Original Study

Outcomes of Young Patients With Rectal Cancer From a Tertiary Cancer Care Centre in India

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Abstract

The present analysis studied the demographic data and treatment outcomes of young patients with rectal cancer (aged < 35). The median progression-free survival (PFS) was 1.4 years. The 1- and 3-year PFS rates were 66.5% and 42.0%, respectively. On univariate analysis, Karnofsky performance status and histologic type were significant prognostic factors for PFS.

Background: Carcinoma of the rectum is the fourth most common cancer in the world. The peak age of diagnosis is around the seventh decade. Rectal cancer presenting in those < 35 years old are very peculiar in that they present with adverse histologic features and more advanced stage compared with rectal cancer presenting in older patients. **Materials and Methods:** We retrospectively evaluated the patient records of young patients with rectal cancer (aged < 35 years) treated in our unit at the All India Institute from 2007 to 2013. **Results:** A total of 60 young patients with rectal cancer were registered in our unit during the study period. A family history of cancer was present in 3 patients. The median age at presentation was 27.5 years (range, 15-34 years). The male-to-female ratio was 1.5:1. Of the 60 patients, 52 (86.6%) presented with advanced-stage disease (stage III and IV). Mucinous, signet, papillary, and other poor-risk histologic features were seen in 33 patients (55%). The treatment intention was radical for 50 patients (83.3%). The median follow-up period was 7.3 months. Eighteen patients had documented disease progression. Distant metastasis was the most common type of failure, seen in 14 of 18 patients (77%). The median progression-free survival (PFS) was 1.4 years. The 1- and 3-year PFS rates were 66.5% and 42.0%, respectively. On univariate analysis, the Karnofsky performance status and histologic type were significant prognostic factors for PFS. **Conclusion:** A greater proportion of poor histologic subtypes was found among young patients with rectal cancer. The high incidence of poor histologic subtypes confers a poor prognosis in these patients.

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Introduction

Carcinoma of the rectum is the fourth most common cancer in the world.[1] It is more common in Australia and New Zealand, with an age standardized rate of 44.8 and 33.2 per 100,000 among men, respectively. The incidence of rectal cancer is low (age standardized rate, 7.2 per 100,000 among men) in India compared with other parts of the world.[2] The median age at diagnosis has ranged from 55 to 65 years.[3] In recent years, more patients have been diagnosed with rectal cancer at a younger age, contributing to a unique patient population. A relative increase has occurred in the incidence of rectal carcinoma in a younger population,[4] with a male preponderance.[5] Young patients with rectal cancer have many unique characteristics and pose a challenge to management, with a relatively poorer prognosis. Although adenocarcinoma is the most common histologic subtype, mucinous and signet ring cell subtypes of adenocarcinoma are seen more frequently in young patients with rectal cancer.[6] They also present at a more advanced stage than older patients.[7] This younger subset is also a reason of the increasing concern in developing countries. Hence, we studied the demographic data, treatment, and outcomes of young patients with rectal cancer (aged < 35 years) who had been treated at a tertiary care center in northern India.

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Materials and Methods

The medical records of the patients treated in our unit at the institute from 2007 to 2013 with a diagnosis of rectal carcinoma were retrieved from our departmental archives. A total of 60 patients

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with confirmed histopathologic rectal cancer were identified with an age < 35 years and were included in the present analysis.

The patient- and treatment-related variables as documented in the medical records were recorded on a structured form. The patient-related factors analyzed were age, sex, symptoms, symptom duration, Karnofsky performance status (KPS), and medical comorbidities. The treatment-related factors analyzed were the preoperative and operative diagnosis, extent of surgical resection, histopathologic findings, details of concurrent and adjuvant chemotherapy, and toxicities during and after treatment.

Pretreatment Evaluation

The pretreatment evaluation consisted of the complete blood count, liver and kidney function testing, serum carcinoembryonic antigen (CEA), colonoscopy, and chest radiographs. A contrast-enhanced computed tomography (CECT) scan of abdomen and pelvis was also performed for staging and final treatment planning for these patients. All patients underwent a biopsy before treatment.

Treatment Details

Radiotherapy Technique. Radical treatment was attempted in all patients with stage II and III disease, unless they had a poor general condition (performance status 3-4) or severe comorbidities. Radiotherapy was planned with a 2-dimentional technique with a simulator or 3-dimentional conformal radiotherapy. For the 2-dimensional technique, a 2-field or 4-field box technique was used, with the upper border at the junction of L5—S1 and the lower border 3 cm below the growth. For 3-dimensional conformal radiotherapy planning, a CECT simulation was done using Philips large-bore CT scanner, with a 3-mm slice thickness and intravenous and oral contrast. The gross tumor volume was delineated as evident on the planning CT scan. The clinical target volume included a 3-cm superoinferior expansion, along with the entire mesorectum, internal iliac, presacral, and obturator group of lymph nodes. The external iliac nodes were included in patients with involvement of genitourinary or gynecologic structures or anal canal. Inguinal nodes were included when the tumor had invaded the anal verge, perianal skin, or lower third of the vagina. The perineum and abdominoperineal resection scar was included in the postoperative cases. A 3-dimentional conformal radiotherapy plan for rectal cancer is shown in Figure 1. Preoperative radiation was planned at 25 Gy in 5 fractions within 1 week. A dose of 45 to 50.4 Gy at 1.8 Gy/fraction was planned for preoperative chemoradiotherapy. Palliative radiation was delivered for a total of 20 Gy in 5 fractions within 1 week.

Surgery. Surgery was planned for 1 to 2 weeks after the short course of radiation and was delayed by 4 to 6 weeks for the long-course chemoradiotherapy cohort. Total mesorectal excision was attempted in all surgical candidates. Anterior resection and low anterior resection was the intended surgery in the patients with cancer located in the mid- and upper rectum, respectively. The patients with disease localized in the lower rectum were considered for ultralow anterior resection or abdominoperineal resection. Sphincter salvage was attempted only when the sphincter was not involved by the tumor at presentation.

Chemotherapy. Patients receiving preoperative long-course radiotherapy received concurrent capecitabine 825 mg/m^2 twice a day during the radiation course. Adjuvant chemotherapy after preoperative radiotherapy or chemoradiotherapy was planned for patients with high-risk features (stage T4 primary, node positive, margin positive). Adjuvant chemotherapy consisted of oxaliplatin 135 mg/m^2 on day 1 and capecitabine 1250 mg/m^2 twice daily from days 1 to 14 and repeated every 3 weeks for a total of 6 cycles (total chemotherapy duration to 6 months). Patients not considered for curative treatment were offered palliative chemotherapy with the same regimen for a maximum of 6 cycles.

Response Assessment and Follow-up. The patients were followed up first at 1 month after treatment and subsequently every 3 months with clinical examinations and per rectal examinations for the first year. For the second and third year, the follow-up examinations were every 6 months and thereafter annually. A CECT scan of the abdomen and pelvis was ordered 6 months after treatment completion and when patients were symptomatic. Serum CEA testing was repeated every 6 months, and a follow-up colonoscopy was performed yearly for the first 2 years.

Statistical Analysis

The data were analyzed, and categorical variables were summarized by frequency and percentage and quantitative variables by the

Figure 1 Three-Dimensional Conformal Radiotherapy Plan for Rectal Cancer