Clinical Policy Title: Uterine artery embolization

Clinical Policy Number: CCP.1139

Effective Date: April 1, 2015
Initial Review Date: October 15, 2014
Most Recent Review Date: October 2, 2018
Next Review Date: October 2019

Related policies:

CCP.1145 Endometrial ablation
CCP.1116 Transvaginal and transabdominal ultrasound
CCP.1130 Leiomyosarcoma and laparoscopic power morcellation

ABOUT THIS POLICY: Select Health of South Carolina has developed clinical policies to assist with making coverage determinations. Select Health of South Carolina's clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by Select Health of South Carolina when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Select Health of South Carolina's clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Select Health of South Carolina’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Select Health of South Carolina will update its clinical policies as necessary. Select Health of South Carolina’s clinical policies are not guarantees of payment.

Coverage policy

Select Health of South Carolina considers the use of uterine artery embolization for treatment of uterine fibroids to be clinically proven and, therefore, medically necessary when all of the following criteria are met (American College of Obstetricians and Gynecologists, 2008; Gupta, 2012, updated 2014; Martin, 2013; Toor, 2012):

- Presence of one or more persistent symptoms directly attributed to uterine fibroids, including, but not limited to: excessive menstrual bleeding (menorrhagia), bulk-related pelvic pain, pressure or discomfort, urinary symptoms referable to compression of the ureter or bladder, and dyspareunia.
- Any of the following criteria are met:
  - Anesthesia places the individual at high surgical risk.
  - The individual has medical contraindications to hysterectomy (e.g., morbid obesity).
  - Hormonal therapy is contraindicated, or the individual is intolerant to or has previously failed a course of hormone therapy.
- The individual wishes to avoid a hysterectomy.
- The individual has hydronephrosis.
- None of the following contraindications to uterine artery embolization is present (American College of Obstetricians and Gynecologists, 2008; Burke, 2012; Stokes, 2010):
  - Viable pregnancy, active untreated infection, suspicion of leiomyosarcoma or adnexal malignancy (unless uterine artery embolization is performed for palliation or with surgery), and severe vascular disease limiting access.
  - Contraindications to angiographic procedures (e.g., coagulopathy, severe contrast allergy and renal impairment).
  - Prior treatment or procedure that alters pelvic arterial anatomy, (e.g., salpingo-oophorectomy, resection of an ectopic pregnancy or pelvic irradiation), which may make selection and embolization of the uterine arteries difficult or impossible.
  - Future pregnancy is planned, as its effectiveness in this population has not been determined.
  - Compromised immune system, chronic endometritis or partially treated pelvic infection, extensive endometriosis or diffuse adenomyosis, markedly pedunculated subserosal fibroids (risk of detachment) or submucosal fibroids, and associated gynecological conditions requiring surgery (e.g., uterine prolapse or stress incontinence).
  - Currently using a gonadotropin-releasing hormone agonist, as it may cause diffuse vasospasm and impact the technical success of the procedure. Uterine artery embolization should be performed no earlier than six weeks after discontinuation of hormone therapy.

Select Health of South Carolina considers the use of repeat uterine artery embolization to be clinically proven and, therefore, medically necessary to treat symptoms of uterine fibroids that persist after an initial uterine artery embolization.

Select Health of South Carolina considers the use of uterine artery embolization for treatment of adenomyosis to be investigational and, therefore, not medically necessary (Maheshwari, 2012; Popovic, 2011; Stokes, 2010).

**Limitations:**

All other uses of uterine artery embolization are not medically necessary.

**Alternative covered services:**

- Prescription drug therapy (e.g., gonadotropin-releasing hormone agonist).
- Hysterectomy.
- Myomectomy (via hysteroscopy, laparoscopy, or laparotomy).

**Background**
Uterine fibroids (also known as leiomyomas or myomas) are benign growths that attach to the muscle tissue of the uterus. They are the most common tumor in women of reproductive age. They affect more than 66 percent of women by age 50 years, and are the leading cause of hysterectomy in the United States (Whiteman, 2008). The clinical presentation of uterine fibroids can vary greatly in number, size, growth rate, and symptoms (American College of Obstetricians and Gynecologists, 2014). They may be present inside the uterus, on its outer surface or within its wall, or attached by a stem-like structure.

Adenomyosis (also known as adenomyoma or endometriosis interna) is a benign condition in which the endometrium breaks through the outer muscular wall of the uterus (National Library of Medicine, 2014). The condition may be localized or diffusely spread throughout the uterus and may coincide with endometriosis or leiomyomas. Adenomyosis is diagnosed with increasing frequency in women attending infertility clinics, but its role in infertility independent of these other conditions is not well understood.

