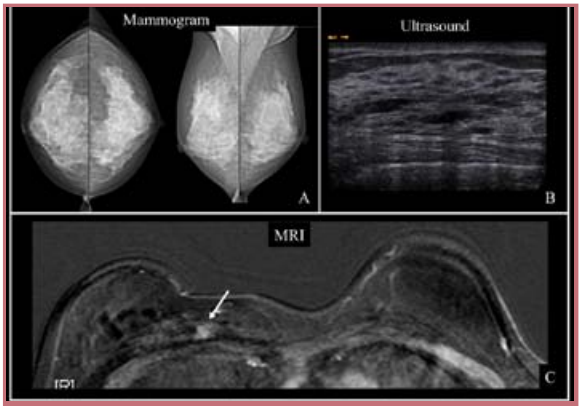

Fig 4. Patient with BRCA2
(A) Normal mammogram (B) Normal ultrasound (C)Breast MRI showed enhancing lesion right breast near chest wall. Biopsy proven DCIS

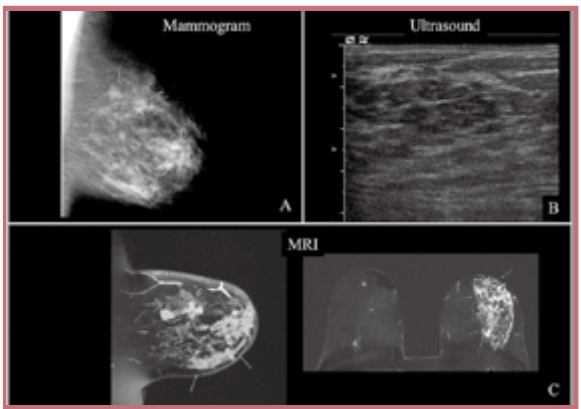

Fig 5. (A) Spiculated masses on mammogram MLO view only. Mammogram CC view normal (B) Ultrasound normal (C) MRI confirmed 2 spiculated masses proven to be carcinoma (arrowheads) & additional extensive DCIS which was mammographic & ultrasound occult (arrows)

Staging:
Locoregional staging of tumour extent is vital, given that surgery is generally the treatment of choice for breast cancers. This indication accounts for more than 50% of our referrals. The accuracy of this staging will determine the success of breast conservation treatment. Any remaining tumour at the time of surgery will increase the chance of recurrence[8]. Multifocal tumours (more than one tumour in each quadrant) and multicentric tumours (tumours in more than one quadrant) occur in 6% to 34% of breast cancer cases[9]. Contralateral tumours occur in 3.8% to 5.4% of the time[3]. Invasive lobular carcinoma is difficult to detect with conventional imaging. Breast MRI is reportedly the most effective way of determining the extent of this cancer. Associated findings of lymphadenopathy, chest wall involvement, and skin retraction can also be shown on MRI (Fig. 6). In 2 recent studies in Hong Kong, preoperative breast MRI changed the management appropriately in 32 % of patients at the Kwong Wah Hospital and 66 % of patients at the Hong Kong Sanatorium & Hospital[10, 11]. The changes have been from lumpectomy to lumpectomy with wider margin, lumpectomy to mastectomy, lumpectomy to bilateral lumpectomies. Formal recommendation for the use of MRI as an adjunct to conventional studies in the preoperative setting is still in progress.

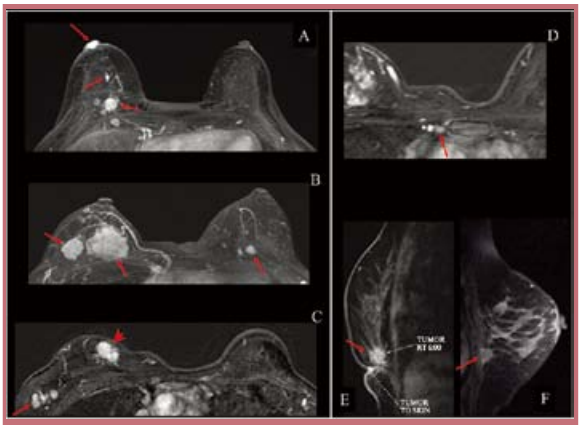

Fig 6. (A) Paget's disease with Multifocal tumour (arrows) (B) Multicentric carcinoma right breast and contralateral DCIS in left breast (arrows) (C)Carcinoma (arrowhead) with level one axillary adenopathy (arrow) (D) Internal mammary adenopathy (arrow) (E) Carcinoma with skin retraction (arrow) (F) Carcinoma pressed against pectoralis muscle (arrow)

Monitoring of Treatment:
Many patients now undergo neoadjuvant therapy when their tumours are too large or extensive. MR imaging can be used prior to, during or after neoadjuvant therapy. Responding tumours can show a decrease in size or completely disappear. Functionally, a change in kinetic graphs from type III graphs to type II or type I graphs is also expected and Diffusion Imaging (DWI) will show a change in water diffusivity, from restricted diffusion to unrestricted diffusion. The apparent diffusion coefficient (ADC) value becomes ≥1.2 x 10-3 mm2/sec (Fig. 7)[3, 4].

What is the accuracy of breast MRI? This modality is now considered to be the most sensitive method of evaluating breast cancers and to be superior to

both mammography and ultrasound[8]. It can detect mammographic and ultrasound occult lesions[12]. It has a very high sensitivity: greater than or equal to 90% for all breast cancers and near 100% for invasive breast carcinomas[13 &14]. With the new imaging technique, even DCIS can be diagnosed with a sensitivity of 89%[15].

Specificity was previously quoted to vary from 39% to 95%[5]. However with the current technique, the specificity has greatly improved. Studies of breast MRI in high risk patients such as women with BRCA 1, or BRCA 2 genes show specificity of 93% to 99 %[16].

In conclusion, breast MRI is now a clinical examination. It is a non-invasive and non-ionising method of examining the breast. Applying a consistent meticulous technique, a very high sensitivity and high specificity results can now be obtained. Breast MRI has indeed earned its place as one of the essential 'pillars' in the breast imaging armamentarium.

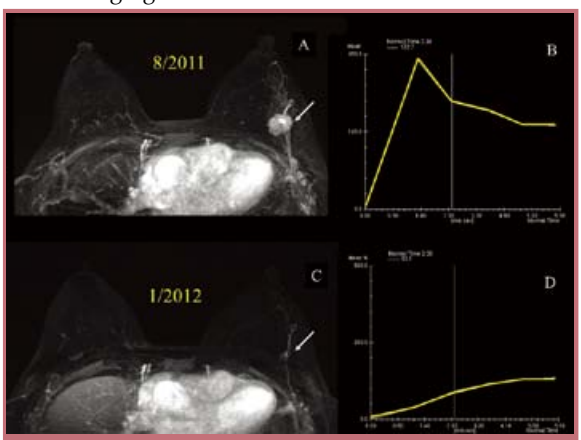

Fig 7. Neoadjuvant therapy
(A) Left breast carcinoma with Type III Signal-intensity-time graph, positive DWI, ADC: 0.89 x 10-3 mm2/sec
(B) Post chemotherapy, tumour markedly decreased in size & changed to Type I Signal-intensity-time graph. Negative diffusion

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Breast Interventional Procedures

Dr Lorraine SINN

MBBS (HK), FRCR, FHKCR, FHKAM (Radiology)
Resident Specialist in Radiology

Dr Lorraine SINN

Introduction

Breast imaging has now moved into an era from simple pathology detection to a more active and vital role in diagnosis and management. The introduction of breast mammography screening programmes has significantly increased the detection of non-palpable breast lesions. With advances in different imaging modalities and utilisation, a substantial increase in the detection of early breast cancers is achieved. The current breast interventional procedures can be divided into three main categories: 1) diagnosis 2) therapeutic 3) preoperative localisation for surgical excision. The development of image-guided percutaneous biopsies has largely replaced surgical biopsies for most of the breast lesions for histopathological evaluation, resulting in reduction in complications, costs, with better recovery and less scarring for the patients, while maintaining similar accuracy[1-6]. Different types of imaging modalities for guidance are being utilised in order to achieve the purpose, including ultrasound, stereotactic, MRI and also more recently digital breast tomosynthesis (DBT). The choice of the imaging modality used will depend on which is the best method that can demonstrate the targeted lesion. The key focus of this article will be on breast interventions under ultrasound and stereotactic guidance.

