Transanal Endoscopic Microsurgery for Rectal Cancer

Number: 0747

*Policy*

*Please see amendment for Pennsylvania Medicaid at the end of this CPB.*

Aetna considers transanal endoscopic microsurgery (TEM) medically necessary for the following indications:

- Benign rectal tumors (adenomas) Low-risk Tis and T1 rectal carcinoma
- Small rectal carcinoids (less than 2 cm in diameter)

Aetna considers TEM experimental and investigational for all the following indications (not an all-inclusive list) because its effectiveness for indications other than the ones listed above has not been established:

- Advanced rectal cancer
- Anorectal melanoma
- Benign rectal strictures
- Functional constipation
- Megacolon
- Rectal amyloidoma
- Rectal prolapse and diverticula

Policy History

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Review History

Definitions

Additional Information

Clinical Policy Bulletin Notes
Rectal ulcer syndrome Recto-vesical fistula Retro-rectal tumors

Background
Rectal cancers, most of which are adenocarcinomas, affect more than 40,000 people in the United States each year. Rectal cancers can be classified by the tumor, node, metastasis (TNM) system, which was introduced by the American Joint Committee on Cancer and the International Union Against Cancer. The TNM classification is an universal staging system for all solid tumors, and is based on clinical and pathological information (Cirincione and Cagir, 2007):

Primary Tumor (T):

- **TX** - Primary tumor can not be assessed or depth of penetration not specified
- **T0** - No evidence of primary tumor
- **Tis** - Carcinoma in-situ (mucosal); intra-epithelial or invasion of the lamina propria
- **T1** - Tumor invades submucosa
- **T2** - Tumor invades muscularis propria
- **T3** - Tumor invades through the muscularis propria into the subserosa or into non-peritonealized peri-colic or peri-rectal tissue
- **T4** - Tumor directly invades other organs or structures and/or perforates the visceral peritoneum

Regional Lymph Nodes (N):

- **NX** - Regional lymph nodes can not be assessed
- **N0** - No regional lymph node metastasis
- **N1** - Metastasis in 1 to 3 peri-colic or peri-rectal lymph nodes
- **N2** - Metastasis in 4 or more peri-colic or peri-rectal lymph nodes
- **N3** - Metastasis in any lymph node along the course of a named vascular trunk
Distant Metastasis (M):

- MX - Presence of metastasis can not be assessed
- M0 - No distant metastasis
- M1 - Distant metastasis

According to the National Cancer Institute (2007), rectal cancers can also be classified as Stage 0 to Stage IV.

- Stage 0: Abnormal cells are found in the innermost lining of the rectum. These abnormal cells may become cancer and spread into nearby normal tissue. Stage 0 is also called carcinoma in situ
- Stage I: Cancer has formed and spread beyond the innermost lining of the rectum to the 2nd and 3rd layers and involves the inside wall of the rectum, but it has not spread to the outer wall of the rectum or outside the rectum. Stage I rectal cancer is sometimes called Dukes A rectal cancer.
- Stage II: Cancer has spread outside the rectum to nearby tissue, but it has not gone into the lymph nodes. Stage II rectal cancer is sometimes called Dukes B rectal cancer.
- Stage III: Cancer has spread to nearby lymph nodes, but it has not spread to other parts of the body. Stage III rectal cancer is sometimes called Dukes C rectal cancer.
- Stage IV: Cancer has spread to other parts of the body (e.g., the liver, lungs, or ovaries). Stage IV rectal cancer is sometimes called Dukes D rectal cancer.

Despite recent advances in chemo-radiotherapy, surgery still plays an important role in the curative treatment for rectal cancers. The choice of surgical intervention depends on the location of the tumor, depth of rectal wall invasion, as well as clinical stage of the disease. Surgical options include local excision such as transanal excision and transanal endoscopic microsurgery (TEM), and radical resection such as low anterior resection, extended low anterior resection with colo-anal anastomosis, abdomino-perineal resection (APR), as well as pelvic exenteration. If the cancer is found in a polyp, a polypectomy can be performed. Many considerations (e.g.,
morbidity, sexual and urinary dysfunction, and/or risk of definitive stoma) have led to the increased popularity of local excision in the management of patients with rectal cancer. However, its role as a curative treatment is still controversial with oncological long-term results lower than those obtained by radical resection (Rajput and Bullard Dunn, 2007; Bretagnol et al, 2007a).

Currently, TEM is the only endoscopic technique that uses a natural opening to reach the target organ, and is a valuable surgical technique with a low complication rate for patients with early rectal cancer. The main advantage of TEM is preservation of the rectum. Other advantages include better exposure, magnified stereoscopic view, and greater reach into the middle and upper rectum. This procedure was introduced in the early 1980s; its first indication was excision of rectal adenomas. Indication for TEM was later extended to low-risk rectal cancer. Many studies reported that TEM is the optimal procedure to avoid complications for patients with rectal polyps and low-risk pathological T1 (pT1) rectal tumors (Burghardt and Buess, 2005; Whiteford, 2007).

Araki et al (2003) discussed their experience with video-assisted gasless TEM (V-TEM) as a means of local excision of rectal cancer. A total of 217 patients, with a mean follow-up of 61 months, underwent V-TEM for adenoma (n = 102), Tis (n = 83), T1 (n = 28), and T2 (n = 4) rectal tumors, located 3 to 20 cm from the dentate line. The mean size of the tumor was 39 mm, and the mean duration of the operation was 63 mins including set-up time, and the mean duration of hospital stay was 5.8 days. Seven (3.2 %) patients underwent conversion to radical resection owing to T1 with massive invasion or T2 tumors histopathologically. Two (0.9 %) patients had recurrent disease that was managed by repeat V-TEM. The post-operative course in all patients was free from any significant complications. Transient fecal soiling was present in 12 (5.5 %) patients. The authors concluded that V-TEM was a safe, simple and minimally invasive procedure for benign and early cancer in the proximal rectum.
In a retrospective review, Floyd and Saclarides (2006) reported that TEM treatment of pT1 rectal cancers is safe and achieved low local recurrence and high survival rates. Patient age, gender, tumor distance from the anal verge, lesion size, operative time, blood loss, complications, recurrence, and survival rates were prospectively recorded. A total of 53 patients (26 men and 27 women, average age of 65.6 years, range of 31 to 89 years) were studied. Average tumor distance from the anal verge was 7 cm (range of 0 to 13 cm); average size was 2.4 cm (range of 1 to 10 cm). Radiation and/or chemotherapy were not administered. A total of 16 patients had pT1 lesions removed piecemeal during colonoscopy; there was no residual tumor after TEM of the polyp site. Mean follow-up was 2.84 years; 51% of subjects had longer than 2-year follow-up. For the entire group, there were 4 recurrences (7.5%) occurring at 9 months, 15 months, 16 months, and 11 years. Two were treated with APR, one with low anterior resection, and one with fulguration alone. There were no recurrences in the 16 patients who had excision of the polypectomy site. If excluded, recurrence was 11% (4/37). Patients were examined at 3-month intervals for the first 2 years and every 6 months thereafter. There have been no cancer-related deaths. The authors concluded that TEM of pT1 rectal cancers yielded low recurrence rates.