Symptoms associated with uterine fibroids and adenomyosis include changes in menstruation, abnormal bleeding, anemia from blood loss, abdominal or lower back pain, difficulty urinating or frequent urination, difficult bowel movements, and abdominal cramps. They may cause an enlarged uterus and abdomen, miscarriages, and infertility. Rarely are they cancerous. Asymptomatic growths may be found incidentally during a routine pelvic exam or testing for other problems.

**Treatment options:**

Uterine fibroids that are asymptomatic or small or occur in a woman who is nearing menopause, often do not require treatment. Symptomatic growths may signal the need for treatment. Drug treatment using hormonal birth control methods, gonadotropin-releasing hormone agonists, and progestin-releasing intrauterine devices offer largely temporary solutions (e.g., prior to surgery or perimenopause) (American College of Obstetricians and Gynecologists, 2014). The need for surgical treatment takes into account the clinical presentation and the patient’s desire for future fertility (American College of Obstetricians and Gynecologists, 2013). Fertility-preserving surgical options include dilation and curettage, myomectomy, hysteroscopy, endometrial ablation, and uterine artery embolization. Neither surgery nor drug treatment prevents new tumors from developing (American College of Obstetricians and Gynecologists, 2014; Stokes, 2010). A hysterectomy is performed when other treatments are ineffective or impossible, or the tumors are very large. The effectiveness of other techniques, such as magnetic resonance image-guided focused ultrasound, is being studied (American College of Obstetricians and Gynecologists, 2014; Burke, 2012).

**Uterine artery embolization:**

Uterine artery embolization delivers an embolic agent, typically tris-acryl gelatin microspheres or spherical polyvinyl alcohol, via a catheter or microcatheter placed in both uterine arteries (Stokes, 2010). The goal of uterine artery embolization is to occlude or markedly reduce the arterial blood flow of all distal uterine artery branches feeding the tumor(s), producing irreversible ischemic injury to the tumor while avoiding permanent damage to the uterus. The U.S. Food and Drug Administration (2014) has approved a number of embolic agents specifically for uterine artery embolization.
The procedure is performed typically under conscious sedation using either a unilateral or bilateral common femoral artery approach, depending on operator preference. Clinical success is defined as the significant improvement or resolution of presenting symptoms, such as menorrhagia or bulk-related pain, bloating, urinary frequency or constipation, without additional therapy (Stokes, 2010). At three to six months following the procedure, the patient is re-evaluated for treatment efficacy (Stokes, 2010). Since the 1990s, uterine artery embolization has seen rapid adoption into the standard practice of interventional radiology (Burke, 2012).

**Searches**

Select Health of South Carolina searched PubMed and the databases of:

- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services.

We conducted searches on August 30, 2018. Search terms were: “uterine artery embolization (MeSH),” “Leiomyoma (MeSH),” “fibroma (MeSH),” or “adenomyosis (MeSH),” and also free text terms for “uterine artery embolization” limited to human studies published in English.

We included:

- Systematic reviews, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- Guidelines based on systematic reviews.
- Economic analyses, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

For this policy, we identified seven systematic reviews (Gupta, 2012; Hayes, 2009; Maheshwari, 2012; Martin, 2013; Mohan, 2013; Popovic, 2011; Toor, 2012) and five evidence-based guidelines (American College of Obstetricians and Gynecologists 2004, 2008, 2013; Burke, 2012; Stokes, 2010). For treatment of uterine fibroids with uterine artery embolization, the evidence consists of randomized controlled trials, other randomized comparative studies, and observational studies of low-to-moderate quality. For adenomyosis, the evidence is of lower quality, consisting of uncontrolled studies, case-control studies, case reports, and expert opinion.
Patients represented in these studies had confirmed uterine fibroids or adenomyosis that caused a variety of problems, including anemia, menorrhagia, pain, and bulk-related symptoms. Some patients had elected to undergo uterine artery embolization in an attempt to preserve fertility, but most studies excluded patients seeking to become pregnant. Outcome measured were symptom relief, resumption of normal menses, resolution of anemia, changes in growth volume, complications, pregnancy, and patient satisfaction. Control groups generally consisted of patients who underwent hysterectomy and myomectomy. None of the studies compared uterine artery embolization with pharmaceutical therapies.