Ultrasound-guided Procedures

Ultrasound-guided (US-guided) procedures offer several advantages over the other imaging modalities because it is a real-time procedure with direct visualisation of the entire process, which allows immediate verification, adjustment, and accurate targeting of the lesion in a shorter time frame. It does not require breast compression, and the patient can be more comfortably positioned in order to achieve the optimal pathway for the procedures. Besides, no additional radiation risks will apply to the patients. Hence, if the lesions can be well demonstrated in ultrasound, it will always be the more superior choice for performing interventional procedures. Even if the lesions are first being detected by other imaging modalities, e.g. MRI or mammography, these patients shall be screened by ultrasound to see if the lesion is discernible with ultrasound. For breast lesions, it is best visualised with a high resolution, linear array transducer of at least 10MHz.

Ultrasound-guided fine needle aspiration (FNA)

Indications

FNA is indicated for both diagnostic and therapeutic purposes. For diagnosis, fine needle aspiration cytology (FNAC) was once being considered as the first-line pathological investigation in both screening and the symptomatic populations as part of the triple assessment. However, in recent years, the diagnostic role of FNAC is being challenged because of its controversial inadequate rate, inability to differentiate invasive and noninvasive cancers, insufficient tissue for tumour biomarker status and suboptimal accuracy especially in inexperienced hands[7-10]. Some centres have diminished the use of FNAC as the initial pathological assessment and replaced it with core-needle biopsies. Nonetheless, it remains a quick, simple, low risk, scarless, less technically demanding and cost-effective form of assessment without the need of special equipment. Its usefulness is maximised in institutions with enthusiastic collaboration of cytopathologists and good imaging facilities[9]. Core-needle biopsy (CNB) and FNAC may not be mutually exclusive. FNAC may be considered in diagnosis of benign, symptomatic lesions and CNB in lesions with microcalcifications, suspicious or unsatisfactory FNAC findings, suspicious of malignancy, and malignancies where radiology cannot guarantee stromal invasion. FNAC is also indicated in staging of breast carcinomas, in particular preoperative axillary lymph node or distant sites suspicious of metastases.

Therapeutic wise, FNA is particularly useful in aspiration of cystic lesions. Simple cysts can be completely collapsed after aspiration with almost immediate symptomatic relief. While for complicated cystic lesions with solid components, FNA can be performed to aspirate the cystic component before proceeding to core biopsy of the solid components, in order to increase the yield and accuracy in tissue sampling. Another important therapeutic indication of US-guided FNA is aspiration of breast abscesses. It is a very effective treatment with similar recovery compared to traditional incision and drainage surgery in both lactating and non-lactating women[11-12]. Multiple sessions of aspiration may be required in certain groups of patients. Some of the abscesses are multiloculated or trapped between layers of oedematous fibroglandular tissue. With direct visualisation of the abscess cavity and needle tip, not only can the extent, size and internal characteristics of the abscess be better assessed, but the needle can also be manipulated into different compartments of the cavity to achieve better drainage results.

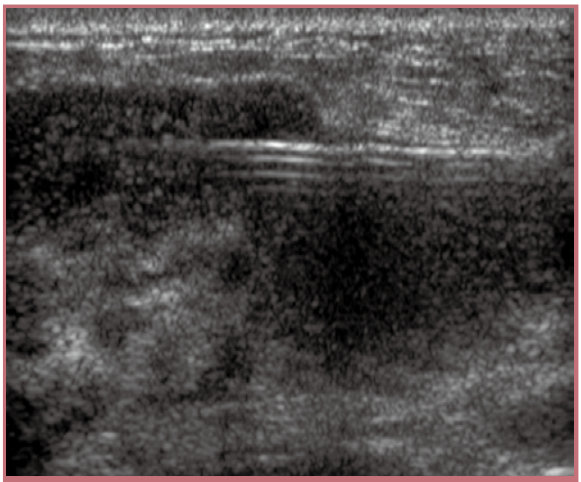

Figure 1, FNA aspiration of abscess

Technique

FNA is usually done using a 20-22 gauge hypodermic needle with a syringe (usually 10ml) attached. Longer spinal needles maybe used for deep seated lesions. After simple skin sterilisation, the needle tip is introduced into the lesion under US guidance. Immobilisation of the lesion and steady relationship with the skin entrance site should be achieved during the procedure. Documentation of the needle position is usually made with pre-aspiration image captured before aspiration commences. Once the needle tip position is confirmed, adequate suction is applied by controlling the plunger of the syringe (better to be done by an assistant) for tissue sampling or fluid aspiration. Manipulation of the needle into different directions of the lesion can be done in order to increase the tissue yield.

Ultrasound-guided Core-needle Biopsy

US-guided percutaneous CNB is now an indispensable tool for evaluation of breast lesions where tissue sampling is required. As mentioned, it has largely replaced surgical excisional biopsy as it is a relatively safe, minimally invasive procedure with a low risk of complication (e.g. haematoma, infection) and satisfactory cosmetic results. Full control of the needle position in real time can also be achieved making multidirectional sampling possible. It also demonstrates excellent histological agreement with excised specimens [13-14].

Indications

US-guided CNB is indicated in patients with radiological findings revealing BI-RADS (Breast Imaging-Reporting and Data System) category 4 i.e. suspicious abnormality and BI-RADS category 5 i.e. highly suggestive of malignancy. It is also indicated in some BI-RADS 3 category lesions (probably benign lesion where short term follow up is suggested) in the following situations: (i) Patients with multiple risk factors for breast cancer (ii) Short term interval follow-up difficulties (iii) Patients' or clinicians' uncertainty or preference (iv) Psychological factors (v) Need for diagnostic anticipation[4]. If multiple lesions are present, multiple CNB can be carried out in the same session to evaluate the extent and staging of the disease.

For lesions showing suspicious microcalcifications, especially those associated with a mass, if they can be well-demonstrated in ultrasound images (requires high-resolution ultrasound), US-guided CNB may be considered as the mode of choice for tissue sampling. Specimen radiographs must be taken afterwards to ensure presence of microcalcifications within the specimens in these cases. However, if visualizsation of microcalcifications is in doubt, a stereotactic-guided biopsy should be the mode of choice. CNB may also be considered if previous FNAC shows suspicious or atypical findings.

Preparation and considerations

An informed consent should be obtained prior to the procedure with possible benefits, risks and complications explained, including bleeding, infection, pneumothorax and potential need for additional biopsy/surgery for discordant results. Possible risks of developing milk fistulae should also be mentioned in lactating women. Different centres have variable practices in terms of alteration of blood-thinning agents prior to biopsy. Some centres will proceed with biopsy without alteration of the patients' anticoagulation regimen, as there is no statistically significant difference in terms of development of clinically alarming haematoma[15]. While some centres may suggest discontinuing anti-platelet agents (e.g. aspirin, NSAID) 2 – 5 days to a week before the procedure and/or with international normalised ratio (INR) less than 1.5 on the day the procedure[2,4]. A multidisciplinary analysis should be made by pondering the risk for thrombotic events versus the risks for development of clinically important haematomas.

US-guided CNB can be performed with either spring-loaded or vacuum assisted devices (VAD). For spring-loaded automated devices, usually a 14-gauge core-needle would be used. In our centre, we typically employ a 14-gauge Monopty device (BARD, tempe,AZ) with a 10cm needle. While for VAD, larger bores of 10-11 gauge are utilised. The operator should test the deployment mechanism of the biopsy device to make sure it is functioning properly with smooth separation of the trocar from its cannula prior to the procedure. At the same time, the patients can have an idea of the clicking sound produced during deployment.

The patient's positioning is crucial for achieving an optimal, safe and proper access of the target lesion. It usually involves elevating and flattening the breasts. For example, for lesions that are located in the outer breast, a foam wedge is placed behind the ipsilateral shoulder in order to roll the breast towards the midline. While for lesions that are located at the medial aspect of the breast, the patient may lie supine without additional employment of foam wedge. It may also be done in some occasions where the foam wedge is placed behind the contralateral side in order to roll the breast away from the sternum. By these manipulations, a shorter distance to the lesion from the skin entry can be achieved.

