Uterine Fibroid

Treatment options - Medications

Treatment	What It Does	Best Candidates	Symptom / Volume Effect	Re-intervention (≈5 yrs)	Fertility Impact	Setting & Recovery	Key Pros	Key Cons
Expectant / Watchful Waiting	No active treatment, monitor symptoms	Mild symptoms, near menopause	No improvement; symptoms may worsen[1]	High if symptoms progress	Depends on fibroid size and location	None	Avoids therapeutic risks	Symptoms may progress
NSAIDs / Tranexamic Acid	Pain/bleeding reduction; no fibroid shrinkage[1–3]	Mild–Heavy Menstrual Bleeding	↓ bleeding, ↓ pain; no size change[1]	High if fibroid-driven bleeding	Depends on fibroid size and location	Oral	Inexpensive, safe	Does not treat fibroid bulk
COCs / Oral Progestins	Hormonal suppression of bleeding[2,3]	Patients needing contraception	↓ bleeding, ↓ dysmenorrhea; minimal size change[2]	High when stopped	May delay conception[2]	Outpatient	Widely available	Side effects; recurrence
LNG-IUS (Mirena)	Local progestin → endometrial thinning[2,3]	* HMB with small or no cavity distortion	Effectively ↓ bleeding; no shrinkage[3]	Moderate over years[2]	Fertility returns after removal	Office	Highly effective for *HMB	Expulsion risk with submucosal fibroids
GnRH Agonists/Antagonists	Temporary hypoestrogenism → shrinkage[3–5]	Pre-op or short-term use	30–50% fibroid shrinkage[3,4]	Very high after stopping[3–5]	Reversible	Oral/IM	Shrinks uterus, improves anemia	Menopause-like effects; not long-term
SPRMs	Progesterone receptor modulation[4,5]	Regions where allowed	Good bleeding control; moderate shrinkage[4]	Moderate	Fertility-sparing	Oral	Effective when available	Regulatory restrictions

Heavy Menstrual Bleeding =HMB

Treatment options - Intervention

Treatment	What It Does	Best Candidates	Symptom / Volume Effect	Re-intervention (≈5 yrs)	Fertility Impact	Setting & Recovery	Key Pros	Key Cons
Medications	Hormonal or non-hormonal symptom control; reduces bleeding and pain; variable or minimal fibroid shrinkage [1–5]	Heavy bleeding, needing contraception, pre-op, short-term	↓ bleeding, ↓ pain; minimal to moderate shrinkage depending on class 1-4	Moderate to high if medications are stopped; class-dependent	Varies by agent; generally reversible; fertility usually preserved	Oral/IM	Widely available, non-surgical, effective for bleeding	Side effects, recurrence when stopped; limited or no effect on bulk symptoms
LNG-IUS (Mirena)	Intrauterine device: Local progestin → endometrial thinning[2,3]	*HMB with small or no cavity distortion	Effectively ↓ bleeding; no shrinkage[3]	Moderate over years[2]	Fertility returns after removal	Office	Highly effective for *HMB	Expulsion risk with submucosal fibroids
MR-guided Focused Ultrasound (MRgFUS/HIFU)	MRI-guided thermal ablation[12–14]	Limited number, favorable location	20–40% shrinkage[12]	Higher retreatment than UFE/myomectomy[12–14]	Fertility data limited	Outpatient	Non-invasive	Strict selection; high retreatment
Endometrial Ablation (EA)	Destroys endometrium[6]	*HMB with small fibroids	Good bleeding reduction; no shrinkage[6]	12–30% at 5 yrs[6]	Contraindicated for future fertility	Outpatient	Effective for bleeding	Not for fertility; poor bulk control
Radiofrequency Ablation (lap or transcervical TFA)	Needle-based ablation[14]	Select fibroids reachable with device	40–50% shrinkage[14]	Medium (long-term emerging)	Possible	Outpatient	Minimally invasive	Limited long-term data
Myomectomy	Removes fibroids (hysteroscopic/lap/open)[6]	Symptomatic fibroids; fertility goals	Major symptom relief; volume ↓[6]	~10–15% at 5 yrs[6]	Best fertility option	OR	Direct removal; pathology	Recurrence risk; adhesions
Hysterectomy	Removes uterus and fibroids[1]	Severe symptoms; no fertility desire	Complete resolution	0–2%	No future pregnancy	OR	Definitive cure	Surgical risks; loss of fertility, constipation, sexual impact, depression
Uterine Fibroid Embolization (UFE/UAE)	Embolizes uterine arteries → infarction[7–11]	Symptomatic fibroids; uterine preservation	>90% *AUB control[7]; 40–60% shrinkage[11]	~14–30% at 5–10 yrs[6–8]	Possible	IR suite; outpatient	Minimally invasive; treats all fibroids	Post-embolizatio n pain

Treatment options (continued)

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***Abnormal Uterine Bleeding = AUB**