**Symptomatic uterine fibroids:**

There is sufficient evidence to support uterine artery embolization as an alternative to hysterectomy or myomectomy in women with symptomatic uterine fibroids who wish to avoid surgical therapies or who are not good surgical candidates, and who are not concerned about preserving their fertility (Gupta, 2012; Hayes, 2009; Martin, 2013; Toor, 2012). See Table 1. Uterine artery embolization is a safe procedure and provides significant symptomatic relief associated with uterine fibroids comparable to surgery, although some patients who undergo uterine artery embolization may require subsequent hysterectomy. Major complications are uncommon and occur at a rate of approximately 3 percent in observational studies and 7 percent in randomized controlled trials for the initial few years after uterine artery embolization, with this value tapering off over time.

When reported, patient satisfaction with uterine artery embolization was high or very high. Hospital length of stay, recovery time, and time to return to work or normal activities were significantly shorter for patients who underwent uterine artery embolization than for those who underwent hysterectomy or myomectomy. Limited evidence suggests uterine artery embolization is more cost-effective than hysterectomy in the short term, but hysterectomy becomes more cost-effective in the long term when factoring in the increased risk of reintervention after uterine artery embolization. Evidence-based guidance recommends consideration of uterine artery embolization in patients who are not good candidates for myomectomy and in patients who refuse surgery (American College of Obstetricians and Gynecologists, 2008; Stokes, 2010).

**Adenomyosis:**

There is insufficient evidence to support uterine artery embolization as an alternative to hysterectomy or myomectomy in women with adenomyosis outside of a research setting, although both systematic reviews acknowledge an increasing interest in using uterine artery embolization for adenomyosis (Maheshwari, 2012; Popovic, 2011). While there are a growing number of small case studies on the use of uterine artery embolization for treatment of adenomyosis, there are no meta-analyses to date (December 6, 2014) demonstrating effectiveness of this modality. The Society of Interventional Radiology (SIR) Standards of Practice Committee considered the available uncontrolled studies and expert opinion in their recommendation — uterine artery embolization is a conservative alternative for patients who desire fertility, are at increased surgical risk, or absolutely desire uterine preservation (Stokes, 2010). American College of Obstetricians and Gynecologists (2013) lists uterine artery embolization as having a series of case reports only for support. Select Health of South Carolina considers this level of evidence of interest not sufficient proof to demonstrate clinical utility.
Women who desire future fertility:

There is insufficient evidence to support the use of uterine artery embolization as a first-line treatment in women who desire future fertility (Gupta, 2012; Maheshwari, 2012; Mohan, 2013; Popovic, 2011). The minimally invasive nature of the procedure is attractive to the increasing numbers of women with symptomatic fibroid tumors or adenomyosis during childbearing age, but lack of good-quality prospective controlled studies and a strong likelihood of publication bias in existing research prevent firm conclusions about the safety and efficacy of uterine artery embolization in this population. The issue of fertility following uterine artery embolization remains controversial and has been inadequately studied. Advanced age and presence of these growths may affect fertility and complicate assessment of fertility following uterine artery embolization. For now, myomectomy may be superior to uterine artery embolization in women planning future pregnancy. Evidence-based guidelines list the desire for future fertility as a relative contraindication to uterine artery embolization (American College of Obstetricians and Gynecologists, 2008; Burke, 2012; Stokes, 2010).

Contraindications:

Absolute contraindications to uterine artery embolization include patients with viable pregnancy, active untreated infection, suspicion of leiomyosarcoma or adnexal malignancy (unless uterine artery embolization is performed for palliation or with surgery) and severe vascular disease limiting access (American College of Obstetricians and Gynecologists, 2008; Burke, 2012; Stokes, 2010; ). Relative contraindications to uterine artery embolization similar to those for other angiographic procedures include coagulopathy, severe contrast allergy and renal impairment. Other relative contraindications more specific to uterine artery embolization include (Hayes, 2009; Stokes, 2010):

- Any prior treatment or procedure that could alter pelvic arterial anatomy, such as salpingo-oophorectomy, resection of an ectopic pregnancy, or pelvic irradiation, which may make selection and embolization of the uterine arteries difficult or impossible.
- A desire to maintain childbearing potential.
- Concurrent use of a gonadotropin-releasing agonist, as it may cause diffuse vasospasm and impact the technical success of the procedure.
- Patients with diffuse endometriosis or adenomyosis, markedly pedunculated subserosal fibroids (risk of detachment) or submucosal fibroids, and associated gynecological conditions requiring surgery (e.g., adnexal disease, uterine prolapse or stress incontinence).

