Editorial

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2023 Korean Multidisciplinary Guidelines for Colon Cancer Management: Summary of Radiological Points

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INTRODUCTION

According to the Korean National Cancer Registry, colorectal cancer is the third most common cancer and has the third highest mortality rate after lung cancer and liver cancer, accounting for 10.9% of all cancer-related deaths in Korea [1]. The multidisciplinary Korean guidelines for colon cancer management (version 3.0) have recently been updated, reflecting the latest knowledge on the diagnosis and treatment of colon cancer, and are tailored to the healthcare insurance system and actual clinical practice in Korea. The guidelines are based on an in-depth systematic analysis of research that has accumulated since the publication of the previous versions. This article briefly introduces the key radiological points included in the 2023 Colon Cancer Korean Clinical Practice Guidelines. A comprehensive English summary of the entire guideline document (which was originally written in Korean) can be found elsewhere [2].

Methodology in Brief

The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) methodology was adopted to evaluate the evidence levels and determine the recommendation grades (Supplementary Tables 1, 2) [3,4]. A systematic literature search was conducted using the MEDLINE, Embase, Cochrane, and KoreaMed databases and was updated until August 2022. The Korean Colon Cancer Multidisciplinary Committee's process for determining consensus recommendations requires participation from at least 70% of the committee members and agreement among at least 70% of the voters for each item. If less than 70% of the votes were in favor, the development committee members considered revisions and a second vote was taken.

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Radiology-Related Recommendations

Of the 17 individual items, referred to as key questions (KQs), included in the guidelines, those related to radiology were KQ1, KQ2, KQ3, and KQ14-1. The recommendations for these items, along with their strengths of recommendation and evidence levels, are summarized in Table 1.

Diagnosis

KQ1. What imaging studies should be performed if liver metastases are suspected on abdominal CT for staging patients with colon cancer?

1-1. Liver MRI is recommended if metastases localized to the liver are suspected or if liver resection is considered.

1-2. When liver metastases are suspected in patients with colon cancer, PET/CT is recommended for radical treatment decisions.

KQ2. Is the addition of PET/CT more effective than CT alone in patients with metastatic colon cancer?

In patients with metastatic colon cancer, PET/CT is useful for detecting metastatic lesions that are not detected on contrast-enhanced CT. PET/CT is recommended for treatment decision-making in metastatic colon cancer.

KQ3. What tests can be considered for proximal colon evaluation in patients with left obstructive colon cancer in whom evaluating the proximal colon on preoperative colonoscopy is difficult?

In patients with left obstructive colon cancer in whom the proximal segment is difficult to evaluate on preoperative colonoscopy, CT colonography, PET/CT, and completion colonoscopy may be considered for proximal evaluation.

Resectable Metastatic Colon Cancer

KQ14. What is the appropriate treatment for patients with resectable liver metastases from colon cancer?

14-1. For radical treatment of patients with a single colon cancer liver metastasis of 3 cm or less, hepatectomy is more effective than radiofrequency ablation (RFA).

14-2. In patients with resectable colon cancer liver

Table 1. Radiology-related recommendations

Recommendation	Recommendation strength	Levels of evidence
Diagnosis		
KQ1. What imaging studies should be performed if liver metastases are suspected on abdominal CT for staging patients with colon cancer?		
1-1. Liver MRI is recommended if metastases localized to the liver are suspected or if liver resection is considered.	Do (strong)	Low
1-2. When liver metastases are suspected in patients with colon cancer, PET/CT is recommended for radical treatment decisions.	Do (strong)	Low
KQ2. Is the addition of PET/CT more effective than CT alone in patients with metastatic colon cancer?		
In patients with metastatic colon cancer, PET/CT is useful for detecting metastatic lesions that are not detected on contrast-enhanced CT. PET/CT is recommended for treatment decision-making in metastatic colon cancer.	Do (strong)	Very low
KQ3. What tests can be considered for proximal colon evaluation in patients with left obstructive colon cancer whom evaluating the proximal colon on preoperative colonoscopy is difficult?		
In patients with left obstructive colon cancer whom the proximal segment is difficult to evaluate on preoperative colonoscopy, CT colonography, PET/CT, and completion colonoscopy may be considered for proximal evaluation.	Do (conditional)	Very low
Resectable metastatic colon cancer		
KQ14. What is the appropriate treatment for patients with resectable liver metastases from colon cancer?		
14-1. For the radical treatment of patients with a single colon cancer liver metastasis of 3 cm or less, hepatectomy is more effective than radiofrequency ablation.	Do (strong)	Very low
14-2. In patients with resectable colon cancer liver metastases, simultaneous resection versus staged resection is an option.	Do (conditional)	Very low
14-3. In patients with resectable colon cancer liver metastases, either surgery after neoadjuvant chemotherapy or upfront surgery can be considered.	Do (conditional)	Very low

