***Dr henan Dh SKHEEL***

*Benign diseases of the cervix and body* ***of the uterus***

**Benign diseases of the cervix and body of the uterus** are common problems presenting in almost every gynecological outpatient clinic. The most common myometrial problem is uterine fibroids. Adenomyosis and endometriosis is dealt with

In another lecture .Benign diseases of the uterus may be classified in terms of the tissue of origin:

the uterine cervix, the endometrium and the myometrium.

1. Cervical ectropion: Is a condition in which the central (endocervical) columnar epithelium protrudes out through the external os of the cervix and onto the vaginal portion of the cervix, undergoes squamous metaplasia, and transforms to stratified squamous epithelium .It can present with an excessive clear odorless mucus-type discharge. A cervical ectropion is commonly and erroneously named ‘cervical erosionAn ectropion commonly develops under the influence of the three: puberty, pill and pregnancy. Usually no treatment is indicated for clinically asymptomatic cervical ectropions it can be treated by discontinuing oral contraceptives, or by using ablation If symptomatic
2. Cervical stenosis means that the opening in the cervix (the endocervical canal) is narrower than is typical. In some cases, the endocervical canal may be completely closed.

Cervical stenosis may be present from birth or may be caused by other factors:

• Surgical procedures performed on the cervix such as colposcopy, cone biopsy, or a cryosurgery procedure.

• Trauma to the cervix.

• Repeated vaginal infections.

• Atrophy of the cervix after menopause

• Cervical cancer

• Radiation

•The recent increased use of endometrial ablation devices has seen a higher incidence of cervical stenosis, particularly where the internal cervical os (isthmus) has been ablated.

It causes cyclical dysmenorrheal with no associated menstrual bleeding.

Treatment of cervical stenosis involves opening or widening the cervical canal.

Endometrium

* **Endometrial polyp**

An endometrial polyp or uterine polyp is a mass in the inner lining of the uterus.They may have a large flat base (sessile) or be attached to the uterus by an elongated pedicle (pedunculated). Pedunculated polyps are more common than sessile ones. They range in size from a few millimeters to several centimeters. If pedunculated, they can protrude through the cervix into the vagina. Small blood vessels may be present, particularly in large polyps

No definitive cause of endometrial polyps is known, but they appear to be affected by hormone levels and grow in response to circulating estrogen.

They often cause no symptoms .Endometrial polyps can be detected by vaginal ultrasound (sonohysterography), hysteroscopy and dilation and curettage. Detection by ultrasonography can be difficult, particularly when there is endometrial hyperplasia (excessive thickening of the endometrium).

Polyps can be surgically removed using curettage with or without hysteroscopy. When curettage is performed without hysteroscopy, polyps may be missed. To reduce this risk, the uterus can be first explored using grasping forceps at the beginning of the curettage procedure

* Asherman's syndrome

Is a condition characterized by adhesions and/or fibrosis of the endometrium most often associated with dilation and curettage of the intrauterine cavity.

A number of other terms have been used to describe the condition and related conditions including:

* intrauterine adhesions (IUA),
* uterine/cervical atresia, traumatic uterine atrophy,
* sclerotic endometrium,
* endometrial sclerosis, and

intrauterine synechiae

Trauma to the basal layer, typically after a dilation and curettage (D&C) performed after a miscarriage, or delivery, or for medical abortion, can lead to the development of intrauterine scars resulting in adhesions that can obliterate the cavity to varying degrees. In the extreme, the whole cavity can be scarred and occluded. Even with relatively few scars, the endometrium may fail to respond to estrogen

The history of a pregnancy event followed by a D&C leading to secondary amenorrhea or hypomenorrhea is typical. Hysteroscopy is the gold standard for diagnosis.

Ultrasound is not a reliable method of diagnosing Asherman's Syndrome.

Fertility may sometimes be restored by removal of adhesions, depending on the severity of the initial trauma and other individual patient factors. Operative hysteroscopy is used during adhesion dissection (adhesiolysis).

As IUA frequently reform after surgery, techniques have been developed to prevent recurrence of adhesions. By using mechanical barriers (Foley catheter, saline-filled Cook Medical Balloon Uterine Stent, IUCD) and gel barriers (Seprafilm, Spraygel, autocrosslinked hyaluronic acid gel Hyalobarrier) to maintain opposing walls apart during healing.