Lin et al (2006) compared local excision of early rectal tumors by TEM and the conventional posterior trans-sphincteric approach (Mason's operation). The study group comprised 31 consecutive patients with early rectal tumors (18 villous adenomas, 13 adenocarcinomas) who underwent TEM. The control group consisted of 51 patients with early rectal tumors (27 villous adenomas, 24 adenocarcinomas) who underwent the Mason's operation. Outcome measures included morbidity and mortality, operation time, recurrence rate, and post-operative pathological staging. Age, sex, as well as pathological staging were similar in both groups. The tumor size, operation time, and blood loss were similar. The median distance from the anal verge was significantly higher in the TEM group (TEM/Mason = 8.0/6.4 cm, p = 0.042). The
post-operative resumption of food intake (TEM/Mason = 1/5 days, p = 0.002) and the median hospital stay (TEM/Mason = 4/10 days, p = 0.005) were significantly shorter in the TEM group. Analgesic intake was significantly less in the TEM group (TEM/Mason = 0/100 mg, p = 0.0003). There was no operation-related mortality and the resection margins were clear in both groups. Two patients (3.9 %) in the Mason's group developed post-operative wound infection, and 2 patients (3.9 %) developed fecal fistulae. There was one secondary hemorrhage in the TEM group that required injection sclerotherapy. On median follow-up of 23 months, there was no tumor recurrence in the TEM group, whereas 2 patients (3.9 %) in the Mason's group experienced recurrence during a median follow-up of 30 months. The authors concluded that TEM is as effective as the conventional Mason's operation for local curative excision of early rectal tumors. It is less invasive, with shorter hospital stay and fewer complications than the conventional Mason's operation.

Borschitz and associates (2006) determined the prognostic factors for recurrences and the need for re-operation in patients who had undergone local excision of early rectal cancer. In 105 of 118 patients with pT1 rectal carcinomas and local excision, recurrence rates as well as 10-year cancer-free survival rates were studied separately according to different histological criteria (R0, R1, Rx, R less than or equal to 1 mm, high-risk/low-risk situation), tumor localization (anterior, posterior, lateral wall, and third of rectum), size, and degree of resection (full-thickness/partial wall). Patients were grouped into local excision (n = 89) and local excision followed by re-operation (n = 21). Risk classification was performed by division into "low-risk" carcinomas after local R0-resection (group A) and unfavorable histological results after local resection (R1, Rx, R less than or equal to 1 mm, high-risk situation; group B). Local recurrence rate after local R0-resection of low-risk carcinomas (group A) was 6 %, whereas that for patients in group B with local resection was 39 %. The recurrence risk in those patients was significantly reduced to 6 % by re-operation (p = 0.015). In addition, the 10-year
cancer-free survival rate was 93 % in group B after re-operation compared with that of 89 % in patients of group A after local excision alone. The authors concluded that local R0-resection in cases with low-risk pT1 carcinomas represents an oncologically adequate therapy, which resulted in similar survival rates compared with primary radical surgery of pT1N0M0 rectal carcinomas. High recurrence rates are observed in tumors with unfavorable histological result (group B) requiring further treatment. In these cases immediate re-operation lowered the recurrence rate to 6 %.

On the other hand, the same group of investigators reported that local R0 resection of low-risk pT2 carcinomas represents an inadequate therapy (Borschitz et al, 2007). These researchers examined the value of local excision for T2 rectal carcinomas, prognostic factors, and the need for re-operation. After local excision of 649 patients with rectal tumors, pT2 carcinoma was found in 44 patients. In general, immediate re-operation was recommended; however, 24 patients declined further surgery or were not re-operated because of co-morbidities. Results were analyzed separately for local R0 resection of low-risk carcinomas and for prognostically unfavorable criteria (R1/RX/R less than or equal to 1 mm/G3-4/L1/V1). Re-operation was performed within 4 weeks. Recurrences also were divided by previous local R0 resection of low-risk tumors as well as by unfavorable results, and were analyzed in a long-term, follow-up study. Patients with palliative therapy were excluded, and follow-up was obtained in 90 % (20 TEM alone, 17 TEM and re-operation). Local recurrence rate after local R0 resection alone of low-risk T2 carcinomas was 29 %, whereas patients with unfavorable criteria developed recurrences in 50 %. After immediate re-operation, the local recurrence risk in patients without lymph node filiae was significantly reduced to 7 %. The authors concluded that local R0 resection of low-risk pT2 carcinomas represents an inadequate therapy.

In a prospective study, Maslekar et al (2007) presented their findings of patients with rectal cancers managed by TEM. A total of 52 patients (22 women and 30 men) underwent TEM
excision of a rectal cancer. Their mean age was 74.3 years (range of 48 to 93 years). The median diameter of the lesions was 3.44 cm (range of 1.6 to 8.5 cm). The median distance of the lesions from the anal verge was 8.8 cm (range of 3 to 15 cm), with the tumor more than 10 cm from the anal verge in 36 patients. The median operating time was 90 minutes (range of 20 to 150 minutes), and the median post-operative stay was 2 days. All patients underwent full-thickness excisions. There were 11 minor complications, 2 major complications, and no deaths. The mean follow-up period was 40 months (range of 22 to 82 months). None of the pT1 rectal cancers received adjuvant therapy. Eight patients with pT2 rectal cancer and 2 patients with pT3 rectal cancer received post-operative adjuvant therapy. The overall local rate of recurrence was 14 %, and involved cases of T2 and T3 lesions, with no recurrence after excision of T1 cancers. Three patients died during the follow-up period, but no cancer-specific deaths occurred. The authors concluded that TEM is a safe and effective treatment for selected cases of rectal cancer, with low morbidity and no mortality.

Zacharakis and co-workers (2007) described a single institution's experience in the use of TEM for rectal tumors. Between 1996 and 2005, TEM was performed in 76 patients (n = 28 for adenocarcinoma; n = 48 for adenoma). Clear resection margins were achieved in 71 of 74 patients (95.9 %). Overall morbidity was 18.9 % because 14 patients developed minor (n = 10) or major (n = 4) complications. During follow-up, benign tumor recurrence was detected in 3 patients (6.3 %). The recurrence rates among patients with T1, T2, and T3 malignant tumors were 7.1 %, 42.8 %, and 66.6 %, respectively. The authors concluded that TEM is a safe and feasible technique with low incomplete excision rates and may be the preferred method in patients with benign rectal tumors. However, its role in the management of malignant tumors should be limited to selected patients with T1 lesions.

