



ORIGINAL ARTICLE

# Surgically treated rectal cancer patients—Outcomes at a tertiary care cancer hospital in Pakistan



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**Summary** *Aim:* The aim of this study was to analyze our experience with rectal cancer patients who underwent surgical excision at our institution.

*Methods:* Data on 112 rectal cancer patients who underwent surgical resection with total mesorectal excision, from January 2005 to December 2008, were evaluated retrospectively.

*Results:* We achieved an initial complete remission rate of 74.1%. Overall, 92.8% of patients had a complete total mesorectal excision. The overall survival analysis for all patients showed a 1-year survival rate of 98%, a 3-year survival rate of 82%, and a 5-year survival rate of 70%. We report a 41.9% rate of postoperative complications. The 1-, 3-, and 5-year survival rates for females were 100%, 90%, and 72%, respectively and for males, they were 90%, 80%, and 68%, respectively. Differences in overall survival by sex were not statistically significant ( $p > 0.05$ ). Those patients who were treated with only surgery had the best outcomes with survival being worse in those treated with surgery and adjuvant therapy. Neoadjuvant treatment followed by surgery led to better results.

*Conclusion:* We conclude that we have been successful in achieving high rates of curative resection, complete remission, and overall survival. Neoadjuvant and adjuvant chemotherapy significantly impact rates of remission.

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Conflicts of interests: The authors declare no competing interests.

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## 1. Introduction

Although rectal cancer is often seen as part of the much broader entity of colorectal cancer, the pathological course and treatment regimens of cancers of the rectum and the colon differ considerably,<sup>1</sup> and outcomes of treatment are also different. Colorectal cancer is one of the 10 most common malignancies worldwide, with high rates being reported from North America, Australia, New Zealand, Western Europe, and Japan. Asian and African countries are generally considered areas of low incidence. In 1995, cancers of the rectum and colon taken together were the seventh most common cancer in males and the ninth most common in females in Pakistan.<sup>2</sup> Gradually increasing rates are now being reported from South Asian as well as European countries.<sup>3–5</sup> Bhurgri et al,<sup>3</sup> reporting on results from Pakistan's only population-based cancer registry, reported the crude incidence rate of rectal cancer increasing from 1.7/100,000 in 1995–1997 to 2.3/100,000 in 1998–2002 in Karachi, Pakistan. As well as increasing incidence, younger age at diagnosis is also now being widely reported.<sup>3,4,6</sup>

The cornerstone of management of rectal cancer patients is optimal surgical excision. Total mesorectal excision (TME) guarantees complete excision of the lymphatics around the rectum, contained within the mesorectum, and ensures adequate resection margins and circumferential tumor clearance.<sup>7</sup> As well as improved techniques of surgical excision, the past two decades have seen major advances in the application of neoadjuvant and adjuvant treatment, using chemotherapy and radiation therapy. Today, these are integral parts of the treatment regimens for these patients.<sup>6</sup> Neoadjuvant chemoradiation has been shown to be beneficial in leading to a reduction in local recurrence in rectal cancer.<sup>8</sup> Neoadjuvant therapy has also been shown to result in complete pathological response in stage IV rectal cancer.<sup>9</sup> According to Naiken et al,<sup>9</sup> 10–20% of patients achieve complete pathological response after chemoradiation. Primary surgical excision is currently recommended for stage I patients, whereas neoadjuvant chemotherapy and radiation followed by surgery, with or without adjuvant treatment, is considered appropriate for stages II and III rectal cancer.<sup>10</sup>

Radical surgery in these patients has led to high rates of morbidity associated with the surgical procedure itself as well as with prolonged hospital stay. Surgery also requires either a defunctioning or permanent colostomy, which many patients have difficulty accepting and becoming accustomed to, leading to a reduced quality of life.<sup>7</sup>

The Shaukat Khanum Memorial Cancer Hospital and Research Center is a tertiary-level, dedicated cancer hospital located in Lahore, Pakistan, a city with a population of 16 million.<sup>2</sup> The aim of this study was to analyze the outcomes of patients with rectal cancer who underwent surgical excision at our institution, and to review their postoperative morbidity, curative resection rates, recurrence rates, and overall survival.

## 2. Patients and methods

As a follow-up of a previous publication from our institution that focused on colonic as well as rectal cancer patients,<sup>2</sup>

we retrieved retrospectively data on rectal cancer patients treated at our institution from January 2005 to December 2008. A total of 336 rectal malignancies were registered during this 4-year period. Of this total, 112 patients, all histologically confirmed, who underwent surgery [abdominoperineal resection (APR) and low anterior resection (LAR)], along with total mesorectal resection, at the hospital were selected for complete review in this study. Rectal cancer was defined as a tumor occurring above the anal canal and within 15 cm of the anal verge. Patients were staged according to the American Joint Committee for Cancer (AJCC) staging of cancers of the colon and rectum.<sup>11</sup> To facilitate the review, stages I and II were combined into "Early Stage Cancer" and stages III and IV were grouped into "Late Stage Cancer." All patients with rectal cancer were staged in a uniform manner with contrast-enhanced computerized tomographic scans of the chest and abdomen, and contrast-enhanced magnetic resonance scan of the pelvis. Imaging was usually done at our center, and any studies performed elsewhere were reviewed by radiologists at our institution for adequacy, prior to rereporting. Where imaging studies performed elsewhere were felt to be inadequate, these were repeated at our institution. Only those carcinoembryonic antigen (CEA) levels done at our center were included. Prior to surgery, all rectal cancer patients treated at our institution are usually given neoadjuvant chemoradiation. This consists of induction chemotherapy with CapOx regimen (oral capecitabine 1000 mg/m<sup>2</sup>, twice a day, D1–14, and intravenous oxaliplatin 130 mg/m<sup>2</sup>, D1) given three times weekly for four cycles. This is followed by pelvic radiation to a dose of 50.4 Gy in 28 fractions with concurrent oral capecitabine 825 mg/m<sup>2</sup>, twice a day throughout radiation. Radiation is usually computerized tomography-planned with target volume encompassing the primary tumor and locoregional lymph nodes. Overall survival interval was defined as date of diagnosis to date of death. Disease-free survival (DFS) was taken as the period from the date of surgery/end of treatment to the date of relapse or death. Patients were deemed as lost to follow-up if they had missed their last scheduled appointment and a period of at least 3 months had lapsed since.

Disease response was defined using the World Health Organization or Response Evaluation Criteria in Solid Tumors criteria.<sup>12</sup> Complete response (CR) was defined as disappearance of all the target lesions confirmed on imaging 4–6 weeks after treatment. Partial response was defined as at least 30% reduction in the sum of the diameters of the target lesions confirmed at 4–6 weeks after treatment. Progressive disease (PD) was taken as an increase of at least 20% in the diameters of the target lesions or appearance of a new lesion. Stable disease was specified as neither PD nor partial remission. Remission was defined as persistent complete response for at least 1 year. Patients who were lost to follow-up were censored during survival analysis.

File review was completed in April 2012. Attempts were made to contact telephonically all patients who had been lost to follow-up.

The variables that were included in the analysis were age, sex, body mass index, disease stage, family history, histology, CEA levels, treatment modality, disease response after treatment, perioperative blood transfusion,

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