

Optimal Initial Clinical Evaluation of Rectum Cancer before Deciding Treatment Modality By 2020

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Approximately 40,000 people a year in the United States are diagnosed with rectal cancer, the vast majority of which are subtypes of adenocarcinoma [1]. Most patients with rectal cancer are diagnosed with colonoscopy at admission with lower gastrointestinal bleeding; sometimes, routine screening leads to the diagnosis of lesions detected during colonoscopy or imaging for some other reason. Rectal cancer prognosis is in a tight relationship with various factors such as intestinal wall invasion, lymph node involvement, mesorectal fascia and peritoneal invasion [2]. The purpose of pretreatment staging is to reveal whether there is distant metastasis when determining the location and local scope of the tumor in the rectum. Accurate determination of location and local tumor width before treatment is critical in determining the surgical approach and determining the patients who are candidates for pre-surgical initial treatment (chemoradiotherapy, a combination of chemotherapy and chemoradiotherapy or radiotherapy alone). All patients with invasive rectal cancer, including those with limited malignancy in the polyp, should undergo a transrectal ultrasound or rectal magnetic resonance imaging for local staging in addition to digital clinical examination and rigid proctoscopy [3]. Rectal cancer is staged using the tumor, node, metastasis (TNM) system of the American Joint Committee on Cancer (AJCC)/Union for International Cancer Control (UICC). Clinical staging before definitive surgical resection is cTNM. The clinical-stage of rectum cancer is determined by diagnostic biopsy, physical examination, and radiographic studies such as MRI, computed tomography (CT) and transrectal ultrasound. Staging performed after pathologists have examined the last resection sample is called pTNM. The prefix 'y'; is used in the pathological classification performed in the surgical specimen after neoadjuvant therapy (e.g., ypTNM) [4]. Digital rectal examination (DRE) and proctoscopy are essential to decide on the surgical operation. In DRE, the fixation of the lesion to the anal sphincter, the rectal wall and pelvic wall muscles can be evaluated. Proctoscopy can accurately determine the distance between the distal tumor

margin and the top of the anorectal ring and the dentate line. While local tumor width is evaluated by physical examination, anesthesia may be required in patients who cannot tolerate pain. Thin section MRI is the preferred imaging method to evaluate primary tumor width. MRI can also provide information about the circumferential resection margin as well as the invasion into other structures and organs. MRI is superior to CT imaging in determining the depth of transmural invasion, perirectal nodal involvement, and invasion into adjacent structures [5]. Preoperative CT of the abdomen and pelvis is less successful in demonstrating the degree of adjacent local organ involvement, although it is often necessary for planning the surgical procedure. CT may be less helpful in predicting local tumor resectability, even if it can accurately identify locally limited disease [6]. Transrectal or endorectal ultrasound has limited power in determining the size of the tumor and the depth of invasion to other organs. Since there are no neighboring structures that allow the assessment of circumferential resection margin, endoscopic ultrasound provides limited information in identifying posterior or posterolateral tumors, from which the distance to circumferential resection margin cannot be estimated [7]. According to NCCN guidelines, contrast CT imaging of the chest, abdomen, and pelvis is recommended for all patients diagnosed with invasive rectal cancer. Pelvic CT is not required in patients undergoing pelvic MRI for staging. For patients with contraindications to intravenous (IV) contrast CT, contrast MRI of the abdomen and pelvis

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and non-contrast thorax CT are an alternative. Except for uncertain contrast CT findings in patients with isolated liver metastases and considered candidates for resection, positron emission tomography (PET) imaging does not provide meaningful information in addition to routine CT imaging in the staging of newly diagnosed rectal cancer cases [8]. Circulating tumor markers such as carcinoembryonic antigen (CEA) are not sensitive and specific enough to be used for screening or as a diagnostic test in colorectal cancer. However, CEA levels are of value in the pretreatment staging and follow-up of patients diagnosed with colorectal cancer. Serum CEA levels benefit in prognostic evaluation in patients with newly diagnosed colorectal cancer. Patients with preoperative serum CEA >5 ng/mL have a worse prognosis than those with lower levels. High preoperative CEA levels that do not normalize after surgical resection express the presence of persistent disease and the need for further evaluation [9]. The American Society of Clinical Oncology (ASCO) recommends a preoperative serum CEA level for post-treatment follow-up and evaluation of prognosis in patients with rectal cancer. If the preoperative serum CEA level is not examined, it should be checked immediately in the postoperative period [10]. As a result, rectal cancer is a disease that can be obtained curative results with multimodal therapies at an early stage. Therefore, optimal staging is essential. In staging before the treatment decision, physical examination, and appropriate radiological evaluation are very important.

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