Bretagnol and colleagues (2007b) ascertained the morbidity and long-term results of rectal tumors excised by TEM. A total
of 200 patients underwent TEM for excision of adenomas \((n = 148)\) or carcinomas \((n = 52)\). The median tumor distance from the anal verge was 8 cm (range of 1 to 16 cm). Morbidity and mortality rates were 14.0 % and 0.5 %, respectively. At a median follow-up of 33 months (range of 2 to 133 months), local recurrence had developed in 11 patients (7.6 %) with an adenoma. Histological examination of carcinomas revealed pT1 in 31 patients, pT2 in 17 and pT3 in 4. Immediate salvage surgery was performed in 7 patients (13 %). At a median follow-up of 34 months (range of 1 to 102 months), 8 patients (15 %) with carcinomas had developed local recurrence. The overall as well as disease-free 5-year survival rates for patients with carcinomas were 76 % and 65 %, respectively. The authors concluded that TEM is an appropriate surgical treatment option for benign rectal tumors. For carcinomas, it is oncologically safe provided that resection margins are clear, but strict patient selection is needed.

Many reviews, technology assessments, and clinical practice guidelines/parameters have recommended local excision/TEM in the management of patients with early rectal cancer.

The Australian Medical Services Advisory Committee's assessment on TEM (2003) stated that this procedure is primarily used for removal of certain lower and upper rectal tumors, such as adenomas and carcinomas. Patients with small or early benign or early malignant tumors of the rectum that can not be removed by colonoscopy are candidates for this surgery. The procedure may also be used on patients who are unwilling or unable to undergo conventional open surgery.

The American Society of Colon and Rectal Surgeons' practice parameters for the management of rectal cancer (Tjandra et al, 2005) stated that local excision of rectal cancer is an appropriate alternative therapy for selected cases of rectal cancer with a low likelihood of nodal metastases. This probability is dependent on the depth of tumor invasion (T stage), tumor differentiation, and lympho-vascular invasion. Comparative trials to APR supported transanal local excision
with curative intent for T1, well-differentiated cancers that are
less than 3 cm in diameter and occupy less than 40 % of the
circumference of the rectal wall. Furthermore, the tumor must
be excised intact by full-thickness excision with clear margins.
It should be orientated and pinned out for complete
pathological examination. If unfavorable features are observed
on pathological examination, a radical resection is warranted.

An assessment by the Canadian Agency for Drugs and
Technologies in Health (Keay and Farrah, 2008) concluded that
the evidence suggests that TEM is effective and safe in
removing adenomas and T1 carcinomas when compared to
local or radical resection. The assessment stated that one study
noted the local recurrence rate was higher for TEM compared
to resection, possibly because of lymphatic involvement;
however, there was no difference in long term survival between
TEM and resection. The assessment noted that, overall, the
recurrence rates for adenomas and carcinomas were low,
provided the resection margins are clear and the lesions are not
removed in a piecemeal fashion. The assessment found that
the most common complications of TEM include bleeding
(which may be related to lesion location and surgeon
experience), urinary retention and temporary incontinences.
Two functional quality studies demonstrated that there was an
overall good bowel function response with TEM. The
assessment reported that studies that have examined the costs
of TEM have shown it to be a cost-saving procedure when
compared to radical resection, primarily because of the shorter
procedure time and hospital stay.

Serra Aracil et al (2006) stated that TEM-associated morbidity is
low and mortality is practically nil. It is the technique of choice
in large rectal adenomas and malignant rectal tumors in stage
pT1 localized in the rectal ampulla. The frequency of
recurrence is similar to that in abdominal surgery. The
technique does not cause complications of urinary or sexual
dysfunction, and fecal incontinence is minimal. In more
advanced stages of rectal cancer, the results of better patient
selection and future studies on the possible application of
Papagrigoriadis (2006) stated that TEM is an useful minimally invasive technique for the treatment of certain large or sessile adenomas of the rectum. It can successfully treat those adenomas that are unamenable to colonoscopic excision and can spare some patients the risks and adverse effects of major rectal surgery. In case of malignant transformation or recurrence, TEM can be used as first line treatment since it does not preclude radical resection, and can be repeated for treating recurrences.

Helgstrand et al (2007) noted that the sue of TEM in the treatment of benign as well as T1 rectum tumors has become more widespread. These researchers presented their findings on 74 patients who underwent this procedure. A total of 49 patients had adenomas; both the recurrence and complication rate was 6%. Median follow-up period was 12 months (range of 0 to 57 months). Fifteen patients had a T1 tumor removed; the recurrence rate was 15%. One had a serious complication. Median follow-up period was 12 months (range of 3 to 36 months). Eight had a T2 tumor removed; the recurrence rate was 16%. One had a serious complication. Median follow-up period was 21 months (range of 9 to 36 months). Two patients were treated for a T3 tumor as part of palliation. The authors concluded that their results are comparative to the largest foreign data. The recurrence rate is on the same level as open as well as laparoscopic surgery and far less than traditional transanal surgery. The complication risks are on the same level as laparoscopic access and far less than open surgery. However, pre-operative investigation has to be developed further. Research is needed to clarify if selected patients with T2 cancer could be treated with TEM in combination with radiotherapy.

Rokke et al (2007) stated that TEM is a safe and suitable method for resection of rectal adenomas that can not be radically removed by endoscopic methods. It offers lower recurrence rates and less morbidity than traditional treatment. Selected malignant tumors (e.g., small carcinoid tumors and
early stage [Tis, T1] adencarcinomas) with higher moderate differentiation may be resected by TEM with the same oncological result as open surgery.

The National Cancer Institute's treatment option overview on rectal cancer (2007) stated that surgery is the most common treatment for all stages of rectal cancer. Local excision is recommended if the cancer is found at a very early stage.

The progress report on the "1st Workshop on Local Excision of Rectal Cancer" that was held in Germany (Borschitz and Junginger, 2007) noted that local excision of "low-risk" T1 carcinomas was rated as oncologically adequate therapy with good functional results and low complication rates. Transanal endoscopic microsurgery was the preferred technique. Pre-requisite for the achievement of low recurrence rates (5 %) is an R0 resection with a safety margin of at least 1 mm (R less than or equal to 1 mm) without tumor fragmentation, because otherwise possible tumor cell displacement and RX resection may not allow an assessment of the resection margin. "High-risk" tumors or T2 carcinomas were not considered an indication for local excision.