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Fibroid vs Adenomyoma

Feature	Uterine Fibroids (Leiomyomas)	Adenomyosis / Adenomyoma
Pathology	Benign smooth muscle tumors, well-circumscribed; submucosal, intramural, or subserosal	Ectopic endometrial glands + stroma within myometrium; diffuse or focal (adenomyoma)[1]
Typical Symptoms	Heavy menstrual bleeding (HMB), bulk symptoms (pressure, urinary frequency, constipation), sometimes pain, infertility[2]	HMB **plus** severe dysmenorrhea, chronic pelvic pain, “boggy” tender uterus, infertility common[1]
Physical Exam	Irregular, enlarged, firm uterus; discrete palpable masses	Diffusely enlarged, “boggy,” tender uterus; less discrete
Ultrasound	Well-defined hypoechoic masses; shadowing; uterine contour distortion	Heterogeneous myometrium, myometrial cysts, wall asymmetry, ill-defined thickening[1]
MRI	T2 hypointense, well-circumscribed masses; characteristic enhancement patterns	Thickened junctional zone >12 mm, “globular” uterus, myometrial cysts; focal adenomyoma can mimic fibroid but is less circumscribed[2]
Natural History	Estrogen/progesterone-dependent growth; often regresses after menopause[3]	Hormone-dependent but may persist longer; diffuse disease harder to treat[3–4]
Response to Medical Therapy	Hormonal therapy may reduce bleeding/pain; **minimal shrinkage**[3]	Hormonal therapy (LNG-IUS, GnRH analogs) often improves pain and bleeding but disease persists[1]
Response to UFE	Strong evidence: >90% AUB improvement; durable long-term results[5]	Systematic review: ≈80–85% improvement; outcomes lower than fibroids; depends on vascularity & focal vs diffuse disease[6]
Durability of UFE	Reintervention ~15–30% at 5–10 yrs (mostly hysterectomy or repeat procedure)[7]	Long-term improvement ~65–75%; higher hysterectomy rates in diffuse/hypovascular disease[8]
Other Interventions	Myomectomy, High-Intensity Focused Ultrasound (HIFU), Transcervical Fibroid Ablation (TFA), Radiofrequency Ablation (RFA), hysterectomy, Uterine Fibroid Embolization (UFE)	Hysterectomy (definitive), adenomyomectomy (focal), HIFU (selected), UFE increasingly used for uterine preservation[9]
Key Counseling Point	UFE is a **well-established, guideline-supported**, uterus-sparing treatment with strong RCT + long-term safety data[5–7]	UFE is **effective in many**, but more heterogeneous; diffuse adenomyosis is harder to fully treat and has higher recurrence than fibroids[6–8]

***Abnormal Uterine Bleeding = AUB**
***Heavy Menstrual Bleeding =HMB**

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Uterine Artery Embolization (UAE) vs Other therapies

Study / Type	Comparison	N & Population	Key Outcomes	Take-Home Message
EMMY Trial (Hehenkamp / de Bruijn) RCT + 10-yr follow-up[1]	**UAE vs hysterectomy** for symptomatic fibroids	RCT, Netherlands; women eligible for hysterectomy with symptomatic fibroids	At 10 yrs, ~⅔ of UAE patients avoided hysterectomy; QoL & satisfaction similar; UAE had higher reintervention but was less invasive upfront	UAE is a durable, less-invasive alternative to hysterectomy; most patients avoid hysterectomy long-term
REST Trial (Moss et al.) RCT, 5-yr[2]	**UAE vs surgery** (mostly hysterectomy, some myomectomy)	157 women with symptomatic fibroids	Similar symptom relief & QoL at 1 and 5 yrs; UAE had shorter stay, faster recovery, more minor re-interventions	UAE provides comparable outcomes to surgery with quicker recovery but slightly more retreatment
FEMME Trial (Daniels et al.) RCT, 2–4 yrs[3]	**UAE vs myomectomy** for uterine preservation	254 women; UK multicenter	At 2 yrs, myomectomy had higher QoL; by 4 yrs differences narrowed; similar bleeding control, pregnancy, ovarian reserve; UAE had more repeat procedures	Both effective; myomectomy gives slightly better early QoL; but more invasive
Peng 2024 Meta-analysis[4]	**UAE vs myomectomy**	13 cohorts incl. 4 RCTs	UAE → fewer early complications, shorter stay, lower cost; myomectomy → slightly lower reintervention, sometimes greater volume reduction; long-term QoL similar	Confirms trade-off: UAE = less invasive; myomectomy = slightly lower reintervention
Bedggood 2025 Systematic Review[5]	**UAE vs myomectomy vs hysterectomy**	Systematic review of surgical options	**Hysterectomy:** most durable but invasive. **Myomectomy & UAE** both improve QoL/bleeding but differ in recovery & retreatment patterns	Supports individualized counseling: hysterectomy definitive; UAE & myomectomy both valid uterus-sparing options
****Sandberg 2018 & Davis 2018 (claims-based)**[6]**	**Reintervention after UAE, myomectomy, EA**	Large U.S. databases	**5-yr reintervention:** ≈12% myomectomy, 14–20% UAE, higher for EA; hysterectomy lowest	Uterus-sparing options carry some retreatment risk; UAE comparable to myomectomy in real-world data
Jeng 2020 (MRgHIFU vs UAE)[7]	**UAE vs MR-guided HIFU**	Meta-analysis	UAE had greater symptom reduction & lower retreatment than MRgHIFU in most studies	UAE generally more durable/effective; HIFU is non-invasive but less durable
Akhatova 2023 Fertility Review[8]	**UAE vs HIFU vs TFA (fertility outcomes)**	Systematic review of pregnancies after minimally invasive procedures	Live birth/miscarriage rates acceptable across modalities; UAE & HIFU compatible with pregnancy; limited TFA data	Fertility-sparing approaches feasible; evidence still less robust than myomectomy