Appropriate patient selection and management are integral to successful outcomes with uterine artery embolization. Presenting symptoms, clinical history, physical examination, imaging findings, and patient preferences influence candidacy for uterine artery embolization. However, identification of appropriate candidates for uterine artery embolization often relies on ill-defined objective criteria (e.g., tumor size) or subjective criteria (e.g., perceived symptom severity). Evidence-based recommendations are needed to assess effectiveness of, and guide appropriate patient selection for, uterine artery embolization.
Table 1. Outcomes of uterine artery embolization vs. surgery (hysterectomy and/or myomectomy)

Citation: Martin 2013
Minor complications (number of studies): No statistically significant difference (5)
Major complications (number of studies): Favors uterine artery embolization (2)
Fertility rates (number of studies): Not reported
Reintervention rates (number of studies): Favors surgery (3)
Patient satisfaction rates (number of studies): Not reported

Citation: Gupta 2012
Minor complications (number of studies): Favors surgery (7)
Major complications (number of studies): No statistically significant difference (1)
Fertility rates (number of studies): Favors myomectomy (1)
Reintervention rates (number of studies): Favors surgery within 2 years follow up (4) and 5 years follow up (2)
Patient satisfaction rates (number of studies): No statistically significant difference within 2 years follow up (5) or 5 years follow up (2)

Policy updates:

In 2016, we found one update of a previously included Cochrane review (Gupta, 2014) for this policy. The update included two new randomized controlled trials comparing uterine artery embolization to myomectomy. Limited findings from a subgroup of a single, small randomized controlled trial suggested less favorable fertility outcomes with uterine artery embolization than myomectomy, but these results should be interpreted cautiously. Both procedures have similar patient satisfaction rates and major complication rates, but uterine artery embolization is associated with higher rates of minor complications and surgical reintervention. These results confirm earlier findings that uterine artery embolization is a safe, minimally invasive alternative to surgery in appropriately selected patients. Therefore, no changes to the policy are warranted.

In 2017, a meta-analysis (Fonseca, 2017) and a randomized controlled trial with 10-year follow-up (de Bruijn, 2016) provide additional evidence of the comparative effectiveness of uterine artery embolization and hysterectomy. These results confirm previous findings and the durability of uterine artery embolization as a less invasive alternative to hysterectomy for symptomatic uterine fibroids. No policy changes are warranted.

In 2018, we added two publications to the reference list. Policy ID updated from 12.03.02 to CCP.1139.

Summary of clinical evidence:

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fonseca (2017)</td>
<td>Key points:</td>
</tr>
<tr>
<td>Citation</td>
<td>Content, Methods, Recommendations</td>
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</table>
| Uterine artery embolization and surgical methods for symptomatic uterine leiomyomas | - Meta-analysis and indirect treatment comparison of ten randomized controlled trials of uterine artery embolization (527 total patients) versus hysterectomy, myomectomy, and laparoscopic occlusion of uterine arteries (459 total patients).  
- Overall quality: low or unclear with high risk of bias. Limited number of trials.  
- Uterine artery embolization was associated with (risk ratio, 95% confidence interval):  
  - Lower risk of major complications (0.45, 0.22 - 0.95; P = 0.04).  
  - Higher risk of minor complications (1.65, 1.32 - 2.06; P < 0.00001).  
  - Higher risk of re-intervention up to 2 years (3.74, 1.76 - 7.96; P = 0.0006) and up to 5 years (5.01, 1.37 - 18.39; P = 0.02);  
  - Similar risk of follicle-stimulating hormone levels >40 IU/L after six months (1.76, 0.24 - 12.95; P = 0.58) and of recommending procedure to another patient up to 5 years after treatment (1.00, 0.87 - 1.14; P = 0.94).  
- Indirect comparison between myomectomy and hysterectomy similar outcomes. |
| de Bruijn (2016) Ten-year outcomes from the EMMY trial (clinicaltrials.gov identifier NCT00100191) | Key points:  
- Multisite (28 sites) randomized controlled trial comparing 10-year clinical outcome and health-related quality of life (HRQOL) of 177 patients who were eligible for hysterectomy (81 uterine artery embolization; 75 hysterectomy; 21 withdrawals). Intention to treat analysis. Mean duration of follow-up 133 months (standard deviation [SD] 8.58); mean age 57 years (SD 4.53).  
- Data obtained through validated questionnaires (84% response rate).  
- Ten years after treatment, 28 of 81 patients (35%) who underwent uterine artery embolization required secondary hysterectomy for persisting symptoms.  
- Significant and sustained improvement in health-related quality of life after 10 years without between-group differences.  
- Decreased urogenital distress inventory and defecation distress inventory in both groups, probably related to increasing age, without between group differences.  
- Comparable, sustained satisfaction in both groups.  
- High satisfaction with both treatments: uterine artery embolization 78% vs. hysterectomy 87%. |
| Gupta (2012, updated 2014) Cochrane review Uterine artery embolization vs. surgical alternatives | Key points:  
- Systematic review of seven randomized controlled trials (793 total patients): Uterine artery embolization vs. hysterectomy only (three randomized controlled trials); uterine artery embolization vs. hysterectomy or myomectomy (two randomized controlled trials); uterine artery embolization vs. myomectomy only (two randomized controlled trials).  
- Overall quality: Low to moderate.  
- Uterine artery embolization vs. myomectomy (66 total patients, low quality evidence): Improved fertility outcomes with myomectomy in women wishing to preserve fertility (odds ratio [OR], 95% confidence interval [CI]):  
  - Live birth: (0.33, 0.11 – 1.00).  
  - Pregnancy: (0.29, 0.10 – 0.85).  
  - No significant difference in major complication rate.  
- Uterine artery embolization vs. either surgery: Similar patient satisfaction rates and ovarian failure rates at long-term follow up. Uterine artery embolization was associated with improved procedural length, hospital length of stay, time to resumption of routine activities, and need for blood transfusion, but higher rates of minor short-term and long-term complications, more unscheduled readmissions after discharge and an increased surgical reintervention rate. |
<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
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<tbody>
<tr>
<td>Mohan (2013)</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>Uterine artery</td>
<td>Systematic review of one randomized controlled trial, six nonrandomized cohort or follow-up</td>
</tr>
<tr>
<td>embolization</td>
<td>studies, and five cohort or case-control studies and case series.</td>
</tr>
<tr>
<td>and fertility</td>
<td>Overall quality: Low.</td>
</tr>
<tr>
<td>outcomes</td>
<td>Cumulative pregnancy rate (58.6%, mean age 35.9 years), miscarriage rate (28%), and preterm</td>
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<tr>
<td></td>
<td>delivery rate (7.3%) following uterine artery embolization of included study populations were</td>
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<tr>
<td></td>
<td>comparable to general population.</td>
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<td>Confounders of fertility assessment following uterine artery embolization for fibroids are</td>
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<td>advanced age and presence of the leiomyoma.</td>
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<td>Large, well-designed randomized controlled trials comparing uterine artery embolization to</td>
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<td>other fertility-preserving options and large registries for observational data are needed to</td>
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<tr>
<td></td>
<td>confirm findings.</td>
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<tr>
<td>Martin (2013)</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>Uterine artery</td>
<td>Systematic review of five randomized controlled trials, 76 nonrandomized studies.</td>
</tr>
<tr>
<td>embolization</td>
<td>Overall quality assessment: Not reported.</td>
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<tr>
<td>versus surgical</td>
<td>Uterine artery embolization vs. alternatives: Decreased risk for major complications and similar</td>
</tr>
<tr>
<td>alternatives</td>
<td>risk for minor complications. Common complications: discharge and fever (4.00%), bilateral</td>
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<td></td>
<td>uterine artery embolization failure (4.00%), and postembolization syndrome (2.86%), amenorrhea</td>
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<tr>
<td></td>
<td>(4.26%), pain (3.59 %), and fibroid expulsion (five cases).</td>
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<tr>
<td>Maheshwari</td>
<td>Uterine artery embolization had significantly increased risk for reintervention.</td>
</tr>
<tr>
<td>(2012)</td>
<td><strong>Key points:</strong></td>
</tr>
<tr>
<td>Uterine artery</td>
<td>Systematic review of one case series.</td>
</tr>
<tr>
<td>embolization</td>
<td>Overall quality: Low with high risk of bias.</td>
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<tr>
<td>and fertility</td>
<td>At 35 months follow up, live birth rate 83.3% (five of six patients).</td>
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<tr>
<td>outcomes:</td>
<td>Insufficient evidence.</td>
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<tr>
<td>adenomyosis</td>
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<tr>
<td>Toor (2012)</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>Uterine artery</td>
<td>Systematic review of seven randomized controlled trials and 47 observational studies (8,159</td>
</tr>
<tr>
<td>embolization</td>
<td>total patients).</td>
</tr>
<tr>
<td>for symptomatic</td>
<td>Overall quality: Low-to-moderate.</td>
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<tr>
<td>leiomyomas</td>
<td>No reported deaths.</td>
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<td>Major complication rate 2.9% (95% CI 2.2% – 3.8%), reintervention hysterectomy rate after</td>
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<td>uterine artery embolization 0.7% (0.5% – 0.9%), readmission rate 2.7% (1.9% – 3.7%), leiomyoma</td>
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<td>tissue passage 4.7% (3.9% – 5.7%), deep venous thrombosis or pulmonary embolism 0.2% (0.2% – 0.4%),</td>
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<td></td>
<td>and permanent amenorrhea 3.9% (2.7% – 5.3%).</td>
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<td></td>
<td>Reintervention rates (repeat uterine artery embolization, myomectomy or hysterectomy) 5.3%</td>
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<td>(4.2% – 6.4%) per patient-year with 0.25 to 5 years follow up.</td>
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<td>Clinical symptomatic improvement 78% to 90%, with 0.25 to two years follow up.</td>
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<td>Conclusion: uterine artery embolization is an acceptable alternative to hysterectomy.</td>
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<tr>
<td>Popovic (2011)</td>
<td><strong>Key points:</strong></td>
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</tbody>
</table>
### Symptomatic outcomes: adenomyosis