The National Comprehensive Cancer Network's practice guideline on rectal cancer (2007) stated that transanal excision may be appropriate for selected early stage cancers. Small (less than 3 cm), well-to-moderately differentiated T1 tumors that are within 8 cm of the anal verge and limited to less than 30 % of the rectal circumference, and for which there is no evidence of nodal involvement can be approached with a full-thickness excision with a 3-mm negative margin. An alternative technique to full-thickness excision is TEM.

In summary, TEM has been shown to be safe and effective for resecting benign adenomas as well as selected malignant tumors (e.g., small carcinoid tumors and early stage [Tis, T1] adenocarcinomas).

Baatrup and colleagues (2010) described 6 cases of
management of rectal strictures by TEM. Patients were placed in the lithotomy-Trendelenburg position and the stricture was resected from 4 to 8 o'clock through the entire thickness of the fibrosis. The upper resection edge was mobilized including all layers of the rectal wall and the defect was sutured along the circumference. Satisfactory anatomical and functional long-term results were obtained in 5 of 6 patients. The authors concluded that TEM resection of benign strictures is feasible in some patients and should be tested in a randomized study against known procedures.

Rectal carcinoids are often inadequately resected by snare excision during colonoscopy. Transanal endoscopic microsurgery offers full thickness excision with a low rate of negative margins. It presents an excellent alternative to radical surgery for mid and proximally located lesions.

Kinoshita et al (2007) evaluated the effectiveness of TEM in the treatment of rectal carcinoid tumor. A total of 27 patients with rectal carcinoid tumor underwent TEM, and their clinical data were reviewed retrospectively. The TEM procedure was performed as a primary excision (n = 14) or as completion surgery after incomplete resection by endoscopic polypectomy (n = 13). The average size of a primary tumor was 9.1 mm (range of 5 to 13 mm), and the average distance of the tumor from the anal verge was 8.5 cm. The mean duration of the operation was 51.6 mins. Minor morbidities, transient soilage, and mild dehiscence occurred in 2 cases (7.4 %). Histopathologically, all tumors were localized within the submucosal layer showing typical histology without lymphatic or vessel infiltration, and both deep and lateral surgical margins were completely free of tumors. Among 13 cases of completion surgery after endoscopic polypectomy, 4 (30.8 %) were histologically shown to have a residual tumor in the specimens obtained by TEM. No additional radical surgery was performed. The mean follow-up period was 70.6 months, and no recurrence was noted. The authors concluded that TEM is a safe, minimally invasive procedure for the local excision of rectal carcinoid tumors, particularly those in the proximal
rectum. Furthermore, for patients with microscopic positive margins after endoscopic polypectomy, TEM can be an effective surgical option for complete removal of residual tumors.

Tsai et al (2010) reviewed their experience with TEM to clarify its role in the treatment of different types of rectal pathology. A prospective database documented all patients undergoing transanal endoscopic microsurgery from October 1996 through June 2008. These investigators analyzed patient and operative factors, complications, and tumor recurrence. For recurrence analysis, they excluded patients with fewer than 6 months of follow-up, previous excisions, known metastases at initial presentation, and those who underwent immediate radical resection following transanal endoscopic microsurgery. A total of 269 patients underwent TEM for benign (n = 158) and malignant (n = 111) tumors. Procedure-related complications (21 %) included urinary retention (10.8 %), fecal incontinence (4.1 %), fever (3.8 %), suture line dehiscence (1.5 %), and bleeding (1.5 %). Local recurrence rates for 121 benign and 83 malignant tumors were 5 % for adenomas, 9.8 % for T1 adenocarcinoma, 23.5 % for T2 adenocarcinoma, 100 % for T3 adenocarcinoma, and 0 % for carcinoid tumors. All 6 (100 %) recurrent adenomas were retreated with endoscopic techniques, and 8 of 17 (47 %) recurrent adenocarcinomas underwent salvage procedures with curative intent. The authors concluded that TEM is a safe and effective method for excision of benign and malignant rectal tumors. It can be offered for (i) curative resection of benign tumors, carcinoid tumors, and select T1 adenocarcinomas, (ii) histopathological staging in indeterminate cases, and (iii) palliative resection in patients medically unfit or unwilling to undergo radical resection.

Shields et al (2010) described recent experience with rectal carcinoids in European and North American centers. Rectal carcinoid patients were identified from prospective databases maintained at 9 institutions between 1999 and 2008. Demographic, clinical, and histological data were collated. Median follow-up was 5 years (range of 0.5 to 10 years). A total
of 202 patients were identified. The median age was 55 years (range of 31 to 81 years). The majority of tumors were an incidental finding (n = 115, 56.9%). The median tumor size was 10 mm (range of 2 to 120 mm). Overall, 93 (49%) tumors were limited to the mucosa or submucosa, 45 (24%) involved the muscularis propria, 29 (15%) extended into the peri-rectal fat, and 6 (3%) reached the visceral peritoneum. The primary treatment modalities were endoscopic resection (n = 86, 43%) and surgical extirpation (n = 102, 50%). Forty-one patients (40%) underwent a high anterior resection, whereas 45 (44%) underwent anterior resection with total mesorectal excision. Seven patients (7%) underwent Hartman's procedure, 7 (7%) underwent abdomino-perineal resection, and 6 (6%) had TEM, whereas 4 (4%) patients underwent a transanal excision. Multiple variable logistic regression analysis demonstrated that tumor size greater than 10 mm and lymphovascular invasion were predictors of nodal involvement (p = 0.006 and < 0.001, respectively), whereas the presence of lymph node metastases and lymphovascular invasion was associated with subsequent development of distant metastases (p = 0.033 and 0.022, respectively). The presence of nodal metastases has a profound effect upon survival, with a 5-year survival rate of 70%, and 10-year survival of 60% for node-positive tumors. Patients with distant metastases have a 4-year survival of 38%. The authors concluded that tumor size greater than 10 mm and lymphovascular invasion are significantly associated with the presence of nodal disease, rendering mesorectal excision advisable. Transanal excision is adequate for smaller tumors.

