

Fibroid Uterus - An Overview and Case Study

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Abstract: Uterine fibroids (leiomyomas) are a gynaecological disorder that requires surgery in presence of symptoms. They are benign smooth muscle tumours which arises in uterus. The development of fibroid depends upon hormones of ovaries because their growth will be slow during reproductive years and undergo atrophy after attaining menopause. Leiomyomas mostly, occurs in the body of uterus and in fundus; Only 3% occurs in cervix. In every year about 60% of women who are above the age of 50 will have atleast one uterine fibroid.

Keywords: Fibroid uterus, Myomectomy, Gonadotrophic releasing hormone, Oestrogen, subserosal hypoechoic lesions.

1. Introduction

Uterine fibroids (myomas) are the gynaecological disorder, the fibroids are myometrium smooth muscle tumours that contain significant quantity of extracellular matrix, including collagen, fibronectin and proteoglycan. These tumours typically have rounded form. They are typically located within the uterine cavity. Some uterine tumours, referred to us as subserosal fibroid, are located under the serosa, a membrane layer that surrounds the uterus. Submucosal fibroid tumours are certain tumours that are seen on the inside side of the uterus, just beneath the inner lining of the uterine cavity. Some tumours, referred to as intramural fibroids, are found inside the uterine cavities musculoskeletal wall.

Etiology:

Fibroids is complicated and not yet fully understood. Fibroids rarely develop before menarche and they disappear after menopause, which shows that if that oestrogen and progesterone are necessary for their formation.

Incidence:

- The incidence of fibroid uterus is about 3% in Indian women.
- Fibroids are more common in nulliparous or postmenopausal women have a secondary infertility issue.
- Due to increased oestrogen from adipose aromatase activity, leiomyoma is more common in obese women and those who have used oral contraceptives for a prolonged period of time have a higher incidence.
- The most important element is family history, as there is a frequent history of fibroids forming in women from the same family. Leiomyomas will be diagnosed in 20% - 40% of women. Compared to white women, the black women (3: 1) have a higher prevalence of this illness (9: 1). During the reproductive years, fibroid respond to oestrogen stimulation due to oestrogen receptors on them.

Types of Fibroids:

There are three common types of fibroids. They are

- 1) Intramural or interstitial fibroid (75%): Growth of fibroid occurs in myometrium (muscle layer of uterus)
- 2) Subperitoneal or subserous fibroid (50%): They are intramural fibroids that grow outward towards peritoneum cavity. These tumours are covered partially or completely by peritoneum. In presence of pedicle, they are known as pedunculated submucosal fibroid.
- 3) Submucosal fibroid (5%): The tumour extends beneath the endometrium and into the uterine cavity. The uterine cavity may become regular and deformed as a result ^[1]_[4].

Pathology:

The expansion of connective tissues and smooth muscle in the uterus results in fibroids. Growth is influenced by levels of Oestrogen and progesterone. An increase in oestrogen level might result in a fibroid. Narrowing of the isthmic section of the fallopian tube and submucosal fibroids interference are two possible causes of infertility. Rarely a uterine fibroid may develop malignantly into a sarcoma ^[2]_[4].

Risk Factors:

- Fibroid growth is accompanied by risk factors, Both changeable and immutable.
- Age, Race,
- Endogenous and exogenous hormonal variables,
- Obesity,
- Uterine infection and lifestyle (Diet, use of coffee and alcohol, exercise, stress and smoking) are among them ^[3].

Medical Management:

Treatment should be individualized. There are some factors that can help with the decision:

- Asymptomatic fibroid: no treatment.
- Symptomatic fibroids are surgically accessible with desired conception: myomectomy.
- Uterine artery embolization: not surgically accessible symptomatic fibroid.

Non - Surgical Treatment:**Hormonal Nature Of Drugs:**

- Gonadotropin releasing hormone analogues – inhibits the production of oestrogen.
- Progesterone, raloxifene and aromatase inhibitor – decreases the size of fibroid.
- Danazol – reduces bleeding in women in fibroid.