**Benign diseases of the cervix and body of the uterus**

**Classification**

* **Benign tumors**
* Uterine muscles (myometrium)
* Endometrial tissues
* **Malignant tumors**
* Uterine muscle
* Endometrial tissues

**Benign tumors**

* **Leiomyoma (The most common)**
* **Adenomyosis**
* **Endometrial Polyps**

**Leiomyoma of the Uterus**

* **Also known as:**
* **Uterine Leiomyomata**
* **Fibromyoma,**
* **Fibroid (most commonly used)**
* **Myoma**

A leiomyoma is a benign tumor composed mainly of **smooth muscle cells** but containing varying amounts of fibrous connective tissue.

The tumor is well circumscribed **but not encapsulated**

**Leiomyomata are the most common tumors of the uterus and female pelvis**

It is well recognized that the **incidence** is much **higher in black women** than in white some studies found the incidence among black women to be **three** times that among white women.

There is no explanation for this racial difference.

Leiomyomata also are **larger** and occur at a **younger age in black women**.

However, they are uncommon in any women before 20 years of age.

Patients with uterine leiomyomata often have a **positive family history** of uterine leiomyomata. This suggests the presence of a **gene encoding** for their development

**Pathology**

Leiomyomas are **usually multiple**, discrete, and either spherical or irregularly lobulated.

Their **pseudocapsule usually clearly demarcates** them from the surrounding myometrium.

They can be often **easily and cleanly enucleated** from the surrounding myometrial tissue.

On gross examination in transverse section, they are buff-colored, rounded, smooth, and usually firm. Generally, **they are lighter** in color than the myometrium .

When a fresh specimen is sectioned, the tumor surface projects above the surface of the surrounding musculature, revealing the pseudocapsule.

More common in **nulliparous or women of low parity**

**Classification**

Uterine leiomyomas **originate in the myometrium** and are classified by **anatomic location**

These anatomical locations has a **tremendous effects to the clinical presentation, treatment modalities as well as future pregnancy outcomes**

**Submucous leiomyomas**

Submucous leiomyomas lie **just beneath the endometrium** and tend to compress it as they grow toward the uterine lumen.

Their impact on the endometrium and its blood supply most often leads to **irregular uterine bleeding**.

These Leiomyomata may develop pedicles and protrude fully into the uterine cavity.

**Occasionally they pass through the cervical canal** while still attached within the corpus by a long stalk. When this occurs, leiomyomata are subject to torsion or infection

**2. Intramural**Intramural or interstitial leiomyomas **lie within the uterine wall**, giving it a variable consistency**These are the most common type of leiomyomata in women**

**3. Subserous**

Subserous or **subperitoneal leiomyomata** may **lie just at the serosal surface of the uterus or may bulge outward from the myometrium**. The subserous leiomyomata may become pedunculated.

If such a tumor acquires an extrauterine blood supply from omental vessels, its pedicle may atrophy and resorb; the tumor is then said to be *parasitic.* Subserous tumors arising laterally may extend between the 2 peritoneal layers of the broad ligament to become intraligamentary leiomyomas. This may lead to compromise of the ureter and/or pelvic blood supply

**Aetiology**

Doctors don't know the cause of uterine fibroids, but research and clinical experience point to these factors:

**Genetic alterations.** Many fibroids contain alterations in genes that are different from those in normal uterine muscle cells.

**Hormones.** Estrogen and progesterone, two hormones that stimulate development of the uterine lining during each menstrual cycle in preparation for pregnancy, appear to promote the growth of fibroids. Fibroids contain more estrogen and progesterone receptors than do normal uterine muscle cells.

**Other chemicals.** Substances that help the body maintain tissues, such as insulin-like growth factor, may affect fibroid growth

**Risk factors**

Here are few known risk factors for uterine fibroids, other than being a woman of reproductive age. Other factors that can have an impact on fibroid development include:

**Heredity.** If your mother or sister had fibroids, you're at increased risk of also developing them.

**Race.** Black women are more likely to have fibroids than are women of other racial groups. In addition, black women have fibroids at younger ages, and they're also likely to have more or larger fibroids.

