

EDITORIAL

Women’s Imaging and Oncology

RKC Ngan

Deputy Editor-in-Chief, *Hong Kong Journal of Radiology*

Close on the heels of the latest Hong Kong Cancer Statistics (2014) released in late November 2016 by the Hong Kong Cancer Registry, the publication of the Journal’s current themed issue on ‘Women’s Imaging and Oncology’ is exceedingly timely.

According to the Hong Kong Cancer Registry, most of the increase in new cancer cases in Hong Kong is due to an increase in cancers found almost exclusively in women such as those affecting the breast, corpus uteri, ovary and thyroid, and in both genders, colorectal cancer.¹ Although more men (15,101) were diagnosed with cancer than women (14,517) in 2014, the male-to-female ratio of 1.04:1 was a sharp decrease from 1.18:1 in 2004.¹ With the prevalent trend in cancer incidences and anticipated population structure, this gender ratio is expected to reverse in the coming years. Indeed, cancer was more common in women than in men in the age-group of 20 to 60 years, even more so in those aged 20 to 44 years where the number of cancers in women was about double that of men.¹ The Table shows the 10 most common cancers diagnosed in women in Hong Kong in 2014. Both a larger and growing female population within the age-groups, and high incidence of gender-specific cancers of the breast, cervix, corpus uteri and

ovary accounted for the female preponderance. The plethora of articles published in the current issue that focuses on various diagnostic imaging studies for breast tumours or lesions, and imaging studies for diagnosing and treating gynaecological cancers of endometrial carcinoma and cervical carcinoma respectively illustrate precisely the magnitude of clinical practice catering for these women.

In 2014, 3868 women were diagnosed with invasive breast cancer, an increase of 9.8% from 2013.¹ Indeed, the number of invasive female breast cancer cases has increased by 70% since 2004.¹ In addition, another 530 cases of ductal carcinoma in situ (DCIS) of breast were recorded.² Although a population-based breast cancer screening programme has not been implemented in Hong Kong, opportunistic breast screening or diagnostic imaging for breast lesions and consequent radiologist-led diagnostic procedures have become increasingly common due to an increased awareness of breast cancer in the female population.

In recent years, radioguided occult lesion localisation (ROLL) has become a preferred diagnostic procedure for non-palpable and sonographically occult lesions with

Table. Ten most common cancers in women, Hong Kong, 2014.¹

Rank	Site	No. of new cases	Relative frequency	Crude incidence rate*
1	Breast	3868	26.6%	99.3
2	Colorectum	2117	14.6%	54.3
3	Lung	1660	11.4%	42.6
4	Corpus uteri	997	6.9%	25.6
5	Thyroid	648	4.5%	16.6
6	Ovary etc.	576	4.0%	14.8
7	Liver	478	3.3%	12.3
8	Cervix	472	3.3%	12.1
9	Stomach	465	3.2%	11.9
10	Non-Hodgkin lymphoma	426	2.9%	10.9
	All sites	14,517	100.0%	372.6

* All rates are expressed per 100,000 women in Hong Kong.

suspicious breast calcifications that have been identified on mammography. A retrospective analysis of their institutional results by Au et al³ confirmed the high rates of radiological, scintigraphic, surgical, and histological success of ROLL in 94 patients over a 13-year period, commensurate with that of reports from overseas. The authors did propose that a wider resection margin may improve the rate of surgical success for DCIS following ROLL. Alternatively, stereotactic-guided vacuum-assisted breast biopsy can definitely enable a larger volume of tissue to be obtained although migration can occur of the marker placed at biopsy. To et al⁴ reported the occurrence of significant marker migration by 1 cm or more in 17% of 153 patients biopsied over a 5-year period that might adversely affect the accuracy of the subsequent surgical localisation procedure. The authors found marker migration was correlated with age, breast compression thickness, number of biopsy cuttings, and duration of the procedure.

