

Uterine Fibroids

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Uterine fibroids are sex-steroid responsive benign tumors primarily composed of smooth muscle cells and extracellular matrix that develop in the wall of the uterus.¹ They are one of the most common neoplasms in reproductive-aged women. Lifetime prevalence estimates in premenopausal women range from 40% to 89%, depending



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on the method of detection, the study population, and the ages of those studied. Fibroids can range in size from less than 1 cm to more than 20 cm. Although not all individuals with fibroids have symptoms, typical symptoms include abnormal uterine bleeding/heavy menstrual bleeding (AUB/HMB), pelvic bulk symptoms (protruding abdomen, pressure on bladder and bowels), pain, and reproductive morbidity (ie, infertility). Due to their high prevalence and associated symptoms, fibroids are the leading cause of hysterectomy in the US and account for up to \$34 billion annually in direct and indirect costs.²

Epidemiology and Health Disparities

A US study of a random sample of women screened with ultrasound found the estimated cumulative incidence of fibroids by age 50 years was approximately 70% in White women and greater than 80% in Black women.³ Various publications have reviewed the literature on risk factors for developing fibroids, but other than age, race is the risk factor most highly predictive of the presence of fibroids. Black women are more likely to develop fibroids and to do so at younger ages. They are also more likely to have larger-sized fibroids, a greater number of fibroids, and more severe symptoms. Black women who are affected by fibroids express more concern about treatments than White women and have higher rates of hysterectomy and myomectomy as fibroid treatment; of those who opt for hysterectomy, Black women are less likely to have surgeries that are minimally invasive, even when controlling for uterine size.⁴ Overall, factors associated with fibroid incidence and growth are poorly understood. There are no known effective prevention strategies, and reasons for existing racial disparities are neither well understood nor well studied.⁵

Diagnosis and Evaluation

Fibroids are often initially suspected based on a reported history of AUB/HMB or bulk symptoms and/or a pelvic examination in which the uterus is enlarged or has an irregular contour. Pelvic ultrasound is the first-line imaging modality, and it performs well for simple diagnosis of fibroids. Pelvic ultrasound can provide accurate information on uterine size and fibroid number, size, and location within the uterus when the uterus is small to moderate in size. If a submucosal fibroid is suspected, based on ultrasound, evaluation with saline-infused sonography or diagnostic hysteroscopy is recommended. For cases in which the uterus is markedly enlarged, there are a high number of fibroids, uterine sparing surgery is being considered, and/or blood flow to the fibroids is an important consideration, mag-

netic resonance imaging with and without contrast may be performed in follow-up to ultrasound for precise fibroid mapping.

Once identified, fibroids can be classified (using the International Federation of Gynecology and Obstetrics classification system) based on their location in the uterus and their relation to the uterine cavity. Imaging is the accepted means of diagnosis for fibroids and allows conservative treatment. Pathological assessment, however, is the criterion standard for diagnosis because of the low but present risk of a malignancy (leiomyosarcoma). According to an Agency for Healthcare Research and Quality review, the estimated prevalence of unexpected leiomyosarcoma at the time of surgery for presumed fibroids ranged from less than 1 to 13 per 10 000 surgeries.⁶ This risk increases with age, even after menopause, and in individuals who are Black.

Patients with clinically confirmed fibroids should be evaluated for AUB/HMB. Self-report of AUB/HMB is insufficient to identify those experiencing menorrhagia as patients may normalize their menstrual bleeding and develop coping actions to mediate the impact of HMB on daily living rather than seek care. Specific queries about fatigue, shortness of breath with exertion, palpitations, and quantity of menstrual hygiene products used are recommended. Patients with AUB/HMB who are older than 45 years and/or have risk factors for endometrial hyperplasia or cancer should undergo an endometrial biopsy. Given the prevalence of anemia and iron deficiency in reproductive-aged women, there should be a low threshold for checking hemoglobin, hematocrit, iron, and ferritin levels if AUB/HMB is suspected.

Management

Fibroid management includes expectant medical and surgical/procedural options. Treatment plans should be developed using shared decision-making and should be tailored to patient symptoms, preferences, comorbidities, and goals, specifically addressing the patient's desire for future pregnancy; current fertility challenges (if any); desire to keep the uterus (independent of pregnancy); receptivity to each intervention; and current symptoms (AUB, bulk, or pain).⁷ Expectant management may be appropriate for those who are asymptomatic with normal laboratory parameters, those trying to conceive, or those who have symptoms yet are not willing or ready to initiate treatment. Those electing expectant management should plan routine contacts with their clinician as symptoms can worsen or develop over time. For patients with symptomatic fibroids but who desire future pregnancy, uterine-sparing procedures are most commonly recommended as most of the medical treatments either impede or are contraindicated in pregnancy.