Steinhagen et al (2011) performed a review of a prospectively maintained database of patients scheduled for TEM. A total of 93 patients underwent 96 procedures for 13 carcinoid tumors, 1 submucosal mass, 46 adenomas, 12 in situ adenocarcinomas, and 21 invasive adenocarcinomas. Of these cases, 81.2% was successfully completed. There were 9 complications (11.5%). Final pathology demonstrated 33 in situ and invasive adenocarcinomas. The mean follow-up was 25.9 months. The 4 recurrences (12.1%) occurred in: 1 tubulo-villous adenoma, 2 in situ carcinomas, and 1 T2 lesion. The authors
concluded that TEM is appropriate for benign lesions such as carcinoid tumors and adenomas and can also be curative in carefully selected patients with early-stage invasive rectal cancer. In cases of invasive adenocarcinoma, it should be reserved for low-risk cancers in patients who accept the possible increased risk of recurrence.

Kumar et al (2012) reported the largest American experience in the use of TEM for rectal carcinoids. Data of patients having undergone TEM for rectal carcinoids were prospectively collected and retrospectively analyzed. Patient and tumor characteristics, operative and peri-operative details, as well as oncological outcomes were reviewed. Over a 12-year period, 24 patients underwent TEM for rectal carcinoids. Of these, 6 (25%) were primary surgical resections and 18 (75%) were done after incomplete snare excisions during colonoscopy. Three patients (17%) undergoing full-thickness resection after snare excision had residual tumor on histopathological examination. Negative margins were obtained in all cases. No recurrences were noted. The authors concluded that TEM is safe and effective for the surgical resection of rectal carcinoids less than 2 cm in diameter, with typical features, and located more than 5 cm from the anal verge. It can be used for primary resection or resection following inadequate colonoscopic snare excision.

Ashraf et al (2012) stated that TEM for early rectal cancer (ERC) gives results similar to major surgery in selected cases. Endorectal ultrasound (ERUS) is an important part of the pre-operative selection process. This study reported its accuracy and impact for patients entered on the United Kingdom TEM database, which comprises prospectively collected data on 494 patients. This data set was used to determine the prevalence of ERUS in pre-operative staging and its accuracy by comparing pre-operative T-stage with definitive pathological staging following TEM. Endorectal ultrasound was performed in 165 of 494 patients who underwent TEM for rectal cancer. It inaccurately staged rectal cancer in 44.8% of tumors: 32.7% were under-staged and 12.1% were
over-staged. There was no significant difference in the depth of TEM excision or R1 rate between the patients who underwent ERUS before TEM and those who did not ($p = 0.73$). The authors concluded that these findings showed that ERUS is employed in a minority of patients with rectal cancers undergoing TEM in the United Kingdom and its accuracy in this "real world" practice is disappointing.

Morino et al (2013) stated that almost 30 years ago, TEM revolutionized the technique and outcomes of transanal surgery, first becoming the standard of treatment for large rectal adenomas, then offering a possibly curative treatment for early rectal cancer, and finally generating discussion on its potential role in combination with neoadjuvant therapies for the treatment of more invasive cancer. Transanal endoscopic microsurgery afforded the advantage of combining a less invasive transanal approach with low recurrence rates thanks to enhanced visualization of the surgical field, which allows more precise dissection. These investigators described the current indications, the pre-operative work-up, the surgical technique (with the aid of a video), post-operative management and results obtained in an over 20-year long experience. Designed as an accurate means to allow excision of benign rectal neoplasms with a very low morbidity rate, TEM today is indicated as a curative treatment of malignant neoplasms that are histologically confirmed as pT1 sm1 carcinomas. The authors stated that T1 sm2-3 and T2 lesions should at present be included in prospective trials. Accurate pre-operative staging is essential for optimal selection of patients. Patients with clear indication for TEM should be referred to specialized medical centers experienced with the technique.

The Standards Practice Task Force of the American Society of Colon and Rectal Surgeons’ practice parameters on “The management of rectal cancer (revised)” (Monson et al, 2013) stated that “Local excision is an appropriate treatment modality for carefully selected T1 rectal cancers without high-risk features. Local excision can be performed via transanal excision (Parks-type excision) or with a transanal endoscopic
microsurgery approach. The transanal endoscopic microsurgery approach appears to be superior to the transanal approach in terms of visualization and resection of higher lesions”.

Chen and colleagues (2013) compared the surgical and oncological effectiveness as well as safety of TEMS and laparoscopic lower anterior resection (LAR) in T1-2 rectal cancer patients. T1-2N0 rectal cancer patients were prospectively and randomly assigned to local excision using TEMS (n = 30) or radical resection (RR) using LAR (n = 30). The primary outcome measures were post-operative recovery course. The operative duration of TEMS was significantly shorter than that of LAR (130.3 ± 16.7 minutes versus 198.7 ± 16.8 minutes, p < 0.01). The TEMS group re-started bowel movement significantly earlier than the LAR group (51.4 ± 5.4 hours versus 86.2 ± 8.7 hours, p < 0.01). The post-operative complications were mild and self-limited in the 2 groups. Local recurrences occurred in 2 T2 patients (2/28, 7.1 %) at 8 months and 16 months following TEMS, respectively; no patient (0/30, 0.0 %) developed local recurrence following LAR. The authors concluded that TEMS was associated with more rapid post-operative recovery and minimal surgical morbidity in T1-2 rectal cancer patients as compared to LAR.

Sajid et al (2014) performed a systematic analysis of trials comparing the effectiveness of TEM with RR for T1 and T2 rectal cancer. An electronic search was carried out of trials reporting the effectiveness of TEM and RR in the treatment of T1 and T2 rectal cancers. A total of 10 trials including 942 patients were retrieved. There was a trend toward a higher risk of local recurrence (odds ratio [OR] 2.78; 95 % confidence interval [CI]: 1.42 to 5.44; z = 2.97; p < 0.003) and overall recurrence (p < 0.01) following TEMS compared with RR. The risk of distant recurrence, overall survival (OS) (OR 0.90; 95 % CI: 0.49 to 1.66; z = 0.33; p = 0.74) and mortality was similar. Transanal endoscopic microsurgery was associated with a shorter operation time and hospital stay and a reduced risk of post-operative complications (p < 0.0001). The included
studies, however, were significantly diverse in stage and grade of rectal cancer and the use of neoadjuvant chemoradiotherapy. The authors concluded that TEM appears to have clinically measurable advantages in patients with early rectal cancer. The studies included in this review do not allow firm conclusions as to whether TEM is superior to RR in the management of early rectal cancer. They stated that larger, better designed and executed prospective studies are needed to answer this question.