**Pregnancy and childbirth.** Pregnancy and childbirth seem to have a protective effect and may decrease your risk of developing uterine fibroids. here are few known risk factors for uterine fibroids, other than being a woman of reproductive age. Other factors that can have an impact on fibroid development include:

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**Clinical Findings**

Symptoms are present in only 35–50% of patients with leiomyomas. Thus, **most leiomyomata do not produce symptoms**, and even very large ones may remain undetected, particularly in obese patients.

Symptoms from leiomyomas depend on their

**location,size, and whether the patient is pregnant.**

**Symptoms**

* **Abnormal Uterine Bleeding**
* Abnormal uterine bleeding is the most common and most important clinical manifestation of leiomyomas, being present in up to 30% of patients.
* Most commonly, the patient has prolonged, heavy menses (**menorrhagia**), premenstrual spotting, or prolonged light staining following menses; however, any type of abnormal bleeding is possible.
* Minor degrees of **metrorrhagia** (Intermenstual bleeding) may be present.

**2-Pain**

* Leiomyomata may cause pain when vascular compromise occurs. Thus, pain may result from **degeneration** associated with **vascular occlusion**, **infection**, **torsion** of a pedunculated tumor, or **myometrial contractions** to expel a subserous myoma from the uterine cavity.
* The pain associated with infarction from torsion or red degeneration can be excruciating and produce a clinical picture consistent with acute abdomen.
* Large tumors may produce a sensation of **heaviness** **or fullness in the pelvic area**, a **feeling of a mass in the pelvis**, or a **feeling of a mass palpable through the abdominal wall**.
* **Pain with intercourse may result**, depending on the position of the tumors and the pressure they exert on the vaginal walls.

**3-Pressure Effects**

* Intramural or intraligamentous leiomyomata may distort or obstruct other organs. Parasitic tumors may cause intestinal obstruction if they are large or involve omentum or bowel.
* Cervical tumors may cause serosanguineous vaginal discharge, vaginal bleeding, **dyspareunia, and infertility.**
* Large tumors may fill the true pelvis and displace or **compress the ureters, bladder, or rectum**.

Compression of surrounding structures may result in urinary symptoms or **hydroureter**.

* Large tumors may cause **pelvic venous congestion** and **lower extremity edema** or **constipation**.
* Rarely, a posterior fundal leiomyoma carries the uterus into extreme retroflexion, distorting the bladder base and causing **urinary retention.**

**4-Infertility**

The relationship between fibroids and infertility remains uncertain. Between 27% and 40% of women with multiple leiomyomas are reported to be infertile, but other causes of infertility are present in a majority of cases.

When fibroids are entirely or mostly endocavitary, a strong rationale supports the use of surgery to improve fertility.

**5-Spontaneous Abortion**

The incidence of spontaneous abortion secondary to leiomyoma is unknown but is possibly 2 times the incidence in normal pregnant women.

For example, the incidence of spontaneous abortion prior to myomectomy is approximately 40% and following myomectomy is approximately 20%.

**Examination**

Most myomas are discovered by routine **bimanual examination of the uterus** or sometimes by **palpation of the lower abdomen.**

The diagnosis is obvious when the normal uterine contour is distorted by 1 or more smooth, spherical, firm masses, but often it is difficult to be absolutely certain that such masses are part of the uterus

**Imaging studies**

A **pelvic ultrasound** generally assists in establishing the diagnosis, as does excluding pregnancy as a cause of uterine enlargement. **Magnetic resonance imaging (MRI)** may better delineate the size and position of myomas but is not always clinically necessary.

Pelvic ultrasound examinations are useful in confirming the diagnosis of leiomyomata. Although ultrasound should never be a substitute for a thorough pelvic examination, it can be extremely helpful in identifying leiomyomata, detailing the cause of other pelvic masses, and identifying pregnancy

Large leiomyomata typically appear as soft tissue masses on **x-ray** films of the lower abdomen and pelvis; however, attention is sometimes drawn to the tumors by calcifications.

