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Humanity

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Making Your Tomorrow Healthier

FIBROID FOCUS

Dr. B Menaka

MBBS, DNB

Consultant Obstetrics & Gynecologist

UTERINE FIBROIDS

INTRODUCTION

- Fibroids also known as leiomyomas or myomas) are most common benign (not cancerous) tumors, or growths, in women of childbearing age.
- They are monoclonal tumors of the smooth muscle cells of the myometrium and contain large aggregations of extracellular matrix composed of collagen, elastin, fibronectin, and proteoglycan .
- Leiomyomas occur in 50-60% of women, rising to 70% by the age of 50
- Clinical presentations include abnormal bleeding, pelvic masses, pelvic pain, infertility and obstetric complications.

ETIOLOGY

Although the precise causes of fibroids are unknown, advances have been made in understanding the molecular biology of these benign tumors and their hormonal, genetic and growth factors.

Genetics- Fibroids are monoclonal and are made up of concentric smooth muscle fibers and fibrous connective tissue surrounded by a vascular pseudocapsule.

Approximately 40% to 50% of fibroids display non random and tumor-specific chromosome rearrangements involving mostly deletions, duplications, and translocations of chromosomes 6, 7, 12 and 14.

Hormones-Estrogen and progesterone appear to promote the development of fibroids.

Transforming growth factor- β (TGF- β), basic fibroblast growth factor (bFGF), vascular endothelial growth factor (VEGF), platelet-derived growth factor (PDGF), and insulin like

growth factor (IGF) modulate cellular growth, proliferation and differentiation.

Fibroids are rarely observed before puberty, are most prevalent during the reproductive years, and regress after menopause. Factors that increase overall lifetime exposure to estrogen, such as obesity and early menarche, increase the incidence.

Decreased exposure to estrogen found with smoking, exercise, and increased parity is protective.

RISK FACTORS

Ethnicity-African American women have a 2.9 times greater risk of having fibroids than white women.

Age - The incidence of fibroids increases with age.

Early menarche-Menarche at an early age increases the risk of developing fibroids.

First-degree relatives of women with fibroids have a 2.5 times increased risk of developing fibroids.

Parity-Pregnancy has been found to have a protective effect on the development of uterine fibroids, but the mechanism remains unclear.

It has been suggested that during post-partum uterine remodeling, small lesions may be subject to selective apoptosis.

Furthermore fibroid tissue may be highly susceptible to ischemia during both uterine remodeling and parturition.

CLASSIFICATION

All of the classifications take into account the degree of intramural extension and/or uterine cavity distortion.

The FIGO fibroid classification system categorizes into submucous, Intramural ,subserosal, and transmural fibroids.

Type 0- intracavitary (e.g., a pedunculated submucosal fibroid entirely within the cavity)

Type 1 - less than 50% of the fibroid diameter within the myometrium

Type 2 - 50% or more of the fibroid diameter within the myometrium

Type 3 - abuts the endometrium without any intracavitary component

Type 4 - intramural and entirely within the myometrium, without extension to either the endometrial surface or to the serosa

Type 5 - subserosal at least 50% intramural

Type 6 - subserosal less than 50% intramural

Type 7 - subserosal attached to the serosa by a stalk

Type 8 - No involvement of the myometrium; includes cervical lesions, those in the round or broad ligaments without direct attachment to the uterus, and "parasitic" fibroids

COMPLICATIONS

The complications include menstrual irregularities, urinary symptoms due to large fibroids, acute torsion of subserosal pedunculated leiomyomata and pregnancy complications like red degeneration, miscarriage and preterm birth

Fertility: The presence of submucous fibroids decreases fertility rates and removing them increases fertility rates.

DIAGNOSIS AND MANAGEMENT OF FIBROID UTERUS

The diagnosis of uterine fibroids involves a combination of clinical evaluation and imaging techniques to accurately identify and characterize fibroids.