In a systematic review and meta-analysis, Arezzo et al (2014) compared the safety and effectiveness of endoscopic submucosal dissection (ESD) and full-thickness rectal wall excision by TEM in the treatment of large non-pedunculated rectal lesions pre-operatively assessed as non-invasive. A systematic review of the literature published between 1984 and 2010 was conducted (Registration no. CRD42012001882). Data were integrated with those from the original databases requested from the study authors when needed. Pooled estimates of the proportions of patients with en-bloc R0 resection, complications, recurrence, and need for further treatment in the ESD and TEM series were compared using random-effects single-arm meta-analysis. This review included 11 ESD and 10 TEM series (2,077 patients). The en-bloc resection rate was 87.8 % (95 % CI: 84.3 to 90.6) for the ESD patients versus 98.7 % (95 % CI: 97.4 to 99.3) for the TEM patients (p < 0.001). The R0 resection rate was 74.6 % (95 % CI: 70.4 to 78.4) for the ESD patients versus 88.5 % (95 % CI: 85.9 to 90.6) for the TEM patients (p < 0.001). The post-operative complications rate was 8.0 % (95 % CI: 5.4 to 11.8) for the ESD patients versus 8.4 % (95 % CI: 5.2 to 13.4) for the TEM patients (p = 0.874). The recurrence rate was 2.6 % (95 % CI: 1.3 to 5.2) for the ESD patients versus 5.2 % (95 % CI: 4.0 to 6.9) for the TEM patients (p < 0.001). Nevertheless, the rate for the overall need of further abdominal treatment, defined as any type of surgery performed through an abdominal access, including both complications and pathology indications, was 8.4 % (95 % CI: 4.9 to 13.9) for the ESD patients versus 1.8 % (95 % CI: 0.8 to 3.7) for the TEM patients (p < 0.001). The
authors concluded that the ESD procedure appears to be a safe technique, but TEM achieves a higher R0 resection rate when performed in full-thickness fashion, significantly reducing the need for further abdominal treatment.

Fichera and Allaix (2014) stated that treatment of rectal cancer has dramatically evolved during the last 3 decades shifting toward a tailored approach based on pre-operative staging and response to neoadjuvant combined modality therapy (CMT). These investigators performed a literature search using PubMed/Medline electronic databases. Selected patients with T1 N0 rectal cancer are best treated with local excision by TEM. Satisfactory results have been reported after CMT and TEM for the treatment of highly selected T2 N0 rectal cancers.

Neoadjuvant CMT followed by rectal resection and total mesorectal excision is considered the standard of care for the treatment of locally advanced rectal cancer. However, a subset of stage II and III patients may not require neoadjuvant radiation treatment. Finally, there are mounting data supporting a "watch and wait" approach or local excision in patients with complete clinical response after neoadjuvant CMT. The authors concluded that current evidence showed that selected T1 N0 rectal cancers can be managed by TEM alone, while locally advanced cancers should be treated by CMT followed by radical surgery. Studies are underway to identify patients that do not benefit from neoadjuvant radiation therapy. A non-operative approach in case of complete clinical response must be validated by large prospective studies.

The National Comprehensive Cancer Network’s clinical practice guideline on “Rectal cancer” (Version 3.2014) indicates that TEMS may be used for transanal excision of rectal cancer when the following criteria are met:

- Less than 30% circumference of bowel
- Less than 3 cm in size
- Margin clear (greater than 3 mm)
- Mobile, non-fixed
- With 8 cm of anal verge
- T1 only
- Endoscopically removed polyp with cancer or indeterminate pathology
- No lympho-vascular invasion or peri-neural invasion
- Well to moderately differentiated
- No evidence of lymphadenopathy

Cunningham (2014) noted that there is increasing interest in organ-preserving options in the management of rectal cancer. Excision of small, early stage cancers by TEM is an important part of this approach. Carefully selected cancers can be treated successfully by TEM with acceptably low risk of recurrent disease and overall cancer outcomes similar to radical surgery. The impact of recurrence can be mitigated by early detection of luminal or nodal disease for which a robust surveillance program is essential. However, patients with high risk features on post-TEM pathology should be offered completion radical surgery that is associated with good oncological results. There may be an opportunity to expand the population of patients who can be offered rectal preservation with the use of radiotherapy in either adjuvant or neo-adjuvant context. Full thickness excision by TEM may be particularly valuable in those demonstrating a clinical complete response to radiotherapy, where diagnosis of complete pathological response can be confirmed. The authors stated that the use of TEM in managing more advanced rectal cancers is exciting, but must be tested within formal clinical trials before being adopted as routine practice.

Heidary et al (2014) stated that rectal adenomas and cancers occur frequently. Small adenomas can be removed colonoscopically, whereas larger polyps are removed via conventional transanal excision. Owing to technical difficulties, adenomas of the mid- and upper-rectum require radical resection. Transanal endoscopic microsurgery was first designed as an alternative treatment for these lesions. However, since its development, TEM has been also used for a variety of rectal lesions, including carcinoids, rectal prolapse and diverticula, early stage carcinomas and palliative resection.
of rectal cancers. These investigators described the current status of TEM in the treatment of rectal lesions. Since the 1980s, TEM has advanced substantially. With low recurrence rates, it is the method of choice for resection of endoscopically unresectable adenomas. Some studies have shown benefits to its use in treating early T1 rectal cancers compared with radical surgery in select patients. However, for more advanced rectal cancers TEM should be considered palliative or experimental. This technique has also been shown to be safe for the treatment of other uncommon rectal tumors, such as carcinoids.

Althumairi and Gearhart (2015) stated that the goal of treatment for early stage rectal cancer is to optimize oncologic control while minimizing the long-term impact of treatment on quality of life (QOL). The standard of care treatment for most stage I and II rectal cancers is radical surgery alone, specifically total mesorectal excision (TME). For early rectal cancers, this procedure is usually curative but can have a substantial impact on QOL, including the possibility of permanent colostomy and the potential for short- and long-term bowel, bladder, and sexual dysfunction. Given the morbidity associated with radical surgery, alternative approaches to management of early rectal cancer have been explored, including local excision (LE) via trans-anal excision (TAE) or TEM and trans-anal minimally invasive surgery (TAMIS). Compared to the gold standard of radical surgery, local procedures for strictly selected early rectal cancers should lead to identical oncological results and even better outcomes regarding morbidity, mortality, and QOL.

