Multidisciplinary Teams in the Management of Rectal Cancer

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ABSTRACT

A myriad of advances in the treatment of rectal cancer have been achieved over the last few decades. The introduction of total mesorectal excision (TME) has resulted in significant improvements in local recurrence. Surgical education on the technique has made it the standard of care. Radiation and chemotherapy combined with TME have improved results even further with stage II and III cancers. Sphincter-sparing techniques, reservoir procedures, local treatment advances, minimally invasive techniques, surgery for metastatic disease, newer chemotherapies, and extended resections for locally advanced and recurrent lesions, have all benefited the patient with rectal cancer. The goal and responsibility of colorectal surgeons treating rectal cancer patients is to understand and coordinate the wide variety of modalities available to optimize survival, minimize morbidity, and maximize quality of life for those with this difficult problem. Coordination of specialists in this time of evolution in rectal cancer treatment becomes more important than ever. Here the authors briefly review the role of the multidisciplinary team, discuss a model multidisciplinary team approach and look at evidence supporting team use as we begin this issue devoted to the multidisciplinary management of rectal cancer.

KEYWORDS: Multidisciplinary teams, rectal cancer, tumor board, total mesorectal excision

Objectives: After reviewing this material, the reader should understand the resources necessary to organize a multidisciplinary team for the treatment of rectal cancer.

The effective management of rectal cancer remains one of the great challenges for the surgeon. Increasingly complex treatment algorithms add new options to our armamentarium of available therapies.^{1–5} Although the surgeon remains in charge of guiding patients' care, the introduction of multimodality therapy mandates involvement of multiple subspecialists.^{6,7} The utilization of a multidisciplinary team is ideal for managing these complex patients.⁸

The magnitude of the rectal cancer problem is significant with some 40,000 new cases of rectal cancer seen yearly in the United States.⁹ In this issue of *Clinics in Colon and Rectal Surgery*, we analyze the spectrum of care for rectal cancer by examining the staging process, adjuvant therapy, pathologic evaluation, the role of local excision, TME and sphincter-preserving surgery, and when abdominoperineal resection is necessary. We note the effect of volume and subspecialty training on

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outcomes, and management options with locally advanced and recurrent rectal cancers. We conclude with logical approaches to follow-up of the treated patient.

BACKGROUND

The staging of rectal cancer involves the initial assessment of the patient by the surgeon with history and physical exam, including careful digital and rigid proctoscopic evaluation. This is supplemented with data from various imaging modalities. The digital exam alone is reported to be 67 to 84% accurate in assessing T stage, but rarely is this the only modality used.^{10,11}

Many colorectal surgeons and gastroenterologists are now performing endorectal ultrasound (EUS) to enhance staging capability. With the use of EUS, the visualization and assessment of the depth of invasion has an 82 to 93% accuracy rate.^{12–16} Unfortunately, lymph node involvement is much harder to assess; ultrasound accuracy has been reported to range from 65 to 81%.^{16,17} Radiologists are now more involved with the initial staging process since the introduction of magnetic resonance imaging (MRI) and computed tomography (CT) scanning into the staging algorithm.^{18–23} MRI's accuracy in determining depth of invasion and nodal involvement approaches that of ultrasound.²⁰ However, MRI may be most useful in the determination of close circumferential margins and in the guidance of treatment for those treated with neoadjuvant therapy.^{18,19,21} CT scans are most useful for assessing distant metastasis, but can also be used in assessment of the primary lesion.²³ Accuracy with CT is close to endorectal ultrasound in depth assessment at 66 to 88%, but lymph node assessment is poor.^{14,15,17,22} Positron emission tomography (PET) CT may also be useful in the assessment of local and distant metastatic disease. A careful review of the imaging studies in consultation with colleagues in the gastroenterology and radiology departments is critical in aiding the surgeon in the evaluation of the extent of disease and directing an appropriate multidisciplinary approach to the primary lesion.