Clinical Evaluation

- Fibroids are often detected incidentally during routine pelvic examination and ultrasound

IMAGING MODALITIES

- Ultrasound: This is the primary imaging technique for diagnosing fibroids. Transabdominal or transvaginal ultrasound scans provide images of the uterus, allowing identification of the number, size, and location of fibroids.
- Saline infusion sonography (sonohysterography): Infusing saline into the uterine cavity before ultrasound can improve visualization of submucosal fibroids.
- Magnetic Resonance Imaging (MRI): MRI is a superior diagnostic modality in the diagnosis of fibroid and hence is more detailed and accurate than ultrasound, especially for mapping fibroids prior to surgery or for complex cases.

Hysteroscopy: to identify submucosal fibroids.

MANAGEMENT

NOT ALL FIBROIDS NEED TREATMENT/ INTERVENTIONS.

1. Assessment of Symptoms and Indications

- Management depends on symptoms such as heavy menstrual bleeding, pelvic pain, pressure symptoms, and impact on fertility.

2. Individualized Approach

- Management should be individualized based on size, number, and location of fibroids, the age of the patient, reproductive goals, and the desire for uterine preservation.

3. Expectant Management

- Asymptomatic fibroids often require only observation and periodic follow-up, especially in perimenopausal patients.

4. Medical Therapy

- Options include NSAIDs (for pain), tranexamic acid (for heavy bleeding), Combined oral contraceptives, selective progesterone receptor modulators (SPRMs), GnRH analogues (GnRha), GnRH antagonists, Oral & injectable progestones for temporary symptom control and fibroid shrinkage.

5. Levonorgestrel Intrauterine System

- Can reduce heavy menstrual bleeding in selected patients, but do not reduce fibroid volume.

6. Minimally Invasive Procedures

- Uterine artery embolization (UAE), High intensity focused ultrasound (HIFU), MRI-guided focused ultrasound (MRGFUS), and radiofrequency ablation are alternatives for patients who desire uterine preservation and have symptomatic fibroids.

7. Surgical Management

- Myomectomy is preferred for women who wish to retain fertility
- Hysterectomy is definitive treatment for symptomatic, multiple and large fibroids. It can be done by abdominal (laparoscopic or open) or vaginal route.

8. Preoperative Medical Preparation

- Use of GnRH agonists or antagonists preoperatively can reduce fibroid size, operative time, and blood loss, but carries risks of hypoestrogenic side effects and bone loss.

9. Consideration for Fertility

- Submucosal fibroids distorting the uterine cavity warrant hysteroscopic myomectomy in selected cases to improve fertility outcomes.

These approaches reflect contemporary practices, combining both medical and surgical options emphasizing individualized care and patient preferences. and minimally invasive interventions.

ROLE OF HISTOPATHOLOGY

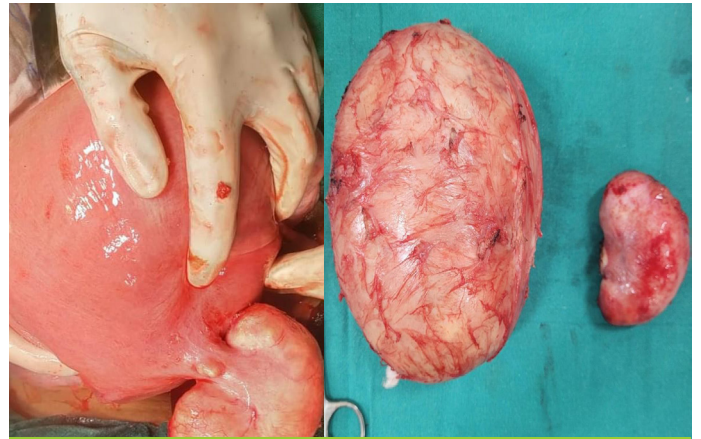
Histopathology plays a crucial role by providing definitive microscopic evaluation and distinguishing benign leiomyomas from other pathological entities, including malignant or atypical tumors.