**Hysterosalpingography** may be useful in detailing an **intrauterine leiomyoma** in the infertile patient.

**Intravenous urography** may be useful in the work-up of any pelvic mass because it frequently reveals **ureteral** deviation or compression and identifies urinary anomalies. MRI can also be used to evaluate the urinary tract and is highly accurate in depicting the number, size, and location of leiomyomata

**Laboratory Findings**

**Anemia** is a common consequence of leiomyomata due to excessive uterine bleeding and depletion of iron reserves.

However, occasional patients display erythrocytosis.

Hematocrit levels return to normal following removal of the uterus, and elevated erythropoietin levels have been reported in such cases.

Moreover, the recognized association of **polycythemia and renal disease** has led to speculation that leiomyomas compress the ureters, causing ureteral back pressure and thus inducing renal erythropoietin production.

**Leukocytosis**, **fever**, and an **elevated sedimentation rate** may be present with acute degeneration or infection.

**Differential Diagnosis**

* **Any pelvic mass, including pregnancy, may be mistaken for a leiomyoma**
* **ovarian carcinoma,**
* **Adenomyosis**
* **tubo-ovarian abscess,**
* **Endometriosis**
* **Ovarian cysts or neoplasia**
* **tubo-ovarian inflammatory or neoplastic masses**

Treatment

Asymptomatic leiomyomas are usually managed expectantly.

Choice of treatment depends on the patient's s**ymptoms**, **age,** **parity**, **pregnancy status**, reproductive plans, and general health, as well as the size and location of the leiomyomas. Other causes of pelvic masses must be ruled out.

**1-Watchful waiting**

* Many women with uterine fibroids experience no signs or symptoms.
* Watchful waiting (expectant management) could be the best option.
* Fibroids aren't cancerous.
* They rarely interfere with pregnancy.
* They usually grow slowly — or not at all — and tend to shrink after menopause when levels of reproductive hormones drop.

**2-Medications**

Medications for uterine fibroids target hormones that regulate your menstrual cycle, treating symptoms such as heavy menstrual bleeding and pelvic pressure. They don't eliminate fibroids, but may shrink them. Medications include

**Gonadotropin-releasing hormone (GnRH) agonists.**

Medications called GnRH agonists (Lupron, Synarel, others) treat fibroids by causing natural estrogen and progesterone levels to decrease, putting patient into a temporary postmenopausal state. As a result, menstruation stops, fibroids shrink and anemia often improves.

doctor may prescribe a GnRH agonist to shrink the size of fibroids before a planned surgery. Many women have significant hot flashes while using GnRH agonists.

**Progestin-releasing intrauterine device (IUD).**

A progestin-releasing IUD can relieve heavy bleeding and pain caused by fibroids. A progestin-releasing IUD provides symptom relief only and doesn't shrink fibroids or make them disappear.

**Androgens.**

Danazol, a synthetic drug similar to testosterone, may effectively stop menstruation, correct anemia and even shrink fibroid tumors and reduce uterine size.

However, this drug is rarely used to treat fibroids.

Unpleasant side effects, such as weight gain, dysphoria (feeling depressed, anxious or uneasy), acne, headaches, unwanted hair growth and a deeper voice, make many women reluctant to take this drug

**Other medications**

Oral contraceptives or progestins can help control menstrual bleeding, but they don't reduce fibroid size.

Nonsteroidal anti-inflammatory drugs (NSAIDs), which are not hormonal medications, may be effective in relieving pain related to fibroids, but they don't reduce bleeding caused by fibroids.

**3-Surgical Measures**

**Surgery is the mainstay of treatment of leiomyomas.**

Before definitive surgery, necessary blood volume should be replenished, and other measures such as administration of prophylactic antibiotics

Types of surgery

**Myomectomy**

**Hysterectomy**

**Myomectomy**

**Myomectomy** is an option for the symptomatic patient who wishes to preserve fertility or conserve the uterus.

The disadvantage is the significant risk for future leiomyomas.

Five years post myomectomy, 50–60% of patients will have new myomas detected on ultrasound, and up to 25% will require a second major surgery.