Transanal Endoscopic Microsurgery for Functional Constipation:

Zhang and colleagues (2014) examined the feasibility and effectiveness of laparoscopic subtotal colectomy and modified Duhamel procedure combined with TEM in the treatment of severe functional constipation (SFC). The clinical data of 10 patients with SFC treated by laparoscopic surgery combined with TEM between May 2010 and October 2012 were retrospectively analyzed. The gastro-intestinal QOL index
GIQOLI), Wexner constipation scale and daily frequency of defecation post-operatively during follow-up were collected. All the 10 operations were successfully accomplished (laparoscopic subtotal colectomy combined with TEM without abdominal incision). There was no conversion to open procedure. One case had preventive terminal ileum stoma. The mean operative time was (256 ± 58) minutes. The mean blood loss was (178 ± 67) ml. The mean time to first flatus was (40 ± 11) hours. There were no ureteric injury, anastomotic leak, pelvic sepsis and other complications post-operatively. There was 1 case of insufficient small bowel obstruction that was released by conservative treatments. The patients were discharged from the hospital in (9.0 ± 1.5) days post-operatively. The GIQOLI in 1 year post-operatively was (112 ± 10) points, which indicated good results compared to (75 ± 12) points pre-operatively (p = 0.000). The Wexner constipation scale was 20.8 ± 2.2 pre-operatively and decreased to 5.2 ± 1.8 at 1 year follow-up (p = 0.000). The authors concluded that laparoscopic subtotal colectomy and modified Duhamel procedure combined with TEM provided SFC patients a safe and feasible minimally invasive surgery. These preliminary findings need to be validated by well-designed studies.

Transanal Endoscopic Microsurgery for Megacolon:

Han and associates (2014) stated that laparoscopic-assisted colonic resection has been well-described for multiple surgical indications and typically requires an abdominal incision for specimen removal that is associated with most of the post-operative pain. These investigators reported the total laparoscopic modified Duhamel operation for megacolon in combination with TEM for transanal specimen retrieval and anastomosis to avoid the additional abdominal extraction incision. These researchers presented 2 cases. Case 1 was a 15-year old boy who presented with intermittent abdominal distention, pain, and constipation for 3 years' duration and was diagnosed with Hirschsprung disease; and case 2 was a 60-year old man who presented with repeated attacks of incomplete intestinal obstruction for 2 years' duration and was diagnosed
with adult megacolon. They were treated by the total laparoscopic modified Duhamel operation without an abdominal extraction incision in combination with TEM. The operations were successfully accomplished without conversion to open surgery. The patients tolerated the procedure well, complained of minimal post-operative pain, and did not require narcotics beyond the day of the operation. No surgical complications occurred. Discharge from the hospital occurred on the 9th post-operative day in case 1 and the 13th post-operative day in case 2. The authors concluded that the total laparoscopic modified Duhamel operation in combination with TEM is a feasible and minimally invasive technique for idiopathic megacolon and adult megacolon. These preliminary findings need to be validated by well-designed studies.

Transanal Endoscopic Microsurgery for Rectal Prolapse:

Bordeianou et al (2015) stated that perineal approaches for rectal prolapse repair have low complication rates but high recurrence rates, while abdominal approaches that include sigmoidopexy have lower recurrence rates but higher complication rates. To optimize both recurrence and complication rates, these researchers developed a novel procedure that uses TEM to perform a sigmoidopexy via a perineal approach. These investigators created a rectal prolapse model in 6 swine and 2 human cadavers using a previously published technique. The rectum was mobilized and eviscerated transanally. After marking the planned point of sigmoid transection, the rectum was returned to the peritoneal cavity. A TEM proctoscope was inserted transanally alongside the rectum, and the lateral sigmoid colon walls were sutured to the sacrum. The sigmoid colon was then transected where previously planned, and a primary sigmoid anastomosis was performed. Total operative time, sigmoidopexy operative time, and suture security were measured and compared to standard rectosigmoidectomy and abdominal sigmoidopexy times. No sigmoid colon, iliac vessel, bladder, or ureteral injuries occurred. At least 2 sigmoidopexy sutures were secure on inspection in all animals and human cadavers, with increasing
success of secure suture placement as experience increased. Operative length was similar to traditional abdominal sigmoidopexy. The authors concluded that TEM sigmoidopexy is technically feasible. They stated that this approach has the potential to reduce the recurrence rate associated with perineal approaches alone, but further study is needed to confirm this hypothesis.

Transanal Endoscopic Microsurgery for Recto-Vesical Fistula:

Kanehira et al (2015) stated that recto-vesical fistula is a rare complication following prostatectomy, associated with significant symptoms such as urinary drainage from anus or fecaluria. While several surgical procedures have been described to treat this condition, none of them has been accepted as the universal standard. Transanal endoscopic microsurgery is a well-established endoluminal procedure for local excision of rectal tumors. But its application to the repair of recto-vesical fistula has been almost unknown. These researchers performed TEM as a surgical repair for refractory recto-vesical fistula developing after radical prostatectomy in 10 patients. Under the magnified 3-D view, through the stereoscope, the fistula and the surrounding rectal mucosa were precisely resected. The defect and the muscle layer of the rectum were closed by hand-sew technique in 4 layers. Fistula was completely closed in 7 patients, who eventually underwent enterostomy closure, while in the other 3 patients the fistula recurred. In the 3 recurrent cases, the fistula was associated with wide, tough scar tissue due to previous irradiation, high intensity focused ultrasound (HIFU), or repeated surgical repair attempts. The authors concluded that recto-vesical fistulas associated with wide, tough scar tissue due to multi-time attempt of surgical repair or any type of energy ablation should not be indicated for repair by TEM. However, for simple fistulas without tough, fibrotic surroundings, TEM can be indicated as a minimally invasive surgical option with very low morbidity, without any incision in healthy tissue for approach. These preliminary findings need to be validated by well-designed studies.
Transanal Endoscopic Microsurgery for Anorectal Melanoma:

Kong et al (2015) noted that anorectal malignant melanoma (AMM) is an uncommon malignancy that is thought to arise from melanocytes in the mucosa around the anorectal junction. Anorectal malignant melanoma is commonly misdiagnosed, and definitive pre-operative diagnosis is often difficult. The prognosis of AMM is relatively poor. Although radical resection is required for AMM, there is still no consensus at this moment on which surgical approach is preferred. These investigators reported a rare case of AMM that was treated by TEM in combination with radiotherapy, which resulted in complete excision of the lesion without complications. The authors concluded that the successful treatment for this AMM using TEM emphasized the need to broaden its application in the treatment of various rectal lesions while preserving organ function and decreasing recurrence. This was single-case study, and its findings were confounded by the combinational use of TEM and radiotherapy. The clinical value of TEM in the treatment of AMM needs to be examined by well-designed studies.

Transanal Endoscopic Microsurgery for Rectal Amyloidoma:

Sharma and George (2015) noted that localized amyloidosis is characterized by amyloid protein deposition restricted to one organ or tissue without systemic involvement. Gastro-intestinal (GI) manifestations of localized amyloidoma are unusual, which makes amyloidoma restricted to the rectum a very rare diagnosis requiring a high index of suspicion. These researchers presented a rare account for rectal amyloidoma with an unusual presentation of obstructive symptoms and its treatment using TEM, which resulted in complete excision of the lesion without hospitalization and complications. The authors concluded that the successful treatment for this rectal amyloidoma using TEM emphasized the need to broaden its application in the treatment of various rectal lesions while preserving organ function and decreasing recurrence. This was single-case study; the clinical value of TEM in the treatment of
rectal amyloidoma needs to be further investigated by well-designed studies.