The treatment options and outcomes for rectal cancer have expanded significantly. The widespread adoption of neoadjuvant regimens in appropriately staged patients involves both the oncologist and the radiation oncologist early in the therapeutic pathway.^{6,24,25} In addition, careful evaluation of the pathologic characteristics of the tumor may guide the surgeon toward or away from local treatment options or sphincter-sparing surgery. A better understanding of the importance of circumferential margins may guide the team toward either an extended resection or the use of pre- or postoperative chemoradiation and/or intraoperative radiation, if there is concern about a close or involved margin. The pathologist has become ever more critical preoperatively, intraoperatively, and postoperatively in

helping to guide therapy.^{26–29} Nevertheless, the surgeon's level of experience, judgment, and skill in locally clearing the tumor remain critical factors in the patient's outcome.

The use of total mesorectal excision (TME) has been instrumental in improving local recurrence rates. Standardized training of surgeons in the use of TME has also been shown to improve outcomes.^{1–5} The expansion of sphincter sparing and reconstructive techniques have reduced the number of permanent stomas utilized and improved quality of life. Exciting advances in minimally invasive approaches to the treatment of rectal cancer are also being made. These surgeon-specific issues are explored throughout this volume.

Recent data on the outcomes of local treatment modalities have called into question the use of local excision alone.^{30–33} Exciting data from the United States and Brazil have brought multimodality approaches to the forefront; how selected patients should be treated—with radiation and chemotherapy alone or in combination with local excision—is being questioned.^{31,34,35} Expanded surgical and chemotherapeutic options for metastatic disease have dramatically changed the treatment algorithms available. Staged and concomitant resections for metastatic disease bring the hepatobiliary and thoracic surgeon onto the team.

Finally, the management of locally advanced and recurrent disease perhaps demonstrates most dramatically, the need for a multidisciplinary team. Combined preoperative chemotherapy and radiation therapy, followed by extended resections, sometimes with intraoperative radiation therapy, are the norm. Surgical teams involving colorectal surgeons, radiation oncologists, gynecologic oncologists, urologists, orthopedists, vascular surgeons, and plastic surgeons may be required. The complexity of the treatment modalities available emphasizes how essential a multidisciplinary team approach to rectal cancer is. These modalities are thoroughly addressed in this issue of *Clinics*.

THE MULTIDISCIPLINARY TEAM

The primary multidisciplinary team members at our institution include colorectal surgeons, general surgeons, hepatobiliary surgeons, gastroenterologists, medical oncologists, radiation oncologists, radiologists, pathologists, geneticists, social workers, oncology and surgical nurses and nurse practitioners, enterostomal therapists, and a team coordinator. Plastic surgeons, thoracic surgeons, urologists, and gynecologic oncologists are asked selectively to assist, but are not regular attendees at our team meetings. The multidisciplinary team meets weekly and all gastrointestinal malignancies are discussed. The group is one of several “tumor boards” organized by different organ systems throughout our cancer center. Known as the *Gastrointestinal Tumor Board*, this group

addresses all gastrointestinal malignancies identified at the main campus of our hospital system as well as selective cases from our satellite hospitals in a tele-conference format. The team does not limit itself to colorectal malignancies as this narrowing of scope would limit the caseload and likely limit attendance and participation. The cases are presented and discussed with review of the clinical history, endoscopic findings, laboratory and radiologic studies, and pathologic slides. An interactive discussion is undertaken and a consensus built as to the most appropriate plan of care. The tumor board coordinator acts as conference organizer and the recorder and distributor of the conference findings. All cases discussed are archived in the cancer center database for outcome tracking.

The conference provides an outstanding format for the discussion of difficult management dilemmas, and allows for creative discussion of the options available for therapy. This interactive format presents excellent educational opportunities for staff, fellows, and residents, medical and nursing students. It is one of the most well-attended conferences in the institution.

MULTIDISCIPLINARY TEAM MODELS: THE UNITED KINGDOM EXPERIENCE

The British have led the way in mandating multidisciplinary teams in colorectal cancer management. The National Institute for Clinical Excellence in London has published guidelines, entitled *Improving Outcomes in Colorectal Cancers: Manual Update* that serves as an excellent guide to organizing a multidisciplinary team.⁸ Table 1 outlines the core constituents recommended for the primary team and other members needed for an extended team. Other recommendations include:

1. Meetings should occur weekly and be set up by the team coordinator.
2. Case notes, patient data, diagnostic data, staging, and pathologic information should also be available during the meeting.
3. Cases for discussion include any new patient with a diagnosis of colorectal cancer, all patients who have undergone resection of a colorectal cancer, patients newly identified with recurrent or metastatic disease, and any other colorectal cancer patients that members of the team feel should be discussed.^{8,36}

Clinical history and imaging data are reviewed. A radiologist shares available scans with the group. Histopathologic data are also reviewed, which helps to monitor the quality of surgery. Review of the raw data serves to educate all members, gets all members well-versed on staging issues, and promotes the overall assessment and analysis of a case.^{8,36}

Table 1 Multidisciplinary Team Members

Primary team members:

- Two surgeons (minimum) with 20 colorectal resections annually
- Oncologist
- Radiologist
- Histopathologist
- Colonoscopist (surgeon or gastroenterologist)
- Clinical nurse specialists (support, assistance, counseling)
- Palliative Care specialist (can be provided by oncologist)
- Meeting coordinator/Team secretary

Other specialists that are peripherally involved on an extended team:

- Gastroenterologist
- Hepatobiliary surgeon
- Thoracic surgeon
- Interventional radiologist
- Primary care specialist
- Dietician
- Social Worker
- Stoma Care specialist
- Liaison psychiatrist/clinical psychologist
- Clinical Geneticist
- Clinical Trials coordinator or research nurse

Source: From National Institute for Clinical Excellence. *Improving Outcomes in Colorectal Cancers: Manual Update*. London, UK: National Institute for Clinical Excellence; 2004. Adapted from Reference 8.

The consensus management plan is recorded by the team coordinator who assists in all aspects of conference coordination including, data collection, referral coordination, and outcomes monitoring. Regular team audits should take place and protocols annually examined. A surgeon's and multidisciplinary team's experience in relation to patient survival and cancer recurrence rates should be tracked.^{8,36}

BENEFITS AND LIMITATIONS OF THE MULTIDISCIPLINARY TEAM

Improved coordination of care and the opportunity to assess each patient from many viewpoints are immediate benefits of a multidisciplinary team. Multidisciplinary teams are typically associated with institutions with subspecialist surgeons treating higher volumes of colorectal cancer patients. There is growing evidence that high-volume colorectal cancer centers with experienced subspecialty-trained surgeons have improved mortality and have higher sphincter preservation rates.^{8,36-40} Receiving critiques or comments from experts in other fields can help surgeon self-appraisal, specifically in reference to surgical margin review. Audits of adequacy of TME with gross and histopathologic review of the specimen can lead to improved surgical technique.^{8,36} Studies of patient care optimization and outcome

improvement with the multidisciplinary team approach have predominantly been done in relation to breast cancer patients.^{8,36} A recent audit of the use of multidisciplinary team recommendations in Yorkshire, England, found improved survival in colon cancer patients treated with team recommendations, and a trend toward increased survival in those with rectal cancer.⁴¹ In the multidisciplinary- team-managed patients with rectal cancer, there was an increased use of preoperative radiation and higher rates of anterior resection. There was also a trend toward increased survival in those teams with higher site specialization expertise.⁴¹ Challenges for the team included difficulty in acquiring cases for team discussion, ensuring member acceptance of the team concept, logistical issues with data collection and audit, hospital resource allocation, and organizational issues related to team participants' schedules and their availability for the weekly team discussions.

One of the most difficult challenges for our institution has been attracting all practitioners to the table to "buy in" to the concept of the multidisciplinary approach and to be a part of the process. This becomes particularly difficult as hospital systems expand, capturing multiple satellite facilities and their medical staffs. We have had some success in bringing these team members on board with a teleconference format, but it remains an area for improvement. There is concern that satellite facilities will lose patients to the main campus; hence, there is a tendency to try to keep them at the satellite facilities. The challenge is to route these patients through the multidisciplinary team so that appropriate multimodality therapy is not omitted.

CONCLUSION

In summary a multidisciplinary approach can assist in providing seamless coordination of care and is crucial to achieving improved outcomes in these complex patients. Our responsibility as colorectal surgeons treating rectal cancer patients is to understand and coordinate the wide variety of modalities available to optimize survival, minimize morbidity, and maximize quality of life for those with this difficult disease.

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