**Hysterectomy**

* Leiomyomas are the most common indication for hysterectomy,
* Hysterectomy eliminates the symptoms and recurrence.
* Uteri with small myomas may be removed by total vaginal hysterectomy, particularly if vaginal relaxation demands repair of cystocele, rectocele, or enterocele.
* When numerous large tumors (especially intraligamentary myomas) are found, total abdominal hysterectomy is indicated.
* Ovaries generally are preserved in premenopausal women. There is no consensus about the virtue of conserving or removing ovaries in postmenopausal women.

**Other treatment modalities**

Uterine Fibroid Embolization

Endometrial Ablation

Myolysis

Laparoscopic Uterine Artery Occlusion

Magnetic Resonance-Guided Focused Ultrasound Surgery

**Secondary Changes of myomas**

**1. Atrophic**

Signs and symptoms regress or disappear as tumor size decreases at menopause or after pregnancy.

**2. Hyaline**

Mature or "old" leiomyomas are white but contain yellow, soft, and often gelatinous areas of hyaline change. These tumors are usually asymptomatic.

**3. Cystic**

Liquefaction follows extreme hyalinization, and physical stress may cause sudden evacuation of fluid contents into the uterus, the peritoneal cavity, or the retroperitoneal space.

**4. Calcific (Calcareous)**

Subserous leiomyomata are most commonly affected by circulatory deprivation, which causes precipitation of calcium carbonate and phosphate within the tumor.

**5. Septic**

Circulatory inadequacy may cause necrosis of the central portion of the tumor followed by infection. Acute pain, tenderness, and fever result.

**. Carneous (Red)**

Venous thrombosis and congestion with interstitial hemorrhage are responsible for the color of a leiomyoma undergoing red degeneration . During pregnancy, when carneous degeneration is most common, edema and hypertrophy of the myometrium occur.

The physiologic changes in the leiomyoma are not the same as in the myometrium; the resultant anatomic discrepancy impedes the blood supply, resulting in aseptic degeneration and infarction. The process is usually accompanied by pain but is self-limited. Potential complications of degeneration in pregnancy include preterm labor and, rarely, initiation of disseminated intravascular coagulation.

* **7. ?Malignant change**
* **Rarely sarcomatous degeneration also occurs (0.1%)**

**Fibroid and Pregnancy**

1. ***Effects of pregnancy on fibroid***
2. *Red degeneration*
3. *Increased size in 20 to 30% cases* .Most of fibroids do not increase significantly in pregnancy
4. *Torsion of a pedunculated fibroid, may cause gradual or acute symptoms of pain and tenderness.*
5. *Infection during puerperium*
6. *Expulsion*
7. *Necrosis*

Prevalence of fibroids in pregnancy is 18% based on 1st trimester US

***Red degeneration occurring during pregnancy:***

***5% of pregnant women with fibroids, undergo red degeneration***

***DDX.***

1. ***Appendicitis***
2. ***twisted ovarian cyst***
3. ***placental abruption***
4. ***ureteral stone***
5. ***pyelonephritis***

***Symptoms and sighs***

1. ***sudden onset of focal pain and tenderness on palpation localized to an area of the uterus***
2. ***low-grade fever***
3. ***vomiting***

***Investigations:***

* ***leukocytosis***
* ***raised ESR***
* ***Ultrasound: aid in discrimination***

***Treatment : is treated conservatively***

* ***Bed rest and observation***
* ***Analgesia to relieve pain.***
* ***Sedatives***
* ***Antibiotics: If required***
* ***Most often, acut symptoms subsid within a 3-10 days, but inflammation may stimulate labor.***

1. ***Surgery is rarely necessary during pregnancy.***

. ***Effect of the fibroid on the pregnancy:***

1. ***Infertility***
2. ***Less successful results with in vitro fertilization in patients who have large submucosal fibroids.***
3. ***ectopic pregnancy***
4. ***Abortion and premature labor:***
5. ***Malposition and malpresentation of the fetus***
6. ***Obstructed labour***
7. ***Cesarean section***
8. ***placental abruption***
9. ***Red degeneration***
10. ***Torsion of a pedunculated fibroid.***
11. ***Postpartum hemorrhage, inertia of uterus &delayed involution.***
12. ***Myomectomy not done during pregnancy because bleeding may be profuse, resulting in hysterectomy.***
13. ***Rupture of myomectomy scar during pregnancy***