During the pre-biopsy planning, the operator should ensure a safe pathway to approach the lesion. Special attentions must be paid to the lesions that are too close to the chest wall or an implant. The operator should ensure adequate tissue beyond the lesion along the trajectory of the needle to allow safe firing for spring-

loaded devices, and adequate tissue around the lesion if VAD is to be adopted. Doppler ultrasound should be employed to ensure there are no nearby large vessels along the planned biopsy track.

Procedures and Technique

After optimal positioning of the patient, antiseptic is applied on a wide area over the lesion with sterile surgical drape around the region. 5ml of 1% lidocaine as an anaesthetic agent is withdrawn for later use, and the ultrasound probe is wrapped with a sterile transducer cover. The lesion is then identified with application of sterile gel. The operator will decide which hand should be used for holding the probe and which hand for holding the device for optimal access of the target lesion. As a general rule, the shortest route from the skin to the lesion should be chosen. The preferred access is the periphery of the breast, within the same segment of the lesion. The access through the nipple-areolar complex should be avoided. The target lesion is then be stabilised together with the overlying skin by applying mild pressure via the probe and also by the spare 4th and 5th fingers from the hand holding the probe. Sometimes, for pendulous breasts, additional help may be required from an assistant for further stretching and stabilisation of the skin and breast tissue.

Once the pathway is confirmed, local anaesthesia is infiltrated along the anticipated pathway of biopsy track under direct vision with US guidance. The needle can be administered at the edge of the lesion and infiltrating upon withdrawal along the track until it reaches the skin. Manipulations by injecting a local anaesthetic agent between the lesion and the skin or chest wall can also be made if the lesion is too superficial or too deep, so as to increase the safety margin for tissue sampling. Special attention should be given for vague lesions as some of them may be obscured after infiltration of local anaesthesia.

A small 2-3mm skin incision is made with a scalpel over the numbed skin. The biopsy needle is then introduced via the skin entry site along the pathway. The needle should be as parallel to the chest wall as possible for maximal visualisation and to avoid striking the pectoralis muscle during the procedure. The needle tip should be visualised at all times during the procedure and advancement of the needle. If the lesion is large enough, the needle tip can be positioned at the edge of the lesion before deployment. For small lesions however, adequate distance from the lesion may be needed to ensure the sample notch transverses the lesion after deployment. If the lesion is deep and close to the chest wall, a steeper entrance angle may be required, with the needle tip targeting the posterior border of the lesion. The needle is then elevated, acting as a lever, in order to lift the lesion away from the chest wall as much as possible. It is important to know the needle throw distance and the dead space length (e.g. 22mm and 7mm for the Monopty device respectively) in order to estimate whether the pathway is safe for deployment. In cases where VAD is adopted, the needle tip should be placed at the deep margin of the lesion. Pre-fire images can be stored for documentation on the planned biopsy pathway.

After positioning of the needle tip at the right position, the patient should be informed before the deployment. The solid part of the lesion should be targeted, and the necrotic and cystic part should be avoided in order to maximise the yield. Post-fire images should also be obtained after each deployment to document and ensure the target lesion is being transversed accurately without deflection. In the cases of very dense breasts, co-axial system or VAD may be employed.

Satisfactory sampling can be determined by visualising the hyperechoic air tracts within the lesion and by obtaining firm intact cores. White or brown tissue cores are considered to be more representative at macroscopic evaluation[5]. In general, three to five cores would be adequate. These tissue cores obtained are immersed into 10% formalin solution and sent for histology. A tissue marker can be placed into the lesion once adequate cores are retrieved. This is useful in monitoring the response to neoadjuvant chemotherapy, future surgical excision planning especially when the lesion is vague, distorted or partially removed during the biopsy process[2].

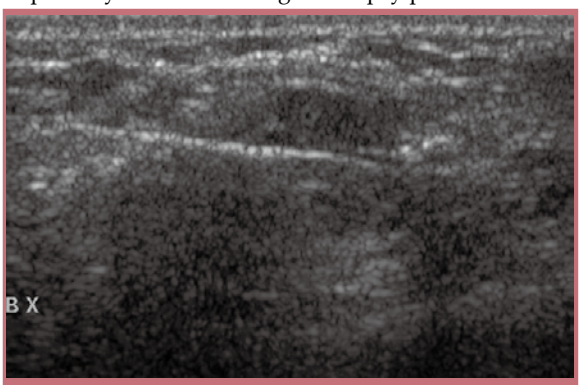

Figure 2, Ultrasound guided core biopsy of an ill-defined mass

Post-biopsy Care

Pressure should be applied with a sterile gauze to the biopsy site after withdrawal of the needle for each deployment in order to minimise haematoma formation. After all tissue cores are obtained, the lesion and the entry site should be compressed manually for 5-10 minutes to until haemostasis is achieved. The incision is then reapproximated with sterile bandage strips. Patients should be instructed to avoid strenuous activities such as heavy lifting with the ipsilateral arm for a few days. Post-biopsy mammograms are taken if a tissue marker has been placed in order to document the position as future reference.

Stereotactic-guided Procedures

Stereotactic-guided procedures involve the utilisation of X-ray imaging for localising and targeting the lesions with breast compression. There are two types of the system, either the prone-table type or an upright system. For the system with a prone table, the patient will be lying prone with the index breast placed dependently through an opening of the table. Imaging and procedures will be carried out underneath the table. The prone table system allows more stable patient position and hence less motion during the procedure, as well as less procedure-related vasovagal reactions since the patient is horizontal lying. Yet, there are weight restrictions for the dedicated tables, and some patients may not be able to tolerate the prone position

throughout the procedure. For the upright unit, it is simply an add-on unit onto the standard mammography equipment. The patients can be positioned in an upright, semi-reclining, or lateral decubitus position for optimal access and comfort for the patient during the procedure. It allows more breast tissue to be placed onto the compression plate especially the posterior and axillary portions of the index breast compared to the prone table system. Both systems work effectively and well for carrying out stereotactic-guided procedures.

Stereotactic-guided Core-needle Biopsy

Indications

Stereotactic guided CNB is primarily indicated for suspicious microcalcifications, but is also indicated for masses, focal symmetries, architectural distortions that are not well demonstrated in ultrasound. These lesions are mainly classified as BI-RADS category 4 and 5. For BI-RADS category 3 lesions, indications apply under similar considerations and circumstances as US-guided CNB. Again, multiple targeted CNB can be done at the same setting for full extent disease evaluation if clinically indicated.

Preparations and considerations

Similar preparations and considerations for US-guided CNB apply to stereotactic guided-CNB in terms of informed consent and concerns on anticoagulation regimen. Additional risks including increased radiation exposure, chance of vasovagal reactions, and the possible need of repeated biopsy if the targeted microcalcifications are not well included must be explained to the patient.

The radiologist and technicians would review the two-view mammogram findings before the procedure, in order to ensure the microcalcifications are well-visualised and indicated for biopsy, as well as to determine the best projection and positioning for performing the biopsy. The breast can be compressed in a medial-lateral or cranio-caudal position, and sometimes in oblique positions. The direction of approach depends on the location of the target lesion which can provide the shortest possible route from the skin entry to the lesion.

Both spring-loaded devices and VAD (also referred to as a mammotome) can be used for performing stereotactic-guided biopsies, with the latter being increasingly popular recently. The sizes of the needle are similar to those employed in US-guided CNB i.e. 14-gauge for spring-loaded devices and 10-11-gauge for VAD. The anaesthetic agent is mixed with 1:1000000 adrenaline to prolong the anaesthetic effect and to improve haemostasis[2].

Procedures and Technique

A scout view is obtained before the procedure after optimal positioning of the patient and breast compression. The patient is instructed not to move during the procedure in order to reduce the possibility of target deviation during the procedure. Stereotactic images are then taken by swinging the x-ray arm 15° off centre in each direction. The depth of the lesion is then determined by calculating the parallel shift of the target as compared to the target in the scout images, by the computerised system. It can also determine whether there is adequate breast tissue posterior to the lesion so as to prevent penetrating the posterior aspect of the breast and striking of the image receptor (referred as the stroke margin). Once the computer generated co-ordinates are confirmed, the information is sent to the stereotactic table.