KQ = key question

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KJR

metastases, simultaneous resection versus staged resection is an option.

14-3. In patients with resectable colon cancer liver metastases, either surgery after neoadjuvant chemotherapy or upfront surgery can be considered.

DISCUSSION

Further Imaging Modalities for Suspected Liver Metastases on CT (KQ1)

When liver metastases are suspected in patients with colon cancer, assessing resectability in preoperative imaging is crucial, because resection of liver metastases can improve prognosis [5]. Accurate detection of each metastatic lesion is important in patients undergoing resection for liver metastases; hence, liver MRI, which demonstrates the highest sensitivity in per-lesion analysis, is the most recommended modality (see Supplements for references to the literature for specific evidence). However, determining the presence or absence of distant metastases at the patient level is crucial when deciding between curative and palliative treatments. In such a scenario, PET/CT, which shows the highest performance in per-patient analysis and can accurately detect metastasis to organs other than the liver, is recommended (see Supplements for references to the literature for specific evidence).

Additional Value of PET/CT Compared to CT Alone in Metastatic Colon Cancer (KQ2)

Compared with CT alone, PET/CT identified additional extrahepatic metastases in 0.4%–37.1% of cases and altered the treatment plan in 6.8%–53.9% of patients with colon cancer (see Supplements for references to the literature for specific evidence). Notably, PET/CT had a greater impact on treatment decisions in patients with advanced-stage colon cancer. PET/CT may show false negative results in cases of small lesions (<2 cm), mucinous colon cancer metastases, and post-chemotherapy liver metastases. Conversely, it can result in false-positive lesions due to inflammation, necrosis, benign tumors, and physiological uptake. However, the risks associated with unnecessary surgery or inaccurate determination of the surgical extent due to not having performing PET/CT are considered greater than those associated with false-negative or false-positive results on PET/CT.

Tests for Proximal Colon Evaluation in Patients With Left Obstructive Colon Cancer (KQ3)

Proximal colon assessment is challenging in patients with obstructive colon cancer. Additional examinations revealed synchronous cancers in the proximal colon at varying rates: CT colonography (1.4%–15.4%), PET/CT (4.1%–9.7%), and completion colonoscopy after stent insertion (approximately 2.5%–10.3%). Synchronous cancers in the proximal colon can lead to changes in surgical extent or overall treatment modifications in these patients (see Supplements for references to the relevant literature). Given the potential benefits of detecting synchronous colon cancer through additional examinations in patients with obstructive colon cancer and the relatively minimal risks associated with these procedures, these procedures seem beneficial. However, there is no evidence that these examinations improve survival rates, and the included studies were all retrospective cohort studies, leading to uncertainty regarding the balance between the benefits and harms. Therefore, the decision to perform these additional examinations should be made after careful consideration of the potential benefits and risks based on the individual patient's condition.

Appropriate Treatment for Resectable Colon Cancer Liver Metastasis (KQ14)

Three previous studies that compared hepatic resection and RFA for liver metastases were included. However, these studies were retrospective, and RFA was mostly performed in patients for which surgery was deemed high-risk; therefore, the results regarding treatment complications and survival rates should be interpreted cautiously [6-8]. The local recurrence rate was significantly lower in the surgical resection group compared to the RFA group (relative risk, 0.14; 95% confidence interval, 0.05–0.38) [6-8]. Therefore, when considering local recurrence rates, surgical resection may be the treatment of choice for resectable liver metastases from colon cancer. Depending on the surgical risk, other treatments such as RFA may be considered.

Supplement

The Supplement is available with this article at https://doi.org/10.3348/kjr.2024.0575.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

Author Contributions

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