(UAE) Uterine Artery Embolization
(HIFU) High-Intensity Focused Ultrasound
(TFA) Transcervical Fibroid Ablation

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UFE summary

Aspect	Effect of UFE (UAE)	Key Quantitative Findings	Clinical Interpretation
Menopause / Ovarian Reserve	UFE can impact ovarian reserve, especially in women ≥45, but most data show **no clear advancement of menopause in younger women**.	• Long-term follow-up found **no earlier menopause in women <45** after UFE vs controls.[1] • Older women (≥45) showed reductions in ovarian reserve similar to hysterectomy (FSH rise / earlier menopause).[2] • Meta-analysis: no consistent significant change in AMH/FSH overall, but study quality low.[3] • Some cohorts show small AMH declines; others show **no significant AMH change in women <40**.[4] • Recent 2024 series: UFE **did not compromise ovarian function overall**.[5]	In women **<40–45 yrs** with normal baseline reserve, UFE appears **unlikely to trigger premature menopause**, though data are heterogeneous. In **perimenopausal women**, UFE (like hysterectomy) may be associated with earlier menopause; this should be discussed during counseling.
Fertility / Pregnancy	**Pregnancy is possible after UFE**, but overall fertility outcomes are generally **less favorable than myomectomy** in current evidence, and data are heterogeneous.	• Systematic review: pregnancy after UFE associated with **lower live birth rates** than after myomectomy or ablation.[6–8] • Meta-analyses over ~20 years report **pregnancy rates ≈38–52%** in selected women attempting conception after UFE.[6,7] • Some newer analyses and expert reviews suggest that, in carefully selected patients, **pregnancy outcomes may approach myomectomy**, but high-quality RCT data are limited.[9]	UFE **should not be first-line** in women with strong fertility goals when myomectomy is feasible. It is, however, a **valid uterus-sparing option** for women with uncertain or secondary fertility desires, or who are poor surgical candidates—after explicit counseling about limited and mixed fertility data.
Heavy Menstrual Bleeding (HMB / AUB)	UFE is **highly effective** for heavy menstrual bleeding from fibroids, with durable improvement for most patients.	• Reviews and trials report **>80–90% improvement or resolution** of *HMB after UFE at 1–2 years.[10,13–15] • Ontario trial: significant symptom control plus **≈35% uterine** and **≈42% dominant fibroid** volume reduction.[13] • Early series show **≈90% improvement in menorrhagia** at 1 year with ~50–60% fibroid shrinkage.[14,15] • EMMY 10-year RCT: majority of women remained satisfied and free of heavy bleeding; **~65% avoided hysterectomy** long term.[12]	For fibroid-related *HMB, UFE provides **rapid and sustained bleeding control** for most patients and is a guideline-supported alternative to hysterectomy or myomectomy, especially in women prioritizing uterine preservation without strong fertility goals.

***Abnormal Uterine Bleeding = AUB**

***Heavy Menstrual Bleeding =HMB**

UFE summary (continued)

Aspect	Effect of UFE (UAE)	Key Quantitative Findings	Clinical Interpretation
Bulk Symptoms (Pressure, Bloating, Urinary Frequency)	UFE significantly reduces **bulk symptoms** by shrinking fibroids and uterus; benefit is generally durable.	• Typical average **fibroid volume reduction ≈50–60%**, with uterine volume reduction ≈40% at 6–12 months.[14–16] • Long-term MRI study: dominant fibroid volume reduction **≈80%**, uterine volume ≈37% at long-term follow-up.[16] • Prospective QoL studies show sustained relief of **pressure, pelvic pain, and urinary frequency** years after UFE.[17],[18] • Large registries and narrative reviews confirm durable bulk symptom relief in the majority.[18],[19]	UFE is very effective for **pressure-type symptoms** (pelvic heaviness, urinary frequency, bloating) and offers durable bulk reduction without surgery in most patients. In cases of extreme uterine size or suboptimal infarction, some patients may still require re-intervention (repeat UFE or surgery).

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