The compressed area of the breast is properly sterilised. With the information of the calculated co-ordinates, the biopsy needle holder will automatically move into place towards the targeted region. Local anaesthesia is then infiltrated along the anticipated route of biopsy. Another set of scout views and stereotactic images will be acquired to ensure the target is along the planned depth and position without significant deviation after administration of local anaesthesia. New co-ordinates may be required in case there is significant deviation from the original target.

A small 2-3mm skin incision is made with the scalpel over the numbed skin. If VAD is employed, the needle is placed carefully via the skin entry site until the calculated position is reached. Additional pre- and post-fire images can be taken to confirm the needle position and whether the targeted microcalcifications have been removed completely. If a spring-loaded device is adopted, several target co-ordinates (usually 3-5 sets) will be set for each biopsy deployment, with the same skin entry site being used during the needle introduction.

Specimen radiographs will be taken after adequate tissue cores have been obtained to ensure presence of the microcalcifications within the samples. If the tissue sampling is satisfactory, a tissue marker can be placed to the biopsied region under stereotactic guidance. The breast compression will then be released slowly with the skin wound compressed with sterile gauze. Post biopsy wound care and instructions to the patient will be similar to those aforementioned in US-guided CNB. Post-procedure two-view mammograms may be taken if a tissue marker has been inserted in order to document its position for future reference.

Preoperative Wire localisation of non-palpable breast lesions

Indications

Surgical biopsies with wire localisation of non-palpable lesions for diagnostic purposes has almost been completely replaced by CNB either under ultrasound or stereotactic guidance in recent decades[16]. However, needle localisation and excision is still recommended if:

(i) a safe pathway for CNB cannot be safeguarded by either ultrasound or stereotactic guidance due to technical difficulties: e.g. if the lesion is too small (<5mm), if the breast is too thin for stereotactic-guided CNB to be performed, or if the lesion is too close to the chest wall in a thin breast that makes US-guided CNB biopsy very difficult.

(ii) breast conservative surgery is the treatment of choice in biopsy proven malignancies

(iii) excisional biopsy required for previously histologically proven high risk lesions (e.g. radial scar, atypical hyperplasia) in order to rule out presence of co-existing occult malignancies e.g. ductal carcinoma in-situ.

Preparation and considerations

The wire localisation procedure is done on the same day of the surgery, preferably within hours prior to surgery to reduce the chance of wire migration. The preparation of the patient is similar to that of CNB. The patient should be informed of the additional risk of re-insertion of the wire (e.g. due to migration), as well as the risk of additional surgery for malignancy in case the excised margins are not clear histologically. The modality of choice depends on which modality can best demonstrate the lesion.

Different types of wire localizsation needle sets with different configurations and lengths of hooks are available (e.g. X-Reidy, Cook with X-shaped hook), usually ranging from 18-20-gauge. The needle set consists of a needle cannula and a hookwire. If more than one lesion is targeted, different types of wires can be used for better differentiation.

In cases where breast conservative surgery is considered, and if the target lesion is small, a single wire may be adequate for identifying the site of the lesion. However, if the lesion is more extensive (>3.5cm), or in cases of previously proven malignancy or highly suggestive of malignancy, two or more bracketing wires shall be inserted at the margins of the lesion in order to facilitate complete excision of the radiologically "suspected area" and inclusion of calcifications, though bracketing wires do not ensure clear histological margin[17,18]. Some studies have shown that multiple bracketing wires for localisation can significantly reduce the volume of the breast tissue removed in malignant disease without sacrificing margin status. It may also reduce the need for future re-excisions[17]. The decision on whether to place bracketing wires is made by the radiologists after reviewing the previous images and also in consultation with the referring surgeon.

Procedures and Technique

For US-guided wire localisation, the principles of patient positioning are similar to that of US-guided CNB. Once the lesion is being identified, the needle cannula preloaded with a hookwire is inserted via the skin incision and advanced through the lesion under local anaesthesia. The advancement of the needle is made under direct vision with ultrasound. The needle is aimed at passing through the centre for most of the solid lesions. For some small lesions, or complex lesions with a cystic component, the needle may be aimed at the proximity. Once the needle position is confirmed, the hookwire is held in position and the outer cannula is slowly withdrawn. The whole process of the hook deployment should be visualised with ultrasound to ensure proper deployment of the hook without significant migration during the procedure. After the wire placement, ultrasound images in lateral and orthogonal images, as well as two-view mammograms are obtained. The protruding wire is covered and taped to the patient's skin. The relationship between the target lesion(s) with the inserted wire(s) is documented and well labelled on the films and records for the surgeons' reference.

For stereotactic-guided wire localisation, there are two methods in performing the procedure. One method is similar to that of the stereotactic-guided CNB, with placement of the hookwire through a preloaded cannula until the target is reached according to the computer-generated co-ordinates. Another method is to perform under mammographic guidance, with a localisation grid placed on the compressed breast, where the depth of the lesion is identified and marked. The needle cannula is then inserted into the breast tissue at the marked location perpendicular to the grid towards the lesion. The breast is then released and compressed orthogonally, with the needle cannula being kept parallel to the compressing surface. Another scout view is then taken to verify the depth of the lesion, and also to determine whether further advancement or withdrawal of the needle cannula is required to reach the lesion. For both methods, a set of two-view mammograms is obtained to ensure the needle cannula is correctly placed before deployment. Another set of two-view mammograms would be performed after deployment of the hook to ensure there is no significant migration. The protruding wire is covered and taped to the patient's skin. The relationship between the target lesion(s) with the inserted wire(s) is again documented and well labelled on the films and records for the surgeons' reference.

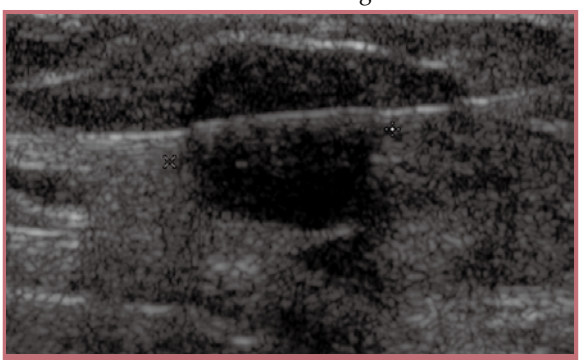

Figure 3a, ultrasound guided hookwire insertion.

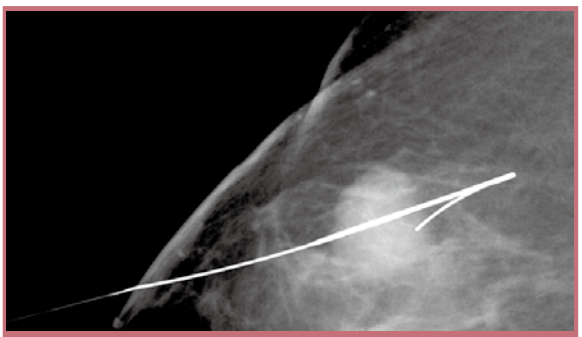

Figure 3b, post hookwire insertion mammogram

Specimens Imaging

After the specimens have been excised, they will be sent to the radiology department with the hooks kept in-situ. The surgeons will mark the margins in order to facilitate their communication with the radiologists and pathologists. A specimen radiograph is performed to ensure the hookwire is entirely removed. This also ensures whether the targeted microcalcifications are completely excised. For wire localisation performed under US guidance, US is also performed to ensure whether the whole targeted lesion is included.

If the excision is not complete radiologically, the radiologist in-charge will provide information to the

surgeons on which side of the lesion shall be further excised. However, as mentioned, a clear radiological margin does not ensure a clear histological margin.