- Systematic review of 15 primarily case series, case reports and uncontrolled studies (511 total studies), including patients with pure adenomyosis or mixed adenomyosis and fibroids.
- Overall quality: Low with high risk of bias.
- No deaths or serious adverse events reported.
- Symptom relief rate for pure adenomyosis and mixed populations: 64.9% to 92.9%.
- Reintervention rate 13.2% (37 hysterectomies in 280 patients) at 12 months.
- Significant short term improvements on MRI diminished over time.
- Insufficient evidence for uterine artery embolization as a first-line treatment. Larger-scale, randomized controlled trials needed.

### Hayes (2009)

**Uterine artery embolization for symptomatic uterine fibroids**

**Key points:**

- Systematic review of 10 randomized comparative studies; 21 prospective uncontrolled studies, case series, or registry studies; four prospective controlled or comparative studies; and five retrospective or case control studies.
- Overall quality: Low to moderate. Substantial overlap in populations.
- Uterine artery embolization offers short-term relief comparable to myomectomy or hysterectomy.
- Reintervention rate up to 20%.
- High early patient satisfaction rates for uterine artery embolization, with significant improvements in several health-related quality of life (HRQOL) measures, shorter hospital stays and faster recovery times compared with surgery.
- No comparisons with medical therapy.
- Limited evidence of uterine artery embolization effect on ovarian and uterine function, fertility and pregnancy outcomes in women with fibroids who wish to retain childbearing potential. Age may contribute.
- Uterine artery embolization is safe with minimal complications. Adequate pain management is essential. Serious adverse events, including infection (sepsis) and pulmonary embolus, have been reported.

### References

**Professional society guidelines/other:**


Peer-reviewed references:


FDA 510(k) Premarket Notification Database [search: product code NAJ]. FDA website.  


**Centers for Medicare & Medicaid Services National Coverage Determinations:**

20.28 Therapeutic Embolization

**Local Coverage Determinations:**

No LCDs identified as of the writing of this policy.

**Commonly submitted codes**

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comment</th>
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<tbody>
<tr>
<td>37243</td>
<td>Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; for tumors, organ ischemia or infarction</td>
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<tr>
<td>58674</td>
<td>Laparoscopy, surgical, ablation of uterine fibroid(s), including intraoperative ultrasound guidance and monitoring, radiofrequency</td>
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<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
<th>Comment</th>
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<tbody>
<tr>
<td>D25.0</td>
<td>Submucous leiomyoma of uterus</td>
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<tr>
<td>D25.1</td>
<td>Intramural leiomyoma of uterus</td>
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<tr>
<td>D25.2</td>
<td>Subserosal leiomyoma of uterus</td>
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<tr>
<td>D25.9</td>
<td>Leiomyoma of uterus, unspecified</td>
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<table>
<thead>
<tr>
<th>HCPCS Level II Code</th>
<th>Description</th>
<th>Comment</th>
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<tbody>
<tr>
<td>S2095</td>
<td>Transcatheter occlusion or embolization for tumor destruction, percutaneous, any method, using yttrium-90 microspheres</td>
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