

Fibroids (Uterine Leiomyomata)

Overview

Uterine Leiomyomata (singular, *leiomyoma*, also known as *fibroids*) are benign tumours arising from smooth muscle cells of the uterus. They contain normal tissues albeit in abnormal proportions. They are often surrounded by a thin layer of compressed collagen tissue and muscle fibres, this is referred to as a *pseudocapsule*.

Classification

Fibroids are usually described according to their locations within the uterus. The location of any particular fibroid can vary from time to time, according to fibroid growth, stage of menstrual cycle and the means used to assess it. Interestingly fibroids that lie in different positions in the uterus have a different genetic make-up, so they probably reflect subtly different diseases.

Intramural Fibroids

Intramural fibroids lie within the wall of the uterus. They may enlarge sufficiently to distort the outside of the uterus or the cavity of the uterus and may indeed extend from one side to the other.

Sub mucosal Fibroids

Sub mucosal fibroids chiefly lie beneath the lining (endometrium) of the uterus. It is these that are chiefly responsible for disturbance in menstrual function, usually heavy periods. The extent of the protrusion into the endometrial cavity is described by the European Society of Hysteroscopy Classification system as follows:

1. A type 0 fibroid is completely intra-cavity
2. A type 1 fibroid has at least 50% of its volume in the cavity
3. A type 2 fibroid has at least 50% of its volume in the uterine wall

Type 0 and 1 can be removed by hysteroscopic resection, whereas those that lie within the muscle of the uterus can often only be removed in part by this method.

Sub serosal Fibroids

Sub serosal fibroids are those lying in the outer layers of the uterus. They may have a narrow base in which case they are described as *pedunculated*. Sometimes they can extend from the outer uterine surface to lie within the broad ligaments, which are the peritoneal coverings covering the fallopian tubes and blood vessels that enter the uterus. These can be difficult to remove.

Cervical Fibroids

Cervical fibroids are located in the cervix rather than the body of the uterus.

Incidence

Fibroids are clinically apparent in up to 25% of reproductive age women and have been described in up to 80% of surgically removed uteruses. The overall prevalence is thought to be around 40% and this may be higher in some races, i.e., Negros. They are chiefly a problem of reproductive age women. They have not been described in pre-pubertal girls but have been described anywhere from the teens onwards.

Risk factors for developing fibroids

1. Parity – Having had one or more pregnancies extending beyond 20 weeks decreases the risk of fibroids.
2. Early onset of periods is associated with an increased lifetime risk of fibroids.
3. Generally speaking, oral contraceptives reduce the risk of fibroids.
4. Smoking decreases the risk of fibroids.
5. There appears to be a familial predisposition to fibroids.
6. Alcohol and beer consumption increases the risk of fibroids.
7. Progesterone only Injectable contraceptives, i.e., Depo Provera and Implanon, appear to be associated with a decreased risk of fibroids.
8. It is uncertain whether obesity is associated with an increased risk of fibroids.
9. Although oestrogen exposure can enhance the growth of fibroids, there is no evidence that oestrogen itself causes fibroids to begin growing from the onset.

Clinical features of fibroids

Fibroids can range in size anywhere from the size of a grain of rice to a term pregnancy. As late as the early twentieth century they were occasionally large enough to be fatal through compressing of surrounding vital organs. Nowadays, they are commonly diagnosed in the 4 – 10 cm range. Some women have completely asymptomatic fibroids and some are symptomatic from relatively small fibroids. The crucial factor appears to be where the fibroid lies within the uterus.

Pelvic Pressure and Pain

Logically, the bigger the fibroid the more likely a woman is to experience pressure symptoms. These can be local, i.e., due to pressure on the surrounding structures within the pelvis such as the bowel and bladder, or distant, due to blockage of ureters and the ends of the large or small intestine. Large fibroids are often associated with painful sex and difficulty performing Pap smears. Occasionally fibroids cause acute pain from so called "red degeneration" within. Occasionally pedunculated fibroids, i.e., those lying on a small stalk outside the uterus can also twist, again causing acute pain. In the short term this often responds to anti-inflammatory drugs such as Naproxen. Red degeneration or torsion is a common presentation of fibroids, which subsequently lead to their removal.