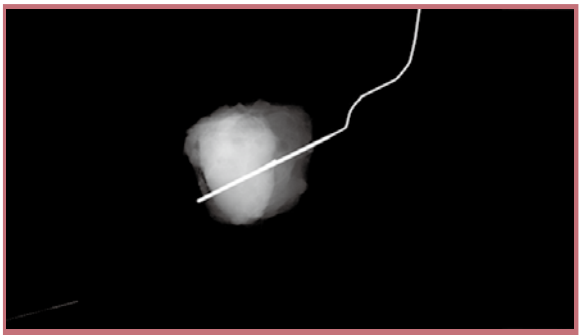

Figure 4a, specimen radiography of mass

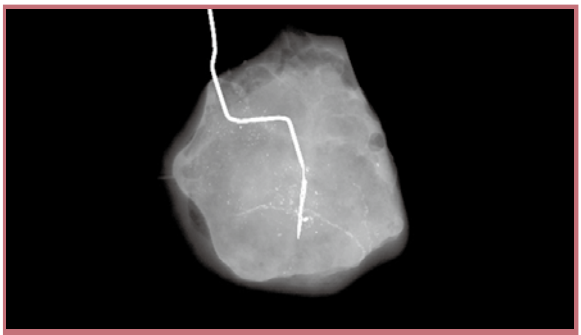

Figure 4b, microcalcification cluster

Summary

With the establishment of breast screening programmes, there is a significant increase in the detection of non-palpable breast lesions. Breast interventions are now taking up a crucial role not only in diagnosis but also in management. Image-guided percutaneous breast biopsy is now considered as a safe, cost effective, accurate method for evaluation of breast pathologies. It is largely replacing the diagnostic role of wire-guided surgical biopsy, as well as FNA in many breast centres. Nevertheless, image-guided wire localisation remains an important way for preoperative lesion localisation, especially when breast conservative surgery is the mode of choice in malignant or highly suspicious lesions. While for image-guided FNA, it is still considered as a quick, easy to perform, minimally invasive technique for evaluation of benign breast lesions, as well as a therapeutic option in cystic lesions and abscess drainage.

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Dermatological Quiz

Dr Ka-ho LAU

MBBS(HK), FRCP(Glasg, Edin), FHKCP, FHKAM(Med)
Private dermatologist

Dr Ka-ho LAU

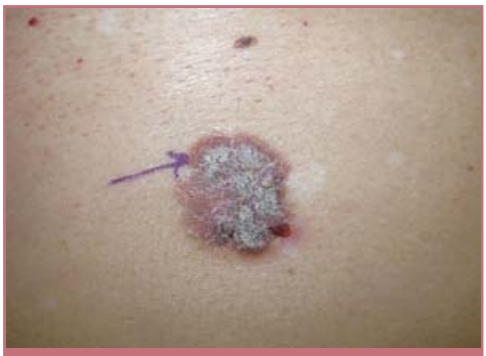

Fig.1: Close up of skin lesion at right shin

This 70-year-old man presented with this slowly growing lesion at his right shin (Fig. 1) for five years. The lesion did not respond to topical steroids or antifungal treatment and progressively increased in size up to 2cm in diameter.

Questions:

1. What is your provisional diagnosis or differential diagnoses?
2. How will you treat this patient?

(See P. 36 for answers)

Blissful Blizzardly Ride

Dr Helen HL SHE

MBBS (HK), FRCR (UK)

Resident Specialist in Radiology, Department of Radiology, Queen Mary Hospital

Dr Helen HL SHE

If you are just a ski beginner and not too keen on having many onlookers to witness your clumsy falls, posh and big name places like Whistler, Charmonix and Utah probably won't be on the top of your list.

Well, at least that's what it seemed to the new kid on the block. When someone suggested Val Thorens with its laid-back atmosphere, a wide variety of blue runs and reasonably-priced instructors, it seemed like the ideal place for me to brush up on my skills.

For decades, Europeans have flocked to this charming resort in the French Alps to enjoy the powder snow, picturesque chalet, and the plentiful night life, but I am assured there is plenty of room for a newbie like me.

So off I flew to Geneva, hopped on the designated coach bus for a 2-hour ride and entered this winter wonderland.

I have to admit I am not a completely novice skier, but I have been years out of practice and decided to sign up for a private instructor at the earliest opportunity.

I had heard horror stories about bored instructors, those who deposit beginners at a horrendous slope, and worst of all, tutors who speak nothing other than French. Fortunately my instructor Gael was none of the above.

"We won't do anything dangerous, and most important of all, I want to make sure you have a good time here, oui?" That's what I like to hear.

The first morning's lessons seemed to fly by, with my confidence growing as I got into the swing of things.

Those with more of a natural flair for skiing than me (let's just say I have got a few more bruises by the end of the day) can take a gondola lift to the higher runs. There are more than 150 kms of pistes in the resort, mostly blue and red, with a handful of black and green, and there are good links to the rest of the Trois Vallees which are other ski resorts in the area.

There are also plenty for children to do as there's a fun park, snow tubing and snow scooters.

And after hours of exertion in the cold, sitting down in one of the lovely chalet styled mountain restaurants was sheer bliss. Chalet de la Marine was one of my favourites among all. It has a big terrace with 'funky' music, friendly staff, and traditional French Alps food

served. Locals there like to finish their meals with a tiny shot of Genepi, a sweet aperitif to ward off the cold.

After a few more days of relaxed skiing, Gael said I was ready for the full breath experience in the Alps with off-piste skiing. Off-piste skiing means choosing to ski along routes that are not marked by the ski resort. It is considered the ultimate experience for skiing and snowboarding, from the joy of fresh powder snow, to the feeling of freedom and solitude in the back country; nothing beats a day out away from the pistes and lifts. One thing to be aware of, is that you should certainly never go far off-piste unless you are with a reliable and qualified local ski instructor or mountain guide, who can assess the conditions, the terrain and your ability. There is also a good range of avalanche safety equipment that you need to be equipped with.

My instructor fitted me with a transmitter, a backpack with a shovel and other avalanche kit, and made me memorise the rescue phone number by heart.

From the Cime de Caron (3195m) down to the Lac du Lou refuge (2035m), we glided down the powder snow into this no-man's-land, far from chairlifts and the hustle and bustle. Midway through our journey, we saw two mountain goats standing on top of a rock in a leisurely manner. After 45 minutes of skiing (and falling of course), we arrived at a frozen lake, the Lac du Lou, which was a strikingly beautiful view.

No skiing holiday is complete without a vast amount of food to fuel the workout. I indulged myself with carbohydrates and fat. Be sure not to miss the traditional Raclette, a Swiss dish with melted cheese scraped onto bread and pickled fruits, which is my personal highlight. And while the night life in the town is not hugely varied, it's a pretty little centre with lively bars.

For those who enjoy a massage after a day's workout, there are many spa choices in the city centre.

A visit to Val Thorens is a treat for all the senses. You feel healthier just breathing in the air, and with the fantastic ski slopes, food and relaxation on offer, I know where I will return to the next chance I get.

Getting there

The Geneva Airport is the closest. From there you can hire a taxi, take a public coach or rent a car (2 hours). (www.valthonet.com/travel/transfer.html)

Resort costs

Val Thorens/Orelle six day lift pass: 190.60 euros; Trois Vallées six day pass 244 euros. Buy online through valthorens.com. Ski and boot hire costs from 143.20 euros a week at the Altapura Ski Shop (www.altapuraskishop.com). There are four ski schools - for details and prices, visit www.valthorens.com.

Best restaurants

In the village

Oxalys You may meet Jean Sulpice, the chef who has earned two Michelin stars for his superb and innovative cooking (04 79 00 12 00, www.restaurant-loxalys.fr/uk/).

On the slopes

Chalet de la Marine You may try this perfect mountain restaurant with cosy alpine-style décor and open fire on cold days, large sunny terrace on warm days, and great mountain food (pot au feu, tartiflette) (04 79 00 01 86, www.chaletmarine.com).

"Recent Advances in Acne Treatment" Symposium

On 10 Jan 2014, a lunch symposium on Acne Treatment was held at the Jade Ballroom, Eaton Hotel, Kowloon. The symposium was attended by over 100 doctors and guests from our member societies and health care communities.

To introduce a positive approach that may enable physicians to achieve better effectiveness with their acne patients, the Federation and GlaxoSmithKline (GSK) have the pleasure to invite Dr Alessandra Alio, Specialist in Dermatology & Venereology to conduct a seminar on this topic and Dr Ka-ho LAU, Specialist in Dermatology, to be our chairman. The talk was interesting and informative, which gave the audience valuable updates on the current acne treatment plans and therapies.