Surgical Treatment:

- 1) **Hysterectomy:** removal of uterus.
- 2) **Myomectomy:** removal of fibroid.
- 3) Myomectomy is done in three different ways:
 - a) **Hysteroscopic myomectomy** - Resectoscope, an endoscopic tool with a built - in loop that may employ high frequency electrical energy to cut the tissue under either local or general anaesthesia, is used to remove a fibrous growth.
 - b) **Laparoscopic myomectomy** – The fibroids must be removed using a laparoscope and a typical open incision into the uterus. When they are on a stalk or close to the surface, removal is simple. Its advantages over laparoscopic myomectomy include lower mortality rates and quicker recovery.
 - c) **Laparotomic myomectomy** – It is also known as open or abdominal myomectomy which is used to remove fibroids, an incision created in the abdominal wall to remove a uterine fibroid.
- 4) **Myolysis:** On guidance with laparoscopy, a needle was inserted in to the fibroids by applying electric current to destroy the fibroids.
- 5) **Uterine artery embolization:** small beads of a substance called polyvinyl alcohol, which are injected through a catheter in to the arteries that feed the fibroids using

intervention radiology techniques, causes the fibroid to shrink as a result of being starved of blood and oxygen [4].

Case Study of Mrs. X:

A 49 years old female patient was admitted in the hospital with the complaints of severe abdominal pain and continuous heavy menstrual bleeding in the past one month. She had a past medical history of Systemic hypertension for 7 years and Anaemia and her medication history shows that she was taking T. Telmisartan+Chlorthalidone - 80/12.5 mg, T. Nebivolol+Amlodipine - 5/5 mg, T. Seder OM. On physical examination she was conscious, oriented and febrile. Her vitals were as follows: Temperature was elevated (99.4°F). Pulse rate was normal (72 beats/min), Respiratory rate was normal (18 breaths/min) and Blood Pressure was found to be elevated (130/90mmHg). The Ultrasonography revealed a subserosal hypoechoic lesions on both anterior and posterior wall and diagnosed with fibroid uterus. Prior to surgery, General anaesthesia (**Inj. Fentanyl - 100mcg, Inj. Propofol - 150mg, Inj. Scoline - 100mg, Inj. Atracil - 35mg**) was administered and surgery was carried over in lithotomy position. **Inj. Neostigmine 5ml** and **Inj. Glycopyrrolate 0.2mg** was also administered and during surgery carbon - di - oxide level was maintained at the level of 12L was provided in order to prevent venous embolism and removal of fibroid is done by myomectomy and LAVH +BSO procedure was done.

Investigation:

The Ultrasonography report was taken on 05/12/2022 the result of the report was the following

Procedure: LAVH + BSO

Reference: Vivekanandha Medical Care Hospital

Uterus:

- It appears bulky and measures 10.6 x 3.8 x 4.9cm with multiple enlarged subserosal hypoechoic lesions on both anterior and posterior wall.
- Largest measuring 5.7 x 4.9cm in posterior wall of uterus.

Signs and Symptoms:

- Had a complaint of heavy and continuous menstrual bleeding in the past one month.
- Presence of abdominal pain.

Complications:

- Haemorrhage.
- Infection.
- Infertility seen in about 30% of women.
- Miscarriage [1].

2. Management

The surgery procedure done to the patient was **Laparoscopically Assisted Vaginal Hysterectomy (LAVH)** and **Bilateral Salpingo - Oophorectomy (BSO)**.

LAVH & BSO: After sedation from general anesthesia is achieved; the doctor will make a small incision at or near the belly/bottom, depending on the size of the uterus, for the laparoscope to be passed through and 2 - 4 additional incisions in lower abdomen to insert necessary surgical instruments. Carbon dioxide gas will be used to inflate the abdomen to allow the doctor to insert the laparoscope and view the pelvic and abdomen. The blood arteries leading to the uterus are tied, stapled, or cauterized to stop bleeding, and the tissues supporting the uterus are separated to enable removal using a laparoscopy and small device. The remainder of the treatment will then be carried out vaginally by the doctor, who will detach and remove the uterus and seal the top of the vagina with sutures. Bilateral salpingo - oophorectomy, is a surgical procedure in which both the fallopian tubes and the ovaries are removed. Although this procedure can be done on its own, it is typically carried out in conjunction with a hysterectomy during which a women's uterus is removed^{[5][6]}.

3. Conclusion

Preterm labor, miscarriage (abortion), and infertility are all at increased risk due to fibroids in the uterus. Because of this, early detection and treatment are necessary depending on the size of the fibroid and women's wish to become pregnant again. Delivery is possible unharmed but with excessive bleeding after giving birth. Due to atonicity (loss of uterine muscle) contraction of uterine occurs. Consequently, health professionals must use prudence both during labor and after delivery.

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