Reproductive Effects

The relationship between fibroids and fertility is extremely complex. Roughly speaking, it appears that any fibroid of greater than 4 cm in size lying within the uterus may affect the chance of pregnancy. However, removing this fibroid may not perfectly reverse this risk. *Please see separate paper on fibroids and fertility on this website.*

Increased Uterine Bleeding

Increased bleeding (menorrhagia) is the most common presentation of fibroids. There is a positive correlation between fibroids that lie beneath the lining of the uterus (sub mucosal) and heavy periods. These fibroids may be safely resected in many cases, which may greatly improve periods. Fibroids that lie within the muscle of the uterus (intramural) may also be associated with heavy periods however removal of these fibroids causes a variable improvement in menstrual flow. This probably implies that there is other pathology within the uterus contributing to the problem.

Fibroids and Pregnancy

This is also a very complex subject. It is often a reflex reaction on the part of the clinician or patient to seek to remove fibroids prior to pregnancy however, once again, the relationship between fibroids and pregnancy is extremely complex. Fibroids almost always grow within pregnancy however they do not invariably cause complications. The kind of complications described have been malpresentation, i.e., baby transverse or breech, premature labour, placental accidents and antepartum haemorrhage just to name a few. Similarly speaking, removal of small to moderate sized fibroids prior to pregnancy in order to purely prevent pregnancy complications is not always indicated. Everything depends on the size of the fibroid, the potential for future growth, the age of the patient and moreover the patient's wishes. If pregnancy complications have previously occurred associated with the fibroids, then the indication is stronger. Recommendations need to be made on a case by case basis.

Diagnosis of Fibroids and their Positions

Almost all modern and readily available means of imaging can be used in the setting of fibroids. The gold standard for assessing fibroids is still hysteroscopy and examination performed under a general anaesthetic. Ultrasound scan and MRI scanning are also very accurate, the former however is occasionally misleading and is very operator dependent, i.e., a very usual clinical indication can often be provided by specialist ultrasound providers and in other hands this information may be incomplete.

Ultrasound Scan

Ultrasound scan is the most commonly used modality. This may be combined with saline infused sonography (SIS) offered by specialised gynaecology ultrasound providers to yield more exact information.

Magnetic Resonance Imaging (MRI)

This is probably the best modality for visualizing the size and location of multiple uterine fibroids and can distinguish between fibroids, Adenomyosis and the similarly featured adenomyoma. *MRI scan can also reliably distinguish, in combination with blood tests, between benign and malignant fibroids.* This modality is however expensive and should be reserved for select cases.

A. Goto, S. Takeuchi, K. Sugimura, T. Maruo. International Journal of Gynecological Cancer, Volume 12, Page 354, July 2002

CT Scanning

CT scanning is of little clinical use in assessing fibroids in most cases, although fibroids are occasionally found incidentally on a CT scan performed for other reasons.

Are all fibroids benign?

Malignant fibroids are called sarcomas. The usually quoted risk of sarcoma is around 1:1000 however in post-menopausal women who present with a pelvic mass, pain and bleeding, the risk may be somewhat higher. It is important to realise that the chance of sarcoma in any given fibroid is low but is never zero. Ultimately the diagnosis is made upon pathology, i.e., a segment of fibroid is removed and placed under the microscope. However, even in this case, sometimes mild sarcomas are difficult to distinguish from completely benign fibroids and second opinions will be necessary. In skilled hands, ultrasound is a good indicator of benign versus malignant fibroids. A combination of blood tests (LDH) MRI scanning is probably the best non-invasive means of excluding fibroids and is virtually 100% accurate. Malignant fibroids and benign ones are different diseases - that is, fibroids do not "become" malignant but are malignant from the outset.

Do all fibroids need to be removed?

The short answer is no. Fibroids are very commonly diagnosed incidentally and as ultrasound scanning becomes more sophisticated and the images more detailed, smaller fibroids will be diagnosed. These often cause a great degree of anxiety and patients often ask me if I can guarantee whether or not they are benign and the answer of course is no. However, very rarely do these small incidentally diagnosed fibroids lead to any kind of clinical problem. Indications for removing fibroids are many and varied and depend completely on the clinical presentation of the women. Sometimes fibroids are simply removed to ameliorate mass effect, sometimes to ameliorate effect on periods and sometimes for treatment of infertility. However, all of these must be assessed on a case-by-case basis. Generally speaking, if a completely asymptomatic fibroid reaches the umbilicus (belly button), we recommend removal or hysterectomy, simply because fibroids of this size can cause significant problems by direct pressure effects within the pelvis.