While Tsang et al⁵ report their experience in correlating the conventional imaging results with pathological findings in uncommon mucocele-like lesions of the breast, Lam et al⁶ describe their early local experience in correlating the Breast Imaging-Reporting and Data System grading and final pathology with the shear wave velocity of non-invasive sonoelastography. A cut-off maximum shear wave velocity obtained from the receiver operating characteristic curve computed from results of 88 lesions was able to distinguish malignant breast lesions from benign lesions with reasonable sensitivity and specificity.⁶

Cancers of the corpus uteri and ovary have shown a marked increase in number of new cases in 2014 compared with 2013 by 5.8% to almost 1000 cases, and by 9.5% to 576 cases in 2014.¹ Surgery remains the mainstay primary treatment for endometrial cancers after which additional adjuvant therapies such as radiotherapy or chemotherapy will be guided by information about the pathological staging. This comprises depth of myometrial invasion, cervical stromal involvement, histological evidence of lymph node metastasis, and adnexal and peritoneal metastasis.⁷ In patients who are not surgical candidates because of medical co-morbidities or who are considering fertility-sparing treatment, magnetic resonance imaging (MRI) with or without positron emission tomography / computed tomography (CT) is considered the best surrogate staging procedure short of surgical staging.⁷ Chan et al⁸ confirmed that MRI could predict

pathological staging of endometrial cancers with >80% accuracy in a local cohort of 90 patients. Although there is still room for improving the sensitivity in detecting cervical stromal invasion and pelvic lymph node metastasis, the staging information will provide very relevant guidance to clinical oncologists when formulating the most appropriate non-surgical treatment for such patients who are not undergoing primary surgery.

Although the number of cervical cancers dropped by 6.2% to a total of 472 cases in 2014, the recent introduction of image-guided brachytherapy (IGBT) for cervical cancers has gradually rekindled the interest of clinical oncologists in further improving the treatment algorithms for this once prevalent female cancer.^{1,9} Interstitial brachytherapy, a three-dimensional brachytherapy treatment technique, has revolutionised the dosimetry system of how brachytherapy should be practised, prescribed and evaluated.⁹ The smooth implementation of this newly acquired technique definitely calls for concerted contributions from diagnostic radiology colleagues of the multidisciplinary gynaecological oncology team in different institutions. As shown by Siu et al,¹⁰ it becomes mandatory to replace the gold standard Manchester point A and International Commission on Radiation Units and Measurements (ICRU) rectal point as reference points to measure tumour and rectal doses respectively by new reference dose volumes (D90 of high-risk clinical target volume, and rectal D2cc) during this inevitable paradigm shift. In their report of 34 patients with cervical cancers imaged by CT rather than MRI scans for computing IGBT dosimetry, correlation of IGBT dose volumes with ICRU point doses were inconsistent.

Last but not least, retrospective results of uterine artery embolisation (UAE) reported by both Lam and Lo¹¹ and Wong et al¹² in treating pregnancy-related complications and symptomatic fibroids in their institutions respectively confirmed not only high rates of technical success and clinical efficacy, but also a favourable safety profile, providing evidence that UAE is a promising non-surgical therapy for patients with such clinical indications. The pictorial essay by Tsang et al¹³ describes the various MRI features of complications arising from breast augmentation. These definitely complement the findings of the initial radiological workup of patients suspected of having such complications and who might need corrective surgery.

We hope the broad array of articles published in this themed issue of the Journal focusing on ‘Women’s Imaging and Oncology’ will help clinicians, radiologists, and oncologists alike to reflect and prepare themselves to better manage the increasing number of women suffering from female cancers.

