

LOS ANGELES

# COLON AND RECTAL SURGICAL ASSOCIATES

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## Transanal Techniques for the Removal of Colorectal Lesions. Who should perform these procedures? Hint: Experience, Experience, Experience.

It is axiomatic that a happy rectum and a happy mind (and body) go hand in hand. So, how do colorectal surgeons remove abnormal tissue from the 20 cm long rectum while not disturbing its happy functioning? By using transanal surgical techniques, the surgeon may be able to avoid having to perform a complex abdominal proctectomy, thus sparing the rectum. What techniques are available to the colorectal surgeon?

the snare. The snare is slowly tightened until the stalk is completely transected. The polyp is retrieved and sent for pathologic evaluation.

### ENDOSCOPIC MUCOSAL RESECTION (EMR)

Large sessile colonic lesions often can be removed through a colonoscope. If successful, a major colorectal resection may

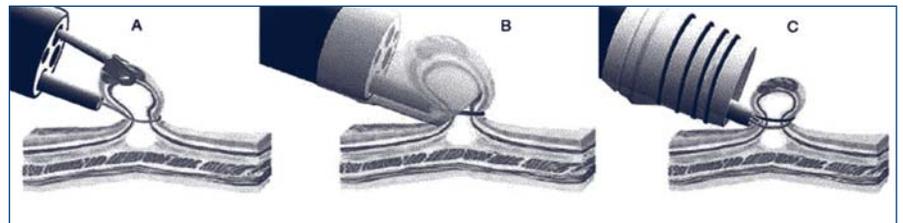


Figure 1. Endoscopic mucosal resection (EMR).

A. Lesion grasped and snared    B. Snare tightened    C. Lesion transected

*"...a happy rectum and a happy mind (and body) go hand in hand... Rectal sparing operations have obvious physical and psychological benefits."*

### RECTAL BIOPSY AND SNARE POLYPECTOMY

Rectal biopsies are used to diagnose rectal lesions and diseases such as Crohn's disease, ulcerative colitis or radiation proctitis, and infections such as amebic dysentery or clostridium difficile colitis. The biopsy is performed using a toothed biopsy forceps placed through a rigid proctoscope. This painless office procedure can yield a wealth of diagnostic information. Bleeding is usually minimal but electrocoagulation can be used if needed. Snare polypectomy is used to remove pedunculated polyps through a proctoscope, a flexible sigmoidoscope or a colonoscope. A wire snare is passed through the scope and looped around the polyp stalk, taking care not to include the bowel wall in

be avoided. An endoscopic mucosal resection must be performed by an experienced surgeon and the patient must be advised that the procedure may cause a colonic perforation, possibly necessitating an emergency abdominal operation.

The procedure is performed under anesthesia in an outpatient setting. A special cap is fitted on the end of the scope. The lesion is grasped and the snare is then tightened around it, while gathering the tissue into the cap. A coagulating current may be used during the transection. (Figure 1) When removed, the lesion is sent for pathologic evaluation.

*continued on back...*

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*...continued from front*

While generally safe, EMR may be associated with a colonic perforation, bleeding, bacteremia or transient abdominal pain. The obvious benefit of EMR is the avoidance of an abdominal procedure. It must be stressed that EMR should be performed by an experienced colorectal surgeon or endoscopist.

## TRANSANAL EXCISION

Polyps are the most common rectal lesions requiring excision. Adenomas located as high as 10 cm from the anal verge are suitable for a transanal excision. Ideally, the adenoma is excised in one piece with clear pathological margins. This procedure is performed using sedation and local anesthesia. A dilute epinephrine solution can be injected in the submucosa to minimize bleeding as well as to raise the lesion. As lesions in the mid-rectum can be difficult to excise due to the limited reach of the anal speculum, traction on the rectal mucosa may be used to prolapse the lesion and allow for an adequate resection. A well equipped operating room, strong lighting and an experienced surgeon are key to the successful transanal excision of a proximal rectal lesion.

Transanal excision of rectal carcinomas must be approached with caution, due to the potentially high local recurrence rate. Candidates for local excision should be carefully selected. Carcinomas having no evidence of nodal metastatic disease, which are less than 3 cm in largest diameter, involving less than 40% of the mucosal circumference, invading only the submucosa (a T1 lesion), and having a favorable pathologic grade, may be considered for local excision. Care must be taken to remove adequate circumferential margins. A full-thickness excision must be performed and the lesion should be removed intact. If unfavorable features are found on pathological examination, a radical excision should be performed. Transanal excision of T1 lesions is associated with a 10% to 20% incidence of local lymph node metastases. Patients must be informed of this prior to making a decision to proceed with a transanal resection. A local excision is helpful in elderly patients, in patients who might refuse radical extirpation with or without neoadjuvant therapy, or in patients with metastatic disease who are not candidates for a more extensive abdominal approach.