Transanal Endoscopic Microsurgery for Rectal Ulcer Syndrome:

Ihnat et al (2015) stated that solitary rectal ulcer syndrome (SRUS) is an uncommon chronic disorder with a wide range of endoscopic findings, clinical presentations and characteristic histopathological features. There is no clear consensus regarding SRUS management, because of its poorly understood pathogenesis and frequent association with various pelvic floor disorders. Laparoscopic resection rectopexy and TEM were used for the treatment of non-healing SRUS. These investigators reported a case of non-healing SRUS due to obstructive defecation syndrome based on combined pelvic floor disorders (rectocele, enterocele, internal rectal prolapse and dolichosigma) successfully managed by a novel combined mini-invasive approach that has never been previously reported in the literature (laparoscopic resection rectopexy and TEM). The authors concluded that this new minimally invasive concept appeared to be safe and feasible -- laparoscopic resection rectopexy resulted in effective correction of the obstructive defecation syndrome, while TEM allowed comfortable access for radical resection of a rectal ulcer. This was single-case study, and its findings were confounded by the combinational use of TEM and laparoscopic resection rectopexy. The clinical value of TEM in the treatment of SRUS needs to be examined by well-designed studies.

Transanal Endoscopic Microsurgery for Retro-Rectal Tumors:

Hopper et al (2016) stated that tumors in the retro-rectal space are rare and pathologically heterogeneous. The roles of imaging and pre-operative biopsy, non-operative management and the indications for surgical resection are controversial. This study investigated a series of retro-rectal tumors treated in a single institution with the aim of producing a modern improved management algorithm. A retrospective analysis was conducted of the management of all retro-rectal lesions
identified between 1998 and 2013 from a radiology database search. Patient demographics, presenting symptoms, imaging, biopsy, management and the results were recorded. Descriptive statistics were used and Kaplan-Meier survival analysis was performed. A total of 69 patients with a confirmed retro-rectal tumor were identified. The median age was 50 years (36 to 67 interquartile range) and 42 (56 %) were female; 20 (29 %) of the tumors were malignant: 4 of 41 cystic lesions were malignant (12.9 %) versus 16 of 28 solid (or heterogeneous) lesions (57.1 %) (p < 0.0001). Imaging demonstrated a 95 % sensitivity and 64 % specificity for differentiating benign from malignant tumors. Magnetic resonance imaging (MRI) was significantly better at distinguishing between benign and malignant tumors than computed tomography (CT) (94 % versus 64 %, p = 0.03). Percutaneous biopsy was performed in 16 patients and only 27 underwent resection. There was no evidence of local recurrence associated with biopsy. Solid lesions were associated with a non-significant decreased OS (p = 0.348). The authors concluded that the findings of this study demonstrated that MRI should be the investigation of choice for retro-rectal lesions; biopsy of solid lesions is safe and useful for guiding neoadjuvant and surgical therapy. Cystic lesions without suspicious radiological features can be followed by serial imaging without resection. Transanal endoscopic microsurgery was not mentioned as a management option.

Toh and Morgan (2016) noted that the management strategy for retro-rectal tumors is complex. Due to their rarity, few surgeons have expertise in management. These investigators performed a systematic review using the PubMed database. English language publications in the years 2011 to 2015 that assessed pre-operative management, surgical strategies and chemo-radiotherapy for pre-sacral tumors were included. A total of 251 abstracts were screened of which 88 met the inclusion criteria. After review of the full text, this resulted in a final list of 42 studies eligible for review. In all, 932 patients (63.2 % female, 36.8 % male; p < 0.01) with a retro-rectal tumor were identified. Most were benign (65.9 % versus 33.7 %, p <
Imaging distinguished benign from malignant lesions in 88.1% of cases; pre-operative biopsy was superior to imaging in providing an accurate definitive diagnosis (91.3% versus 61.4%, \(p < 0.05\)) with negligible seeding risk. Biopsy should be performed in solid tumors. It is useful in guiding neoadjuvant therapy for GI stromal tumors, sarcomas and desmoid type fibromatosis and may alter the management strategy in cases of diffuse large B-cell lymphoma and metastases. Biopsies for cystic lesions are not recommended. The gold standard in imaging is MRI. The posterior Kraske procedure is the most common surgical approach. Overall, the reported recurrence rate was 19.7%. The authors concluded that this review evaluated the management strategies for retro-rectal tumors. A pre-operative biopsy should be performed for solid tumors; MRI is the most useful imaging modality. They stated that surgery is the mainstay of treatment; however, there is limited information on robotic surgery, single-port surgery, TEM, chemo-radiotherapy and reconstruction.

<table>
<thead>
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<th>CPT Codes / HCPCS Codes / ICD-10 Codes</th>
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<tr>
<td><strong>Information in the [brackets] below has been added for clarification purposes. Codes requiring a 7th character are represented by &quot;+&quot;:</strong></td>
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<td><strong>ICD-10 codes will become effective as of October 1, 2015:</strong></td>
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<td><strong>CPT codes covered if selection criteria are met:</strong></td>
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<td><strong>ICD-10 codes covered if selection criteria are met:</strong></td>
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<td>D01.1 - D01.2</td>
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<td>D12.7 - D12.9</td>
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D3a.026 Benign carcinoid tumor of the rectum

**ICD-10 codes not covered for indications listed in the CPB (not all inclusive):**

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<th>Code</th>
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<td>K59.3</td>
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<td>N32.8</td>
<td>Other specified disorders of bladder</td>
</tr>
<tr>
<td>Q42.1</td>
<td>Congenital absence, atresia and stenosis of rectum without fistula</td>
</tr>
</tbody>
</table>

**The above policy is based on the following references:**

6. Floyd ND, Saclarides TJ. Transanal endoscopic microsurgical resection of pT1 rectal tumors. Dis Colon


25. Vallejo Godoy S, Marquez Calderon S. Outcomes of transanal endoscopic surgery in patients with rectal


64. Ihnat P, Martinek L, Vavra P, Zonca P. Novel combined approach in the management of non-healing solitary rectal ulcer syndrome -- laparoscopic resection rectopexy and transanal endoscopic microsurgery. Wideochir Inne


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Amendment to
Aetna Clinical Policy Bulletin Number: 0747
Transanal Endoscopic Microsurgery for Rectal Cancer

There are no amendments for Medicaid.

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