Public Talks for Cancer Patients

The Public Talk for Cancer patients was held at the Federation's Lecture Hall on 14 Dec 2013. It was our pleasure and privilege to invite Dr LAW Chun-kay, Specialist in Clinical Oncology, who delivered a talk on "Treatments on Cancer"; and Ms Sally POON, Chairperson of HK Practising Dietitians Union, who taught the audience how to prepare healthy Christmas cuisines for cancer patients such as cooked red grapes & pear with mulled wine and hot drinks with honey, lemon and coixseed. The participants' active questions and engagement in the talk and cooking demonstration marked a wonderful and successful event.

Public Talks for Renal Patients

Another Public Talk for renal patients was held at the Federation's Lecture Hall on 26 Jan 2014. It was our pleasure and privilege to invite Dr Matthew KL TONG JP, Specialist in Nephrology, who delivered a talk on the causes and treatment of Nephrology; and Ms Sally POON, Chairperson of HKPDU, who taught the audience how to prepare healthy meals and snacks for renal patients, such as pear sago and salad with konnyaku, carrots and cucumbers. The talk and cooking demonstration were well received by the audience, in time to celebrate a healthy Chinese New Year.

Rental Fees of Meeting Room and Facilities at The Federation of Medical Societies of Hong Kong

(Effective from October 2009)

Venue or Meeting Facilities	Member Society (Hourly Rate HK$)			Non-Member Society (Hourly Rate HK$)		
	Peak Hour	Non-Peak Hour	All day Sats, Suns & Public Holidays	Peak Hour	Non-Peak Hour	All day Sats, Suns & Public Holidays
Multifunction Room I *(Max 15 persons)*	150.00	105.00	225.00	250.00	175.00	375.00
Council Chamber *(Max 20 persons)*	240.00	168.00	360.00	400.00	280.00	600.00
Lecture Hall *(Max 100 persons)*	300.00	210.00	450.00	500.00	350.00	750.00
Non-Peak Hour: 9:30am - 5:30pm Peak Hour: 5:30pm - 10:30pm						
LCD Projector	500.00 per session					
Microphone System	50.00 per hour, minimum 2 hours					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	★ Addressing current challenges in antiseptic and wound care management ★ FMSHK Officers' Meeting 3	★ HKMA Tai Po Community Network - Updates in Asthma Management ★ Council Meeting 4	★ HKMA Shatin Doctors Network - Allergy Certificate Course 2014 - Approach to Treatment of Obstructive Sleep Apnoea and Rhinitis (Session 1) 5	★ MPS Workshop – Mastering Adverse Outcomes 6	★ HKMA Shatin Doctors Network - Emollient Therapy for Atopic Skin ★ Joint Surgical Symposium - Cochlear Implant 7	★ HKMA CME – Refresher Course for Health Care Providers 2013/2014 ★ MPS Workshop – Mastering Difficult Interactions with Patients 8
9	10	★ HKMA Yau Tsim Mong Community Network - Renal Anaemia ★ HKMA Kowloon West Community Network - Cardiovascular Disease Prevention, 2014 11	★ Hong Kong Neurosurgical Society Monthly Academic Meeting –Clinical trials of transplantation therapy for spinal cord injury in Hong Kong and China ★ HKMA Central, Western & Southern Community Network - Updates in Multidisciplinary Approach to Musculoskeletal Pain 12	★ HKMA New Territories West Community Network - Recent Advances in Asthma Management ★ HKMA Hong Kong East Community Network - 1st Series Certificate Course on Dementia for Primary Care Doctors (Session 3) - Medical and Community Collaboration – Case Management in Community ★ HKMA Kowloon East Community Network - Treatment of Sputum and Post-URI Cough ★ HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2014 – Congenital Infection: Screening and Diagnosis 13	★ HKMA Shatin Doctors Network - Advances in the Management of Asthma: What's new with the GINA update 2014? 14	★ MPS Workshop – Mastering Your Risk 15
16	17	★ HKMA Tai Po Community Network – Acne Vulgaris: New Insights ★ MPS Workshop – Mastering Shared Decision Making 18	★ HKMA Shatin Doctors Network - Allergy Certificate Course 2014 - Recent Advances in Asthma Management ★ MPS Workshop – Mastering Adverse Outcomes 19	★ FMSHK Executive Committee Meeting 20	★ HKMA Shatin Doctors Network - Diagnostics of HPV and Prevention 21	★ Hong Kong Powerlifting Championships 2014 22
★ The Magic of Migration - The Photo Taking Tour in Mai Po 2014 (追蹤候鳥之旅 2014) ★ HKMA Football Day 2014 23	24	★ HKMA Kowloon West Community Network - Challenges in Elderly Diabetic Patients ★ HKMA Tai Po Community Network – Right Treatment, Right Patient and Right Prostate ★ MPS Workshop – Mastering Shared Decision Making 25	★ HKMA Central, Western & Southern Community Network - Optimal Use of Topical Therapy for Atopic Dermatitis 26	★ HKMA Hong Kong East Community Network - 1st Series Certificate Course on Dementia for Primary Care Doctors (Session 4) - Medical and Community Collaboration – Case Management in Community ★ HKMA Kowloon East Community Network - Acne: An Update Focusing on Some Critical Aspects ★ HKMA New Territories West Community Network - Updates on Common Throat Problems ★ MPS Workshop – Mastering Difficult Interactions with Patients 27	★ HKMA Yau Tsim Mong Community Network – Sarcopenia in Elderly 28	★ MPS Workshop – Mastering Your Risk 29
30	31					

