

Transanal Endoscopic Surgery for Lesions of the Mid to Upper Rectum

► Penn colorectal surgeons are now using two specialized transanal endoscopic surgical (TES) techniques—transanal minimally invasive surgery (TAMIS) and transanal endoscopic microsurgery (TEM)—to remove whole tumors up to 10-15 cm from the anal verge while sparing the function of the rectum.

Both TES approaches involve specialized equipment and optics. TEM employs an operating proctoscope through which instruments are introduced to perform excision and other functions under direct 3D-magnified visualization of the operating field. TAMIS uses a specialized port placed in the anal canal to permit imaging of the rectum and the introduction of laparoscopic instruments to excise rectal lesions.

The objectives of rectal cancer surgery include sphincter preservation, prevention of disease recurrence and long-term survival. Oncologic surgical principles require removal of the tumor-bearing organ, along with all nodal tissue. These operations may result in significant morbidity in terms of post-operative function, recovery from surgery and the possible need for temporary or permanent stomas.

The successful resection of anorectal cancers is linked to the extent or completeness of surgery. Local excision may be appropriate for advanced polyps and certain early cancers, given the very low likelihood of nodal involvement (<10 percent in many early cancers). Local procedures have traditionally been employed for the purposes of polyp removal in low rectal polyps and diagnosis in indeterminate lesions that are otherwise not amenable to colonoscopic removal.

However, most lesions of the mid-to-upper rectum are inaccessible to local excision using standard instruments. In standard transanal excision, incomplete removal or fragmentation of excised lesions accounts for recurrence rates as high as 30 percent.

The advantages of minimally invasive transanal endoscopic surgeries relative to standard cancer operations include rectal preservation, less blood loss, less pain, fewer complications and a faster recovery time. Moreover, when compared to standard transanal excision, TES has superior visualization and less tissue fragmentation, which results in a significantly decreased recurrence rate for both adenomas and selected early cancers.

CASE STUDY

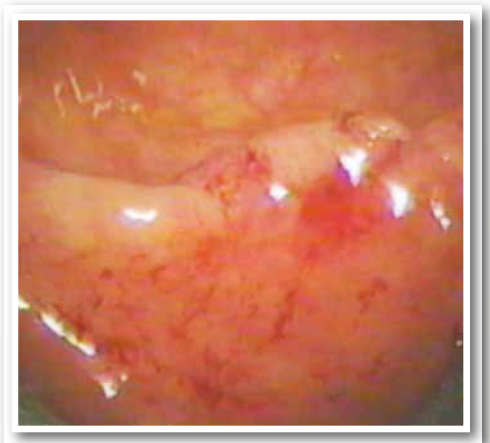
Mrs. M, a 58-year-old woman, was referred to the division of Colon and Rectal Surgery at Penn, when, after two months of diarrhea and acute pain, a sigmoidoscopy revealed a large villous adenoma on the right wall of the mid rectum. At Penn, an ultrasound of the lesion found no evidence of invasion; a subsequent biopsy suggested that the lesion was benign. Although all villous adenomas are considered premalignant and should be removed, the lesion was not amenable to removal by conventional colonoscopy.

A transanal endoscopic microsurgery was then scheduled to remove the lesion. The procedure was performed in approximately 90 minutes under general anesthesia with no complications. Intraoperative biopsies revealed clear surgical margins and no invasive disease.

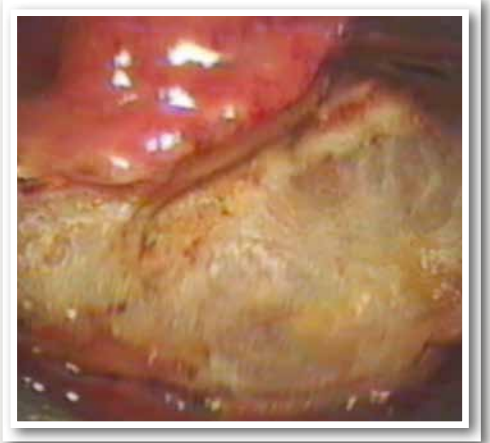
Mrs. M was mobile on the day of surgery and was discharged the next day. At her one year follow-up, no evidence of disease was present.

Reference

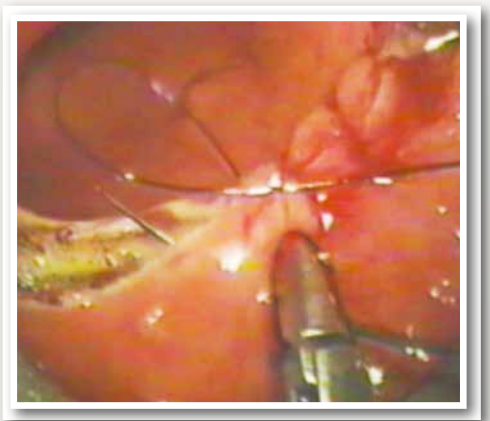
1. Thompson EV, Bleier JIS. Transanal Minimally Invasive Surgery. *Clin Colon Rectal Surg* 2017;30:112-119.



► **Figure 1:** TEM view of a large villous adenoma situated on the right wall of the mid-rectum.



► **Figure 2:** Dissection of the adenoma following cautery to define the lesion.



► **Figure 3:** Endoscopic suturing repairs the rectal wall.

FACULTY TEAM

The Division of Colon and Rectal Surgery at Penn Medicine provides the highest quality diagnostic and surgical options for patients with colon, rectal and anal cancer, inflammatory bowel disease (Crohns disease and ulcerative colitis), diverticular disease and many other diseases and disorders of the colon, rectum and anus.

The Division offers (anal) sphincter-preserving colon and rectal surgery for cancer and benign disease, laparoscopic colon surgery, surgery for anal incontinence and rectal prolapse and both operative and medical therapies for anal diseases and complaints.

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**Performing TES at Penn Medicine*

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