Incidence of malignancy in fibroid uterus is <1%

- Gold standard for differentiating benign fibroids from malignant conditions such as leiomyosarcoma and smooth muscle tumors of uncertain malignant potential (STUMP), which mimic fibroids on clinical and radiological grounds.



A. Degenerated Fibroid



E. Subserosal & Pedunculated Fibroids (Myomectomy)



B. Leiomyoma in MRKH Syndrome



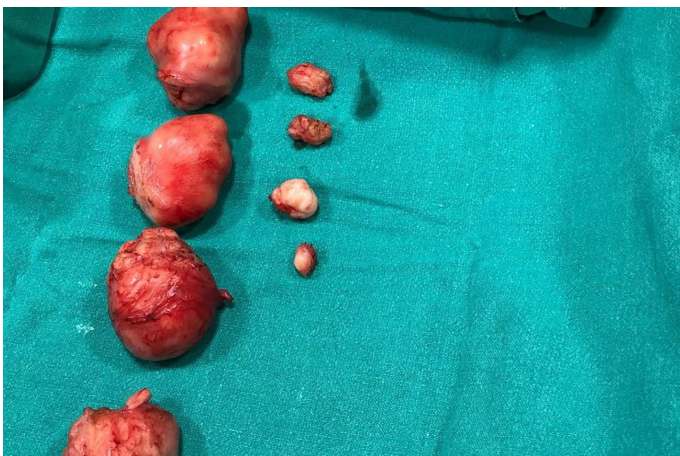
F. Calcified Subserosal Fibroid



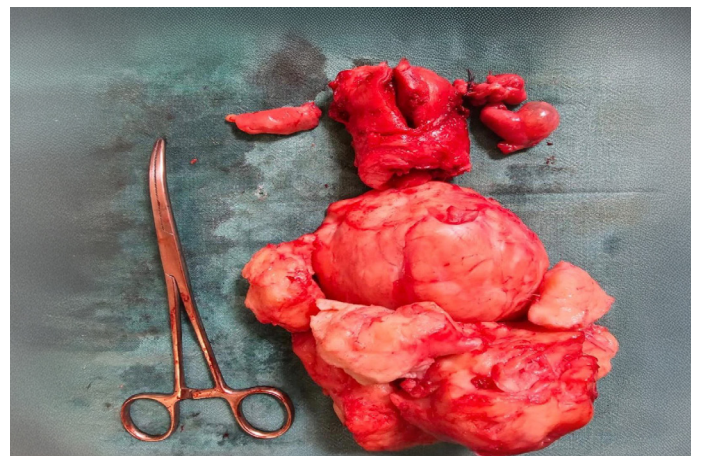
C. Broad Ligament Fibroid



G. Vaginal Fibroid



D. Multiple Fibroids



H. Cervical Fibroid

MYTHS AND FACTS

Myth: Every fibroid needs surgery.

Fact: Watchful waiting is safe for mild symptoms; many women never need intervention.

Myth: Oral contraceptives cause fibroids or make them grow.

Fact: No definite relationship between oral contraceptives and fibroid development or growth.

Myth: Fibroids run randomly in families.

Fact: First-degree relatives have 2.5× increased risk - genetic link exists.

Myth: MRI is always needed to diagnose fibroids.

Fact: Ultrasound is the most available and cost-effective tool; MRI is for complex mapping.

Myth: All fibroids reduce fertility.

Fact: Only submucosal fibroids decrease fertility; subserosal don't affect, intramural minimal effect.

Myth: Fibroids always grow during pregnancy.

Fact: Most fibroids do not increase in size during pregnancy; some shrink postpartum.

Myth: Fibroids worsen after menopause.

Fact: Fibroids shrink and symptoms improve after menopause — watchful waiting advised

Myth: Hysterectomy is the only definitive treatment.

Fact: Myomectomy is a safe alternative, even for large fibroids, for uterus preservation.

Myth: Fibroid regrowth means failure of surgery.

Fact: New fibroids can form later due to genetic susceptibility, not surgical failure.

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