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## EDITORIAL

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# The Pivotal Role of Radiologists and Oncologists in Optimising Outcome and Survival in Non-metastatic Rectal Cancer

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According to the Hong Kong Cancer Registry, the number of new cancer cases hit a historical high of 30,318 in 2015, with a 2.4% increase from 2014. Colorectal cancer is the most common cancer diagnosed in both genders (16.6% of all new cancer cases).<sup>1</sup> There has been a substantial rise in colorectal cancer cases compared with a decade earlier, largely due to an ageing and growing population. More than 90% of newly registered patients were aged 50 years or older. The age-standardised incidence of colorectal cancer in Hong Kong is similar to that of western countries such as Canada and the UK, and some developed Asian countries such as Singapore and Japan.

Colorectal cancer takes time to develop and goes through different stages of polyp growth. Detection and removal of early-stage polyps can prevent the development of cancer. Even when cancer has developed, treatment of early-stage cancer has a very high success rate. In 2016, the Department of Health launched a 3-year Colorectal Cancer Screening Pilot Programme.<sup>2</sup> Citizens aged 61 to 70 years are eligible to receive subsidy from the government to undergo a faecal immunochemical test, a new version of the faecal occult blood test that can detect invisible and small amounts of blood in the stool. If the faecal occult blood test is positive, a referral for colonoscopy will be made. When polyps are found, they will be removed for further analysis.

According to the Department of Health, during the first 12 months of the screening programme (as at 27 September 2017), 5286 (13.5%) of the stool specimens from 39,280 participants whose specimens were eligible for analysis tested positive for the faecal immunochemical test.<sup>3</sup> Among them, 4501 participants underwent colonoscopy, and polyps were removed in 3974.<sup>3</sup> Further examination of the removed polyps revealed 3089 cases (68.6%) of colorectal adenomas.<sup>3</sup>

Removal of such lesions prevents their development into cancer. During phase 1 of the programme, 291 cases of colorectal cancer were detected; most such cancerous lesions were in early stage, giving the patients a higher chance of better treatment response and a more favourable prognosis.<sup>3</sup> Hopefully, the implementation of such a screening programme will curb morbidity and mortality secondary to colorectal cancer over the next couple of years.

In the current multidisciplinary management of rectal cancer, total mesorectal excision is the standard surgery with superior oncological and functional outcomes to traditional blunt dissection. Neoadjuvant chemoradiotherapy is given to selected patients with a high risk of local recurrence. In this issue, Hung et al<sup>4</sup> describes the role of high-resolution magnetic resonance imaging (MRI) in rectal cancer staging, in particular, the importance of identifying T3 tumours that have spread through the muscularis propria layer into the perirectal soft tissue and measuring the actual distance of the extramuscular depth of tumour invasion. This particular subgroup of patients are at higher risk of local recurrence than those in the lower T stages. Neoadjuvant chemoradiotherapy is prescribed for these patients prior to definitive surgery aiming to improve survival.

Besides its superb image quality to distinguish different rectal layers, high-resolution MRI can also identify minute structures that are useful landmarks to guide curative surgery. The mesorectal fascia denotes the resection margin of total mesorectal excision. The shortest tumour distance from the mesorectal fascia on MRI gives a good estimate of the circumferential resection margin of the tumour, which assists the multidisciplinary team in making a decision about the need for neoadjuvant chemoradiotherapy as well as predicting the risk of local recurrence. The presence of

regional nodes, extranodal tumour deposits, extramural venous invasion, and peritoneal involvement can also be delineated by high-resolution MRI, and are of prognostic importance. The authors give practical guidelines to radiologists about the imaging protocol and reporting template, together with abundant figures to illustrate a variety of important radiological prognosticators for rectal cancer. Emphasis is placed on careful evaluation of important landmarks such as levator ani, puborectalis, intersphincteric fat, and internal and external sphincters in patients with a low rectal tumour. The surgical decision to perform a conventional abdominoperineal resection or an extralevator abdominoperineal resection is based on the tumour involvement in specific mural layers of the rectum as well as aforementioned vital structures, in order to achieve a curative intent resection.

Yuen et al<sup>5</sup> provide a review of the spectrum of benign and malignant rectal submucosal lesions. This supplements the earlier review of rectal cancer and reminds radiologists of other differential diagnoses that might be encountered in clinical practice.

Law<sup>6</sup> critically reviews key studies of the ‘watch-and-wait’ approach in rectal cancer regarding its oncological outcomes and safety. The watch-and-wait approach is a non-surgical option for rectal cancer patients who achieve a clinical complete response following neoadjuvant chemoradiotherapy. The pathological complete response that is observed in an average of 12% to 16% of patients after neoadjuvant chemoradiotherapy underlies this watch-and-wait strategy. A number of retrospective studies and prospective observational studies have suggested that the watch-and-wait approach can potentially allow for organ preservation in a subset of carefully selected patients. In these patients, instead of undergoing radical surgical resection that is associated with high rates of stoma and surgery-related morbidity and mortality, patients are kept under close clinical and radiological surveillance. Most patients who had local regrowth during follow-up have successfully undergone salvage therapy. These patients can enjoy a complication-free, organ-preserved life without any compromise of their oncological outcomes, contrary to those who underwent radical surgery. Although the watch-and-wait approach is an attractive strategy for clinical complete responders after neoadjuvant chemoradiotherapy in rectal cancer, there is insufficient evidence from randomised controlled trials to support its long-term oncological safety. The success of the watch-and-wait approach still requires optimisation

of the chemoradiotherapy regimens and an effective surveillance protocol. High-resolution pelvic MRI and positron emission tomography–computed tomography definitely play a pivotal role in ensuring the safety of the watch-and-wait practice.

Although optimal clinical outcome can be achieved by close adherence to treatment algorithms, some therapeutic options are associated with toxicity and morbidity. Patients with advanced age or chronic disease may not be able to receive the standard therapy, so modification of the treatment regimen is often necessary. Chiang et al<sup>7</sup> explore the effect of short-course preoperative radiotherapy (SCPRT) with delayed surgery. Despite a small cohort and relatively short follow-up, the study showed that SCPRT could downsize and downstage locally advanced rectal cancer and achieve a favourable toxicity profile. The authors suggest that SCPRT is a viable option for patients who are unfit for preoperative long-course chemoradiotherapy.

Unlike hepatocellular cancer, for which a local staging system with treatment stratification has been developed,<sup>8</sup> there is no specific local guideline for treating patients with rectal cancer in Hong Kong. Surgical practice is mainly guided by the MRI-predicted resection margin of the rectal tumour. The approach in advanced rectal cancer treatment including neoadjuvant chemoradiotherapy can vary with regions or institutions. The guidelines from the National Comprehensive Cancer Network,<sup>9</sup> European Society for Medical Oncology,<sup>10</sup> and National Institute for Health and Care Excellence<sup>11</sup> are all referenced.

With concerted efforts from the multidisciplinary team of radiologists, clinical oncologists, and surgeons in tertiary referral centres, patients with rectal cancer can be offered various treatment options, with the ultimate goal of optimising survival while minimising undesirable side-effects and morbidity caused by intensive neoadjuvant / adjuvant therapy or radical surgery.

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