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Understanding Uterine Fibroids: Prevalence, Pathophysiology, and Management

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Abstract

The most common type of benign uterine tumors are uterine fibroids, sometimes referred to as leiomyomas or myomas. Clinical indicators include infertility, obstetric problems, mass symptoms, pelvic tumors, pelvic discomfort, and irregular bleeding. Because of their symptoms, more than 30% of women with leiomyomas might look for therapy. Modern surgical options are based on the operation, although the method of therapy is influenced by the patient's age and desire to avoid "radical" surgery, such as a hysterectomy, or to retain fertility. Uterine fibroids' location, size, and number determine the course of treatment. In the pathogenetic process, fibroids are made up of smooth muscle, fibroblasts, and a significant amount of fibrous extracellular matrix. The shape, location, pathophysiology, and clinical symptoms of fibroids vary significantly. A woman's race can affect her likelihood of developing fibroids; Black women are more likely than White women to get fibroids earlier in life and to have more severe symptoms.

Keywords: Uterine Fibroids, Obstetric Complications, Management, Hysterectomy, Leiomyomas

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Introduction

During women of reproductive age, uterine leiomyomas, also referred to as fibroids, are the most common benign tumors. At least half of these women don't show any symptoms. Their sizes vary from a few millimeters to thirty centimeters or more, and they might be many or individual. Around the age of fifty, about 70% of white women and more than 80% of black women have experienced at least one fibroid (Birolim et al., 2025).

However, they generate morbidity in some women and severely reduce quality of life. Non-menstrual pelvic discomfort, menstrual abnormalities including menorrhagia, dysmenorrhea, and intermenstrual hemorrhage, as well as pressure sensations like bloating, increased frequency of urination, and bowel issues, are among the symptoms that patients come with in medical environments (Natuhwera et al., 2025).Additionally, they may affect reproductive function, which may result in subfertility, early pregnancy loss, and later pregnancy problems include discomfort, premature labor, malpresentations, an increased risk of cesarean sections, and hemorrhaging after childbirth.

Many women find it ugly when their abdomens enlarge due to large fibroids. Bloating, pelvic discomfort from the mass impact, and irregular bleeding are the most common symptoms, occurring in 30% of women experiencing symptoms. The highest incidence of fibroids was found in Black women, who are also more likely to have larger, more symptomatic, and numerous fibroids at the time of diagnosis (Mitro et al., 2025).

The prevalence of clinically significant myomas is lower after menopause and higher throughout the perimenopausal years. Smooth muscle cells and extracellular matrix make up the majority of fibroids, which are benign, steroid-responsive tumors found in the uterine wall. These types of tumors are highly prevalent in women who have reached the stage of sexual maturity. Twenty to thirty percent of women, the majority of whom are between the ages of thirty and fifty, are affected by uterine fibroids, the most prevalent benign tumors of the female reproductive system. Uterine fibroids account for 29% of gynecological hospitalizations among females aged 15–54. Furthermore, 18–44% of hysterectomies performed on young women and 40–60% of all hysterectomies are caused by fibroids in the uterus (Balamurugan et al., 2025)

The cause of fibroids is the person's estrogen levels may have an impact on their growth. Estrogen and progesterone levels are higher in individuals who are fertile..Significant amounts of estrogen, particularly during pregnancy, are prone to exacerbate fibroids.

Reduced fibroids are linked to low estrogen levels. During or after menopause, this may occur. Additionally, some drugs, including as agonists or antagonists of the gonadotropin-releasing hormone (GnRH), may cause it.Fibroid development may also be influenced by genetic factors. For instance, your risk of getting fibroids is raised if you have a close family who has them. The occurrence of fibroids has also been linked to red meat, alcohol, and caffeine.

The location of the myoma may influence the chosen therapy, and the position of fibroids (myomas) within the uterus defines their associated symptoms. Fibroids are categorized into smaller groups based on their location and relationship to the uterine layers. Although numbered classification systems can also be used to characterize fibroids, their medical significance is contingent upon their ability to facilitate therapeutic interventions (Liu et al., 2025). Typically, fibroids begin interstitially, within the myometrial wall. Intramural myomas can be easily identified, as they compress the myometrium and subsequently create a pseudocapsule. While intramural myomas are the most common, they can become subserous or submucous if they migrate to another layer of the uterus.

Myomas extending into the uterus can be classified based on the depth of protrusion. This classification may be useful when considering possible therapies for the treatment of myomas, particularly in the context of minimally invasive techniques. Bimanual examination is rarely employed to detect these myomas. They are often associated with significant medical complications, resulting in endometrial distortion that can lead to symptoms such as infertility and menorrhagia. The term "pedunculated submucosal myomas" refers to myomas that extend into the uterus while remaining connected to the myometrium. A pedunculated submucosal myoma may become torsioned or expelled through the cervical os. Due to the typically inadequate blood supply of submucosal leiomyomas, necrosis and infection are frequent complications (Puttanavijarn et al., 2025).

Myomas extending into the uterus can be classified based on the depth of protrusion. This classification may be beneficial when considering minimally invasive therapeutic options. The following categories applicable to submucosal myomas, as defined by the European Society of Hysteroscopy, include: Type 0 myomas, which are pedunculated submucosal tumors that develop entirely within the uterus.

In contrast to the myometrium, the uterus contains more than half of the bulk of type I sessile myomas. According to the European Society of Hysteroscopy, submucosal myomas

are classified as follows: Type 0 myomas are pedunculated submucosal tumors that grow entirely within the uterus, while type I sessile myomas have more than half of their bulk within the uterine cavity, with less than half residing in the myometrium.

The peritoneum that covers the uterine corpus has subserosalmyomas just beneath it. It is possible for an asubserosalmyoma to become pedunculated, spread into the peritoneal cavity, and exert local pressure on the colon and bladder. Like submucosalmyomas, pedunculatedsubserosalmyomas can torsion, infarction, and necrosis. It is possible to classify subserosalmyomas that invade the peritoneal cavity as either parasitic or wide ligament. When parasitic myomas outgrow the uterine blood supply, they look for a vascular supply from another organ, such as the omentum(Wang et al., 2025). The development of an extrauterine blood supply may cause the myoma-uterus pedicle to weaken and even disintegrate.

In addition, there have been reports of bladder leiomyomas that are thought to have originated in the uterus. Wide ligament myomas might be interpreted for adnexal tumors because they stretch laterally from the uterus (Galea et al., 2025). It is achievable for a broad ligament myoma to separate from the uterus and spread across the peritoneum. By mapping their circulatory supply, it may be essential to differentiate these myomas from adnexal or retroperitoneal tumors.

Conculsion

Immediately beneath the peritoneum covering the uterine corpus are subserosalmyomas. An asubserosalmyoma might become pedunculated, expand into the peritoneal space, and compress against the bladder and colon locally.Identical to submucosalmyomas, pedunculatedsubserosalmyomas are susceptible to necrosis, infarction, and torsion. The pathophysiology, location, shape, and clinical symptoms of fibroids vary greatly. A woman's race may have an impact on her likelihood of developing fibroids; Black women are more likely than White women to get fibroids earlier in life and to have more severe symptoms.

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