Sphincter-Preserving Surgery for Rectal Cancer: A Controversial Measure of Quality

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In the last 25 years, the treatment for rectal cancer has improved markedly. Multimodality therapy and higher-quality surgery have resulted in low rates of local recurrence (previously a terrible problem) as well as impressive rates of long-term survival that sometimes exceed those for colon cancer.¹ Credit must be given to the important treatment trials and to the quality assessment and improvement programs in Europe and elsewhere that have raised the bar of care quality for rectal cancer.² Thus it is appropriate that we turn our attention to preserving function and quality of life for these patients.

Rectal cancer is indeed a condition for which treatment may result in extreme long-term effects on patient's lives. Bowel function, sexual and urinary function, body image, and work and social productivity all are potentially affected for patients rendered cancer free.^{3,4} An oncologic success may be a quality-of-life failure.

In this *Annals of Surgical Oncology* issue, Mohammed and colleagues focus on the most apparent functional aspect of rectal cancer treatment: sphincter-preserving surgery (SPS).⁵ In their study, they compare rates of SPS between veteran patients identified in the Veterans Affairs (VA) Central Cancer Registry and patients in the national Surveillance, Epidemiology, and End Results (SEER) registry during the period 1995–2010. They find that the rates of SPS have increased in both populations and that VA rates are now a bit higher than national rates, at

79.3 %. This is seen as a triumph for VA care quality improvement given that older research had indicated higher abdominoperineal resection (APR) rates for the VA than for the private sector. The study then focuses on patients with early-stage rectal cancer (nonirradiated, pathologic stages 0 and 1) and finds that 18 % of these patients undergo an APR. In their discussion, the authors plead for more SPS in this group.

The strength of this study is its use of data from parallel national tumor registries, which allows for accurate staging and direct comparisons. It is also a strength that these data are recent because SPS rates are changing with time. However, in interpreting these results, it is important to acknowledge the weaknesses inherent in the data. First, tumor registries lack key clinical information including tumor location and patient's sphincter function. This weakness is common to most studies on this topic. Second, some patients may be miscategorized as undergoing SPS when their surgery in fact resulted in a permanent colostomy because Hartmann's-type procedures are included in the procedure category for anterior resection. Third, radiation therapy information in tumor registries is known to be inaccurate, often miscategorizing patients who have had radiation therapy as having not received it.⁶ These data limitations may have affected the accuracy of SPS rates and the analysis of early-stage rectal cancers. If prior radiation therapy or surgery had pathologically downstaged these cases, they may not have been overtreated at all.

Notwithstanding these limitations, this is an important study of cancer care in the national VA health care system. The authors are almost certainly correct in reporting that quality of cancer care has improved in the VA, which has moved toward increased subspecialty care in recent years and has a strong health care quality research group.

A minor point in the study is worth mentioning: the adequacy of lymph node examination remains an opportunity for improvement in the VA, with an average of 9.5

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lymph nodes examined, compared with 11.5 for rectal cancer patients in the SEER database in 2005.⁷ These results are concordant with prior research showing lower numbers of lymph nodes examined in VA hospitals for colon cancer.⁸ Regardless, we believe this study highlights meaningful improvement in the use of modern surgical techniques in the VA.

The author's emphasize their finding of an 18 % APR rate for apparently early-stage rectal cancers that "on paper" might have been appropriately treated with local excision. This finding deserves further study. We suggest that it is unknown whether these patients were in fact overtreated. Alternative explanations for the use of APR in these patients include (1) neoadjuvant therapy inaccurately omitted from the tumor registry, as mentioned earlier, and (2) prior nonradical surgery (via a transanal approach) that resulted in positive margins, recurrence, or unfavorable characteristics necessitating further surgery.

We hope the authors perform a follow-up study with a detailed chart review to help clinicians understand the use of APR in this population. Such a study would be a valuable contribution to the literature on this topic, which in general is limited by the lack of nuanced clinical data. It is difficult to propose quality improvement strategies without a deeper understanding of why APR is performed in such cases.

These uncertainties of the data raise the question: should SPS be used as a quality measure—for surgeons, hospitals, or institutions nationally? The surgical community has taken for granted that this occurs, but no data source exists that can accurately differentiate those patients eligible for SPS from those who for anatomic, functional, or oncologic reasons are not. As the authors point out, referral patterns also make between-provider comparisons difficult. Our own research, with a more in-depth source of data including tumor location and abstraction of some reasons for non-SPS from charts, still fails to understand why SPS is not performed and how therefore to improve.⁹ We propose that research into surgeon's practices and motivations and the clinical details of cases are essential before SPS can be used as a quality measure.

Finally, this discussion to date has not included the most fundamental problem with promoting more SPS for rectal cancer—the patient-preference-sensitive trade-off between oncologic success and quality of life. We must be vigilant

to avoid repeating the mistakes of the past (i.e., performing inadequate surgery that leads to higher rates of unsalvageable local recurrences).¹⁰ We await more evidence, such as the long-term results of the ACOSOG Z6041 trial, before we can safely combine local excision with chemoradiation in more cases, thus achieving the dual objective of oncologic and SPS success. However, until there is increased clarity about how to select invasive cancer patients for nonradical surgery (beyond the small, well-differentiated T1 rectal cancers for which it is the standard of care), caution must be exercised in promoting fewer mesorectal excisions, which have resulted in the oncologic successes we currently enjoy.

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