Medical Diary of March

Date / Time	Function	Enquiry / Remarks
3 MON 7:00 pm	**Addressing current challenges in antiseptic and wound care management** Organiser: Hong Kong Medical Association, Speaker: Dr. Hans Hoekstra, Venue: Crystal Ballroom, Level B3, Holiday Inn Golden Mile, Tsim Sha Tsui	Ms Wendy Hui Tel: 3929 4605 1.5 CME Points
8:00 pm	**FMSHK Officers' Meeting** Organiser: The Federation of Medical Societies of Hong Kong, Venue: Gallop, 2/F., Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
4 TUE 1:00 pm	**HKMA Tai Po Community Network - Updates in Asthma Management** Organiser: HKMA Tai Po Community Network, Speaker: Dr. LAW Tse Sam, Grace, Venue: Chiuchow Garden Restaurant (潮江春) Shop 001-003, 1/F, Uptown Plaza (新達廣場), No.9 Nam Wan Road, Tai Po	Ms. Joyce TSUNG Tel: 2664 3808 1 CME Point
8:00 pm	**Council Meeting** Organiser: The Hong Kong Medical Association, Chariman: Dr. TSE Hung Hing, Venue: HKMA Head Office (5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong)	Ms. Christine WONG Tel: 2527 8285
5 WED 1:00 pm	**HKMA Shatin Doctors Network - Allergy Certificate Course 2014 - Approach to Treatment of Obstructive Sleep Apnoea and Rhinitis (Session 1)** HKMA Shatin Doctors Network - Allergy Certificate Course 2014 - Approach to Treatment of Obstructive Sleep Apnoea and Rhinitis (Session 1)	Ms. Rosanna HUI Tel: 3189 8812
6 THU 6:30 pm	**MPS Workshop – Mastering Adverse Outcomes** Organisers: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Leung Kwok Ling, Ares, Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong	HKMA CME Dept Tel: 2527 8452 2.5 CME Points
7 FRI 1:00 pm	**HKMA Shatin Doctors Network - Emollient Therapy for Atopic Skin** Organiser: HKMA Shatin Doctors Network, Chariman: Dr. MAK Wing Kin, Speaker: Dr. CHUNG Chun Kin, Alex, Venue: Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Ms. Wendy CHENG Tel: 2824 0333 1 CME Point
8:00 pm	**Joint Surgical Symposium - Cochlear Implant** Organiser: Department of Surgery, The University of Hong Kong & Hong Kong Sanatorium & Hospital, Chairman: Dr. HO Wai-Kuen, Speakers: Dr. HUI Yau & Dr. Ambrose HO, Venue: Hong Kong Sanatorium & Hospital	Department of Surgery, Hong Kong Sanatorium & Hospital Tel: 2835 8698 1 CME Point
8 SAT 2:15 pm	**HKMA CME – Refresher Course for Health Care Providers 2013/2014** Organiser: Hong Kong Medical Association, HK College of Family Physicians & HA-Our Lady of Maryknoll Hospital, Speaker: Dr. Cheng Tin Sik, Venue: Training Room II, 1/F, OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin, Kowloon	Ms. Clara Tsang Tel: 2354 2440 2 CME Points
2:30 pm	**MPS Workshop – Mastering Difficult Interactions with Patients** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Cheng Ngai Shing, Justin, Venue: HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	HKMA CME Dept Tel: 2527 8452 2.5 CME Points
11 TUE 1:00 pm	**HKMA Yau Tsim Mong Community Network - Renal Anaemia** Organiser: HKMA Yau Tsim Mong Community Network, Chariman: Dr. HO Chung Ping, MH, JP, Speaker: Dr. TONG Mei Wa, Gensy, Venue: Pearl Ballroom, Level 2, Eaton, Hong Kong, 380 Nathan Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 pm	**HKMA Kowloon West Community Network - Cardiovascular Disease Prevention, 2014** Organiser: HKMA Kowloon West Community Network, Chariman: Dr. LAM Ngam, Raymond, Speaker: Dr. YIP Wai Cheong, Venue: Crystal Room I-III, 30/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
12 WED 7:30 am	**Hong Kong Neurosurgical Society Monthly Academic Meeting –Clinical trials of transplantation therapy for spinal cord injury in Hong Kong and China** Organiser: Hong Kong Neurosurgical Society, Chairman: Dr. Gilberto LEUNG, Speaker: Dr Wise YOUNG, Venue: Seminar Room, Ground Floor, Block A, Queen Elizabeth Hospital	Dr. Gilberto LEUNG Tel: 2255 3368 1.5 CME Points
1:00 pm	**HKMA Central, Western & Southern Community Network - Updates in Multidisciplinary Approach to Musculoskeletal Pain** Organiser: HKMA Central, Western & Southern Community Network, Chariman: Dr. LAW Yim Kwai, Speaker: Dr. LI Ching Fan, Carina, Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, HK	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
13 THU 1:00 pm	**HKMA New Territories West Community Network - Recent Advances in Asthma Management** Organiser: HKMA New Territories West Community, Chariman: Dr. CHUNG Siu Kwan, Ivan, Speaker: Dr. LEE Chi Hang, Clarence, Venue: Plentiful Delight Banquet (元朗喜尚嘉喜酒家), 1/F., Ho Shun Tai Building, 10 Sai Ching Street, Yuen Long	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:00 pm	**HKMA Hong Kong East Community Network - 1st Series Certificate Course on Dementia for Primary Care Doctors (Session 3) - Medical and Community Collaboration – Case Management in Community** Organiser: HKMA Hong Kong East Community Networ, Chariman: Dr. AU Chi Lap, Speaker: Ms. Maggie LEE, Venue: HKMA Head Office (5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, HK)	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 pm	**HKMA Kowloon East Community Network - Treatment of Sputum and Post-URI Cough** Organiser: HKMA Kowloon East Community Network, Chariman: Dr. AU Ka Kui, Gary, Speaker: Dr. YUNG Wai Ming, Miranda, Venue: Lei Garden Restaurant, Shop no. L5-8, apm, Kwun Tong,No. 418 Kwun Tong Road, Kwun Tong, Kowloon	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
2:00 pm	**HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2014 – Congenital Infection: Screening and Diagnosis** HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2014 – Congenital Infection: Screening and Diagnosis	HKMA CME Dept Tel: 2527 8452 1 CME Point
14 FRI 1:00 pm	**HKMA Shatin Doctors Network - Advances in the Management of Asthma: What's new with the GINA update 2014?** Organiser: HKMA Shatin Doctors Network, Speaker: Prof. Gary WK WONG, Venue: Jasmine Room, Level 2, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Ms. Wendy HUI Tel: 3929 4605 1 CME Point
15 SAT 2:30 pm	**MPS Workshop – Mastering Your Risk** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Lee Wai Hung, Danny, Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong	HKMA CME Dept Tel: 2527 8452 2.5 CME Points
18 TUE 1:00 pm	**HKMA Tai Po Community Network – Acne Vulgaris: New Insights** Organiser: HKMA Tai Po Community Network, Speaker: Dr. TANG Yuk Ming, William, Venue: Chiuchow Garden Restaurant(潮江春) Shop 001-003, 1/F, Uptown Plaza (新達廣場), No.9 Nam Wan Road, Tai Po	Ms. Wendy CHENG Tel: 2824 0333 1 CME Point

Date / Time	Function	Enquiry / Remarks
18 TUE 6:30 pm	**MPS Workshop – Mastering Shared Decision Making** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Fung Shu Yan, Anthony, Venue: HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	HKMA CME Dept Tel: 2527 8452 2.5 CME Points
19 WED 1:00 pm	**HKMA Shatin Doctors Network - Allergy Certificate Course 2014 - Recent Advances in Asthma Management** Organiser: HKMA Shatin Doctors Network, Chariman: Dr. MAK Wing Kin, Speaker: Dr. LO Chi Wai, Venue: Jasmine Room, Level 2, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Ms. Rosanna HUI Tel: 3189 8812
6:30 pm	**MPS Workshop – Mastering Adverse Outcomes** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Leung Kwok Ling, Ares, Venue: HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	HKMA CME Dept Tel: 2527 8452 2.5 CME Points
20 THU 8:00 pm	**FMSHK Executive Committee Meeting** Organiser: The Federation of Medical Societies of Hong Kong, Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
21 FRI 1:00 pm	**HKMA Shatin Doctors Network - Diagnostics of HPV and Prevention** Organiser: HKMA Shatin Doctors Network, Chariman: Dr. MAK Wing Kin, Speaker: Dr. FONG Yeung, Francois, Venue: Jasmine Room & Foyer, Level 2, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Mrs. Sandy CHUNG Tel: 3971 2929 1 CME Point
22 SAT	**Hong Kong Powerlifting Championships 2014** Organiser: Hong Kong Weightlifting and Power-lifting Association, Venue: Queen Elizabeth Stadium	Mr. Andie HO Tel: 2527 8285
23 SUN 9:00 am	**The Magic of Migration - The Photo Taking Tour in Mai Po 2014 (追蹤候鳥之旅 2014)** Organiser: HKMA Photographic Society, Chariman: Dr. PANG Lai Man, Amy, Venue: Mai Po Nature Reserve	Mr. Benjamin CHAN Tel: 2527 8285
12:00 pm	**HKMA Football Day 2014** Organiser: The Hong Kong Medical Association, Chariman: Dr. CHAN Hau Ngai, Kingsley & Dr. CHAN Chi Wing, Timmy, Venue: Stanley Ho Sports Centre	Mr. Andie HO Tel: 2527 8285
25 TUE 1:00 pm	**HKMA Kowloon West Community Network - Challenges in Elderly Diabetic Patients** Organiser: HKMA Kowloon West Community Network, Chariman: Dr. CHAN Siu Man, Bernard, Speaker: Dr. CHEUNG Fu Keung, Venue: Crystal Room I-III, 30/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:45 pm	**HKMA Tai Po Community Network – Right Treatment, Right Patient and Right Prostate** Organiser: HKMA Tai Po Community Network, Speaker: Dr. FUNG Tat Chow, Berry, Venue: Chiuchow Garden Restaurant(潮江春) Shop 001-003, 1/F, Uptown Plaza (新達廣場), No.9 Nam Wan Road, Tai Po	Ms. Pasty NG Tel: 9420 0400 Fax: 2856 1400 1 CME Point
6:30 pm	**MPS Workshop – Mastering Shared Decision Making** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Fung Shu Yan, Anthony, Venue: Eaton Hotel	HKMA CME Dept Tel: 2527 8452 2.5 CME Points
26 WED 1:00 am	**HKMA Central, Western & Southern Community Network - Optimal Use of Topical Therapy for Atopic Dermatitis** Organiser: HKMA Central, Western & Southern Community Network, Chariman: Dr. CHAN Hau Ngai, Kingsley, Speaker: Dr. YEUNG Chi Keung, Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
27 THU 1:00 pm	**HKMA Hong Kong East Community Network - 1st Series Certificate Course on Dementia for Primary Care Doctors (Session 4) - Medical and Community Collaboration – Case Management in Community** Organiser: HKMA Hong Kong East Community Networ, Chariman: Dr. AU YEUNG Shiu Hing, Speaker: Dr. Jess LEUNG, Venue: HKMA Head Office (5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong)	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 pm	**HKMA Kowloon East Community Network - Acne: An Update Focusing on Some Critical Aspects** Organiser: HKMA Kowloon East Community Network, Chariman: Dr. MA Ping Kwan, Danny, Speaker: Prof. Brigitte DRENO, Venue: Crystal Ballroom A, Level B3, Holiday Inn Golden Mile Hotel Hong Kong, 50 Nathan Road, TST	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:00 pm	**HKMA New Territories West Community Network - Updates on Common Throat Problems** Organiser: HKMA New Territories West Community, Chariman: Dr. TSUI Fung, Speaker: Dr. CHAN Wing Kwan, Anthony, Venue: Plentiful Delight Banquet (元朗喜尚嘉喜酒家), 1/F., Ho Shun Tai Building, 10 Sai Ching Street, Yuen Long	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
6:30 pm	**MPS Workshop – Mastering Difficult Interactions with Patients** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Cheng Ngai Shing, Justin, Venue: Eaton Hotel	HKMA CME Dept Tel: 2527 8452 2.5 CME Point
28 FRI 1:00 pm	**HKMA Yau Tsim Mong Community Network – Sarcopenia in Elderly** Organiser: HKMA Yau Tsim Mong Community Network, Chariman: Dr. LAM Tzit Yuen, David, Speaker: Dr. SHEA Tat Ming, Paul, Venue: Jade Ballroom, Level 2, Eaton, Hong Kong, 380 Nathan Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
29 SAT 2:30 pm	**MPS Workshop – Mastering Your Risk** Organiser: Hong Kong Medical Association & Medical Protection Society, Speaker: Dr. Cheng Ngai Shing, Justin, Venue: HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	HKMA CME Dept Tel: 2527 8452 2.5 CME Point