REFERENCES

1. Overview of Hong Kong Cancer Statistics of 2014. Hong Kong Cancer Registry. Available from: <http://www3.ha.org.hk/cancereg/pdf/overview/Summary%20of%20CanStat%202014.pdf>. Accessed 3 Jan 2017.
2. Female breast cancer in 2014. Hong Kong Cancer Registry. Available from: http://www3.ha.org.hk/cancereg/pdf/factsheet/2014/breast_2014.pdf. Accessed 3 Jan 2017.
3. Au AK, Wan AY, Leung BS, Lo SS, Wong WW, Khoo JL. Efficacy of radioguided occult lesion localisation: how well are we doing? *Hong Kong J Radiol.* 2016;19:269-78. [crossref](#)
4. To VY, Wong KM, Mak WS, Kwok KM, Wong CW. Stereotactic-guided vacuum-assisted breast biopsy in the Asian population: what factors affect marker migration? *Hong Kong J Radiol.* 2016;19:293-9. [crossref](#)
5. Tsang HH, Wai JW, Chiu JL, Wong OK. Mucocoele-like lesions of the breast: mammographic, sonographic, and pathologic findings and upgrade rate. *Hong Kong J Radiol.* 2016;19:279-86. [crossref](#)
6. Lam MC, Wong KM, Mak WS, Kwok KM, Lam HS, Wong CW. Breast sonoelastography: our preliminary experience in 155 lesions. *Hong Kong J Radiol.* 2016;19:287-92. [crossref](#)
7. National Comprehensive Cancer Network (NCCN) guidelines version 1.2017. Uterine neoplasms — principles of imaging. Available from: https://www.nccn.org/professionals/physician_gls/f_guidelines.asp#uterine/Uterine.pdf. Accessed 3 Jan 2017.
8. Chan CY, Shek SK, Kwok SK, Wong WK, Wong TH, Fung DH, et al. Diagnostic accuracy of preoperative magnetic resonance imaging in staging endometrial cancer: a five-year experience. *Hong Kong J Radiol.* 2016;19:249-55. [crossref](#)
9. Haie-Meder C, Pötter R, Van Limbergen E, Briot E, De Brabandere M, Dimopoulos J, et al. Recommendations from Gynaecological (GYN) GEC-ESTRO Working Group (I): concepts and terms in 3D image based 3D treatment planning in cervix cancer brachytherapy with emphasis on MRI assessment of GTV and CTV. *Radiother Oncol.* 2005;74:235-45. [crossref](#)
10. Siu SW, Chow AM, Ng TM, Tang FN, Ho PP, Chan WW, et al. Correlation of dose-reporting parameters in two-dimensional and three-dimensional image-guided brachytherapy for cancer of the cervix uteri: a single-institution experience. *Hong Kong J Radiol.* 2016;19:256-61. [crossref](#)
11. Lam MC, Lo SS. Use of uterine artery embolisation for pregnancy-related complications: a single-institution experience. *Hong Kong J Radiol.* 2016;19:262-8. [crossref](#)
12. Wong KY, Chan VW, Kwok PC, Leung KY. Mid-term results and efficacy of uterine artery embolisation for symptomatic fibroids in the local population. *Hong Kong J Radiol.* 2016;19:239-48. [crossref](#)
13. Tsang HH, Wai JW, Chiu JL. Magnetic resonance imaging of breast augmentation and complications: a pictorial essay. *Hong Kong J Radiol.* 2016;19:303-7. [crossref](#)

HKJR Call for Papers – Theme Issues

The following themes are set for the future issues of HKJR. The Editorial Board would like to invite authors to submit papers (reviews, research articles, pictorial essays, or brief communications) on these topics:

Theme (deadline for initial submission of manuscripts)

- Musculoskeletal Imaging & Oncology (January 2017)
- Liver Imaging & Oncology (April 2017)
- Cardiac Imaging (July 2017)

Criteria for selection of manuscripts include: (1) quality, rigor and originality, (2) significance and usefulness for enhancing our understanding of the topics; (3) and clarity of writing and presentation. All manuscripts must follow the “Information for Authors” listed at: <http://www.hkjr.org/page/information-author>.

Manuscripts submitted for the Theme Issue will first undergo the same peer review process as all regular manuscripts. Due to the timeline for publishing the Theme Issue, however, HKJR will monitor the progress of manuscripts through the review process and try to shorten the overall process; likewise, authors should expect to be especially timely in returning revisions.

Authors should submit the papers via our online submission system: <http://www.hkamedtrack.org/hkjr>.