Medical Treatment

Medical treatments can be broadly classified as hormonal or nonhormonal. Most medical treatments address fibroid-related bleeding, anemia, and pain but not the fibroids themselves. Nonhormonal treatments include nonsteroidal anti-inflammatory drugs for pain and HMB (ie, ibuprofen, naproxen, mefenamic acid), and

tranexamic acid (an antifibrinolytic agent) and iron supplementation (oral or intravenous) to address AUB/HMB and iron deficiency anemia.⁸ Hormonal treatments include oral contraceptive pills, oral progestins, levonorgestrel-releasing intrauterine systems, and gonadotropin-releasing hormone (GnRH) analogues (agonists and antagonists), all of which address HMB by causing endometrial thinning. GnRH antagonists are a newer class of oral agents that are available with and without hormonal addback and are approved for use for up to 2 years. GnRH agonists can address both bleeding and bulk symptoms but due to their adverse effect profile, are not recommended for long-term use. If submucosal fibroids (fibroids that are wholly or partially in the endometrial cavity) are present in the setting of AUB/HMB, surgery should be discussed as a first-line option given their known association with AUB/HMB and the fact the procedure is typically outpatient and low risk.

Surgical/Procedural Management

Surgical management includes removal of the fibroids (myomectomy) or removal of the uterus (hysterectomy). Hysterectomy is the only definitive treatment for fibroids. However, removal of the uterus is not an option for patients who would like to retain childbearing capacity or who would prefer to retain their uterus for any other reason. Hysterectomy has also been found to be associated with a small but significantly increased risk of cardiovascular disease—independent of removal of the ovaries⁹—with an increased mortality risk among those who underwent hysterectomy before age 40.¹⁰ Approaches for the surgical procedures include abdominally or minimally invasive techniques (hysteroscopic [myomectomy only], vaginal, or laparoscopic, with or without robotic assistance). The selected approach depends on the patient's goals and symptoms, comorbidities, uterus and fibroid size, number of fibroids, location of the fibroids, and the patient's risk of possible malignancy (eg, leiomyosarcoma). Other treatment

procedures include uterine artery embolization, high-intensity ultrasound treatments, endometrial ablation, endometrial resection, and fibroid radiofrequency ablation. Uterine artery embolization decreases blood supply to the fibroids and uterus, resulting in fibroid shrinkage and decreased AUB/HMB. Endometrial ablation procedures involve destruction of endometrial tissue resulting in decreased AUB/HMB but do not impact the fibroids themselves. Endometrial resection involves hysteroscopic removal of the endometrium to decrease AUB/HMB. The only nonsurgical procedures approved for patients who desire future childbearing is high-intensity ultrasound treatment. There are little to no long-term data on effectiveness of myomectomy or other uterine-sparing treatments or on how effectiveness could vary based on baseline fibroid characteristics such as fibroid number and size. The treatments offered to a patient can be influenced by the experience of the clinician and patient clinical characteristics; however, the role of unconscious bias and the lack of culturally tailored discussion guides for patient-clinician interactions can impact the racial disparities observed in clinical care of patients with fibroids.

Conclusions

Uterine fibroids are the most common pelvic neoplasm of reproductive-aged women and a leading cause of hysterectomy. While not all fibroids cause symptoms requiring intervention, they are associated with high levels of morbidity for millions of women, significantly impacting quality of life. Notable racial disparities in incidence, prevalence, age of onset, treatment pathways, and treatment outcomes compound the negative impact for Black patients and highlight the critical need for research and clinical efforts to better understand and effectively address these inequities. To improve care for all individuals with fibroids, facilitating shared decision-making with culturally tailored patient-centered approaches is critical. Additional resources are listed in the online [Supplement](#).

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Published Online: April 10, 2024.
doi:10.1001/jama.2024.0447

Conflict of Interest Disclosures: Dr Marsh reported personal fees from Alnylam, Myovant Sciences, and Pfizer; and grants from the National Institutes of Health (NIH) outside the submitted work. Dr Wegienka reported grants from NIH outside the submitted work. No other disclosures were reported.

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