Upcoming Meeting

27/4/2013 2:00pm	**2014 Paediatric Update No.1 Paediatric Genetics / Genomics** Organiser: Hong Kong College of Paediatricians, Speaker: Dr. Brian CHUNG, Dr. Ming-luk HO, Dr. Stephen LAM, Dr. Josephine CHONG, Venue: M-Ground, Lecture Theatre, Queen Elizabeth Hospital, Kowloon, Enquiry: Ms. Lily LIN Tel: 2871 8752, 3 CME Point
28-30/6/2014	**4th IDKD Intensive Course in Hong Kong "Musculoskeletal Diseases"** Organiser: IDKD, HKU & HKCR, Venue: Hong Kong Convention & Exhibition Centre (HKCEC), 1 Expo Drive, Wanchai, Registration: www.idkd.org

Certificate Course for Health Care Professionals | Course No. C239 | CME/CNE Course

Certificate Course on Best Practices in Quality of Life Assessments

Objectives:

This course equips participants the know-how of assessing quality of life (QoL) in both healthy and ill individuals. The development of health-related quality of life dates back to the sixties when a group psychophysicists and econometricians developed a group of generic indices for assessing the changes in the state of well-being of patients, some of which were later developed as Index of Health-related Quality of Life. Since then, the measurement of health-related quality of life has made a major impact on the evaluation of health care and medical interventions. Nowadays, numerous measures have been developed across a wide range of clinical areas, including but not limited to neurology, oncology, cardiology, and palliative care. The best use of these tools is hinged on a good understanding of their developmental framework, extent of evaluation, and use in practice. In the sequel, this course provides the necessities for healthcare professionals to conduct QoL assessment in practice.

Jointly organised by

The Federation of Medical Societies of Hong Kong

Hong Kong Society for Quality of Life

Date	Topics	Speakers
7 April	Quality of Life (QoL) Assessment: Principles and Concepts	Mr. Kwok-fai LEUNG Department Manager, Department of Occupational Therapy Queen Elizabeth Hospital / Founding Chairman, Hong Kong Society for Quality of Life
14 April	QoL Assessment: A Chinese Medicinal Approach	Dr. Wendy WONG Post-doctoral Fellow / Department of Family Medicine and Primary Care, The University of Hong Kong / Vice Chairman, Hong Kong Society for Quality of Life
28 April	Best Practice in Selecting a QoL Measure	Mr. Kwok-fai LEUNG Department Manager, Department of Occupational Therapy Queen Elizabeth Hospital / Founding Chairman, Hong Kong Society for Quality of Life
5 May	Best Practice of using QoL in health economic evaluation	Dr. Carlos King-ho WONG Post-doctoral Fellow / Department of Family Medicine and Primary Care, The University of Hong Kong / Life Member, Hong Kong Society for Quality of Life
12 May	Psychometric Evaluation in SPSS	Dr. Daniel Yee-tak FONG Associate Professor, School of Nursing, The University of Hong Kong / Chairman, Hong Kong Society for Quality of Life
19 May	Interpreting QoL: Strategies and Challenges	

Dates : 7 April 2014 – 19 May 2014 (Every Monday, Skip 21 April)
Time : 7:00 pm – 8:30 pm
Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Language Media : Cantonese (Supplemented with English)
Course Fee : HK$750 (6 sessions)
Certificate : Awarded to participants with a minimum attendance of 70%
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel: 2527 8898 Fax: 2865 0345 Email: info@fmshk.org

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Answers to Dermatological Quiz

1. This elderly man presented with five years' history of this solitary well-defined slowly expanding hyperkeratotic irregularly shaped plaque of about 2cm in diameter at his right shin. The border is sharply defined with irregular reniform projections and notches. The clinical diagnosis is most compatible with Bowen's disease (squamous cell carcinoma in situ). Other differential diagnoses should include actinic keratosis, other malignancies such as squamous cell carcinoma and basal cell carcinoma, seborrhoeic keratosis, psoriasis and discoid eczema. Clinical distinction of Bowen's disease from actinic keratosis may at times be difficult. Generally, actinic keratosis presents with smaller lesions. Superficial basal cell carcinomas often have a more translucent pearly slightly elevated advancing edge. Patients with inflammatory dermatoses such as psoriasis and discoid eczema would normally be responsive to topical steroids.

2. Excisional biopsy for histological examination is the treatment of choice for our patient. Histology of Bowen's disease demonstrates full-thickness atypia of epidermal keratinocytes over a broad zone. Nuclear pleomorphism and apoptosis are often more florid than in actinic keratosis. Mitoses are more frequent.

Dr Ka-ho LAU
MBBS(HK), FRCP(Glasg, Edin), FHKCP, FHKAM(Med)
Private dermatologist

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- *2:00 - 4:00 p.m.*
- *Seminar Room 6, LG1 Laboratory Block*
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References: 1. Yao MJ et al. Effects of nutrition counseling with and without growing-up milk on growth and nutrient adequacy in picky eaters: a randomized controlled trial. Presented at: 5th Europaediatrics 2011;20-25 June 2011; Vienna, Austria. 2. Joint FAO/WHO Expert Consultation on Human Vitamin and Mineral Requirements; Vitamins and Mineral requirements in Human Nutrition. 2nd ed. 2004. 3. Whitney EN et al. 9th ed. Belmont, CA: Wadsworth/Thomson Learning; 2002. 439-442. 4. Wakabayashi FA et al. American Journal of Clinical Nutrition. 1963;36(2):195-201. 5. DRI for calcium and vitamin D. Washington DC: National Academy Press; 2011. 6. DRI for Folate. Food and Nutrition Board et al 1998. 7. DRI for calcium and vitamin D. Washington DC: National Academy Press: 2011. 8. Joint FAO/WHO Expert Consultation on Human Vitamin and Mineral Requirements. Vitamin and Mineral Requirements in Human Nutrition. 2nd ed. Geneva, Switzerland: World Health Organization and Food and Agriculture Organization of the United Nations, 2004. 9. Arthur JR, McKenzie RC, et al. Selenium in the Immune System. The Journal of Nutrition. 2003;133(5):1457S-1459S.

* Compared Z-scores changes of weight-for-height with control group (with nutrition counselling alone) and study group (with nutrition counselling + growing-up milk)

#Clinical study performed with the previous PE GOLD formulation.

Remark: For picky eating children, should provide them with normal diet and continue to correct their picky eating behavior

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