Seminars in
Colon & Rectal
Surgery

Local Excision of Rectal Cancer: Conventional Wisdom and Traditional Techniques

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Local techniques for excising or destroying rectal cancers had been practiced for decades, before the onset of radical proctectomy. The history and technical aspects of the various approaches are discussed. Indications for local excision are based on preoperative size, stage, and location. Local excision is also indicated in patients that refuse or will not tolerate radical surgery. Oncologic outcomes from the literature indicate that in select patients local excision is adequate and equivalent to more extensive surgery. Local recurrence and long-term survival are not significantly different. Immediate salvage surgery for understaged or inadequately excised tumors provides uncompromised oncologic results. However, performing radical surgery at the time of recurrence after local excision is not as effective as initial LAR/APR. Neoadjuvant treatment may provide adequate tumor reduction and downstaging to allow use of local excision in tumors previously not considered candidates.

KEYWORDS rectal cancer, local excision, transanal excision, Kraske, York-Mason

Surgeons have perpetually sought less debilitating alternatives in the management of surgical disease. This should never be at the expense of cure rates or oncologic principals. In the case of rectal cancer, local excision precedes the routine use of radical transabdominal surgery. Kraske gained fame in 1885 for his presentation of transcoccygeal resection of rectal tumors before the German Society of Surgery, a technique first described by Kocher in 1875 (Miles describing the APR in the *Lancet* in 1908). His presentation, however, included only two patients and cadaver dissections.[1,2] Division of the anal sphincter was suggested by Cripps in 1876.[3] Again this did not gain recognition until republished by York-Mason in 1970.[4,5] For many the posterior approaches to the rectum have fallen out of favor. This can be attributed to the complications of fistulization and alteration in continence as well as limited lymphatic resection. A number of small series continue to be published. Transanal excision of rectal tumors without a skin incision was described by Bevan in 1917.[6] This, in varied forms, continues to be the preferred local approach to rectal lesions.

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Patient Selection—Indications

Use of any local technique in the excision of rectal cancer is predicated on maintenance of oncologic principles, or limiting surgical morbidity in the patient with limited reserve. Removal of the primary tumor with mucosal and deep margins provides results equivalent to radical resection in early stages. Even cancers limited to the submucosa (T1) will demonstrate lymphatic spread in up to 12 to 17% of patients. T2 tumors have up to a 22 to 40% chance of lymph node involvement, and full-thickness invasion of cancer imparts up to 60% chance of lymphatic spread.[7,8] Adequate preoperative staging is critical in the selection of patients if local excision is intended for cure. If a patient simply will not tolerate or refuses to undergo the physiologic stress and discomfort associated with abdominal approach, a local approach may be his or her only option. Alternatively, there are cases when presence of the primary tumor may not affect ultimate outcome, as with disseminated metastases. However the patient's symptoms (such as bleeding, obstruction, hygiene) may require removal of the lesion.

In all cases the tumor must be technically removable by the chosen approach. Local resection requires that the lesion be within the surgeon's reach and that after removal adequate closure, if appropriate, can be accomplished.

Limited Tumor

One indication for limited local resection of a rectal lesion is benignity. In a discussion of treatment of rectal cancer one

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should not forget that these techniques are often employed for noncancers. However incidental identification of invasive cancer in lesions thought to be benign is not rare. Rates of invasive cancers historically range from 15 to 40% in large, rectal adenomas.[9,10] Even in a recent series of 50 patients with modern evaluation techniques, the rate of incidental invasive cancer was 14 to 20%.[11,12]

To be resected for cure, the primary tumor should be limited in size, invasion, and expected aggression. The conventional limitations are tumors that are less than 3 cm or one-third of the circumference of the rectum. Preoperative staging by ultrasound or MRI must indicate a T1 or select T2 lesions. By the same token the lesion must be freely mobile with respect to the sphincter and surrounding tissue. If lymph node involvement is demonstrated or suspected, limited resection is not indicated. Preoperative biopsy should demonstrate a moderately or well-differentiated tumor. Neural or lymphovascular invasion should discourage a local resection. Using these criteria only 3 to 8% of all rectal cancers can be transanally excised with curative intent.[13]