## TRANSANAL ENDOSCOPIC MICROSURGERY

When lesions cannot be removed by transanal excision or endoscopic mucosal resection, the colorectal surgeon can turn to Transanal Endoscopic Microsurgery (TEM). TEM is a minimally invasive method of excising more proximal rectal lesions using a closed endoscopic system. Resectable lesions are those located in the more proximal rectum, beyond the reach of ordinary instruments and standard transanal techniques. The principal advantage of TEM is the avoidance of a radical abdominal operation and a decrease in post-procedure pain, morbidity, and mortality. TEM offers excellent surgical visibility and magnification in obtaining clear tissue margins, as well as less tissue fragmentation due to improved tissue handling. The disadvantages of TEM are the expensive start up costs, a steep learning curve and limited indications for the technique.

TEM is performed in an operating room using general anesthesia. TEM involves the insufflation of the rectum with carbon dioxide through a beveled, 40 mm diameter rectoscope. Rectoscopes are either 12 cm or 20 cm long. The scope has ports for insufflation, instruments, and suction. A binocular stereoscopic eyepiece and viewing monitor are used. Lesions which can be removed or treated with TEM include polyps of almost any

circumference, carcinoid tumors, gastrointestinal stromal tumors (GIST), and proximal fistulas. Indications in malignant disease involve moderately well differentiated T1 tumors without nodal metastatic disease with no perineural or lymphovascular invasion. TEM removal of T2 or T3 lesions is not recommended except for palliation, or in those patients unwilling or unable to undergo an abdominal procedure.

There are several technical considerations in determining the suitability of lesion removal using TEM. The lesion must be visible on pre-operative rigid proctosigmoidoscopy and should be located no more than 20 cm proximal to the anal verge. The preoperative evaluation includes a colonoscopy to rule out synchronous tumors, an endorectal ultrasound or MRI to assess lesion depth and possible nodal involvement and a CT scan to rule out metastatic spread. Although TEM may be beneficial in those patients who meet the limited criteria, it is important to be aware of the local recurrence rates in these patients. For adenomas, local recurrence ranges from 3% to 9% and for T1 malignancies, local recurrence ranges from 4% to 14%. T2 and T3 lesions have higher recurrence rates of 20% and 27% respectively.

Complications include urinary retention, bleeding, rectal stenosis, fecal soilage, rectovaginal fistulas, and intraperitoneal entry during the dissection. Although the diameter of the rectoscope is considerable, post-operative gas or fecal incontinence are not common. The incidence of rectal stenosis can be lessened by closing the mucosal defect transversely rather than longitudinally. Intraperitoneal entry does not necessarily mandate conversion to an open procedure.

## POSTERIOR APPROACHES TO THE RECTUM

The posterior approaches to the rectum are used only occasionally and are mostly of historical interest. The Kraske approach to the rectum is reserved for large lesions in the mid to upper rectum. The posterior wall of the rectum is exposed by incising the anococcygeal ligament while the patient is in the prone position. The levator ani muscle is divided, sometimes excising the coccyx for better exposure. Once the posterior rectal wall is exposed, it is incised to gain access to an anterior rectal lesion. The York-Mason approach also allows access to the posterior wall of the rectum but involves dividing the sphincteric complex. With the patient in the prone position, a parasacral incision is made, incising the sphincteric complex and levator ani muscles and exposing the posterior rectal wall. The York-Mason approach offers better exposure than the Kraske approach, but has the disadvantage of dividing and then reapproximating the anal sphincters. The posterior approaches are suitable in patients having a large, proximal lesion, who will not or cannot tolerate an abdominal procedure.

## A HAPPY RECTUM. A HAPPY PATIENT.

Rectal sparing operations have obvious physical and psychological benefits. However, these advanced operative technical approaches to a complicated rectal tumor must meet two inflexible criteria. The procedure must be performed by an experienced colorectal surgeon, and state of the art equipment must be available.

Under the right clinical circumstances, rectal sparing procedures can be employed to return patients to their usual daily activities, with minimal impact on normal rectal functioning.