Transanal local resection can also occasionally serve as a "full-thickness biopsy" with more radical resection to follow should the final pathology prove different from the preoperative staging. Transanal resection does not compromise the mesorectal envelope and pelvic planes, and therefore, immediate low anterior or abdominoperineal resection remains an alternative with no compromise of oncologic results. Salvage surgery for recurrence is not the same.[14]

Compromised Patients

Certainly no one would knowingly choose an operation with limited oncologic results if a better alternative existed. However not all patients are candidates for general anesthesia or the pain and physiologic stress associated with what can be a prolonged operation. Also in patients with limited sphincter function low rectal anastomoses can result in permanent incontinence. If preoperative cardiac or pulmonary evaluation precludes a major abdominal procedure, and if the tumor is amenable, either of the posterior approaches or a transanal excision should be considered with or without the addition of radiation therapy as indicated.

Techniques

Transanal Excision

A number of excellent descriptions of this technique with illustrations are available in the literature.[15-17] The patient is positioned on the table so that the lesion is accessible (ie, lithotomy for a posterior tumor, or prone for an anterior tumor). A point is chosen at least 1 cm distal to the edge of the lesion. An incision is made through the mucosa extending full thickness into the perirectal fat. A submucosal dissection can be performed for benign lesions; however, this is rarely recommended due to the rate of unsuspected, invasive carcinoma. Beginning transversely and extending longitudinally along both sides, the mass is excised and elevated from the perirectal fat. One-centimeter margins should be maintained around the specimen and the deep margin should extend into the perirectal fat. Sutures placed on the specimen are very useful for traction and to maintain orientation. Once the specimen is removed, it is tacked out on a corkboard and oriented for the pathologist. A needle counting pad is very useful as well. My personal preference is to take separate biopsies from the margins and deep aspect of the wound. The rectal defect is then closed transversely to avoid stricture with full-thickness absorbable sutures. Defects completely below the peritoneal reflection can be left open at the surgeon's discretion. Of course care should be taken if the lesion is anterior not to damage the prostate, urethra, or vagina. If the peritoneum is incidentally entered and gross contamination is not expected, the defect can be closed primarily and the patient observed carefully. Laparoscopic stapling devices have also been employed to achieve the same results rapidly and easily in very selected cases.

Transsacral Proctectomy—Kraske

Kraske's approach can provide a true rectal resection yielding an 8- to 10-cm length of rectum with some of the associated mesorectum. It can also be combined with a transabdominal incision as described by Localio and Stahl to provide a more radical resection, but that is beyond the scope of this edition.[18]

The patient is positioned in the prone or lateral decubitus position, with buttocks retracted with tape. A midline incision is made over the lower sacrum and extended to just above the sphincter complex. The dissection is continued in the midline through the deep fascia exposing the anococcygeal raphe. This is divided in the midline (other modifications of Kraske's technique divide transversely[19]). The lower two segments of the sacrum and coccyx are exposed and the lateral attachments to the coccyx are divided. The underlying soft tissue is separated from the coccyx and the coccyx is removed with an osteotome. Care is taken in dissecting under the sacrum as significant venous bleeding may be encountered. The middle rectal artery may be identified and controlled. Kraske was surprised how much blunt dissection he could accomplish under the sacrum at this point.[1] The lateral aspect of the lower two sacral segments may then be removed on *one side only* for exposure as needed. Great care should be taken not to disturb the sacral nerve roots above this level. Waldeyer's fascia is also divided in the midline exposing the posterior perirectal fat. Kraske describes circumferential dissection of the rectum and segmental resection with anastomosis, including dissection into the peritoneum. Other authors have employed this approach to perform a rectotomy and local excision of the tumor. Once the specimen is removed and rectal closure is accomplished, the muscle and fascia are reapproximated in layers over a drain. The skin and subcutaneous layers are closed at the surgeon's preference. As was the custom of the time, Kraske packed the entire wound open. Postoperative care is routine including removal of the drains when dry and avoidance of sitting for a month.