Obstetrics & Gynaecology - Topic 29 - Uterine fibroids

Understanding Uterine Fibroids

Definition

- A uterine fibroid, or leiomyoma, is a benign tumour composed mainly of smooth-muscle cells and supporting extracellular matrix.

Origin and Risk Factors

- Fibroids arise within the uterine muscle and may be single or multiple, with considerable variation in size and location.
- Their development involves genetic alterations, local growth factors and sensitivity to ovarian hormones, particularly oestrogen and progesterone.
- They are common during reproductive life and often shrink after menopause, although individual behaviour varies.
- Family history and several demographic and reproductive factors influence risk, but a patient should not be blamed for developing fibroids.

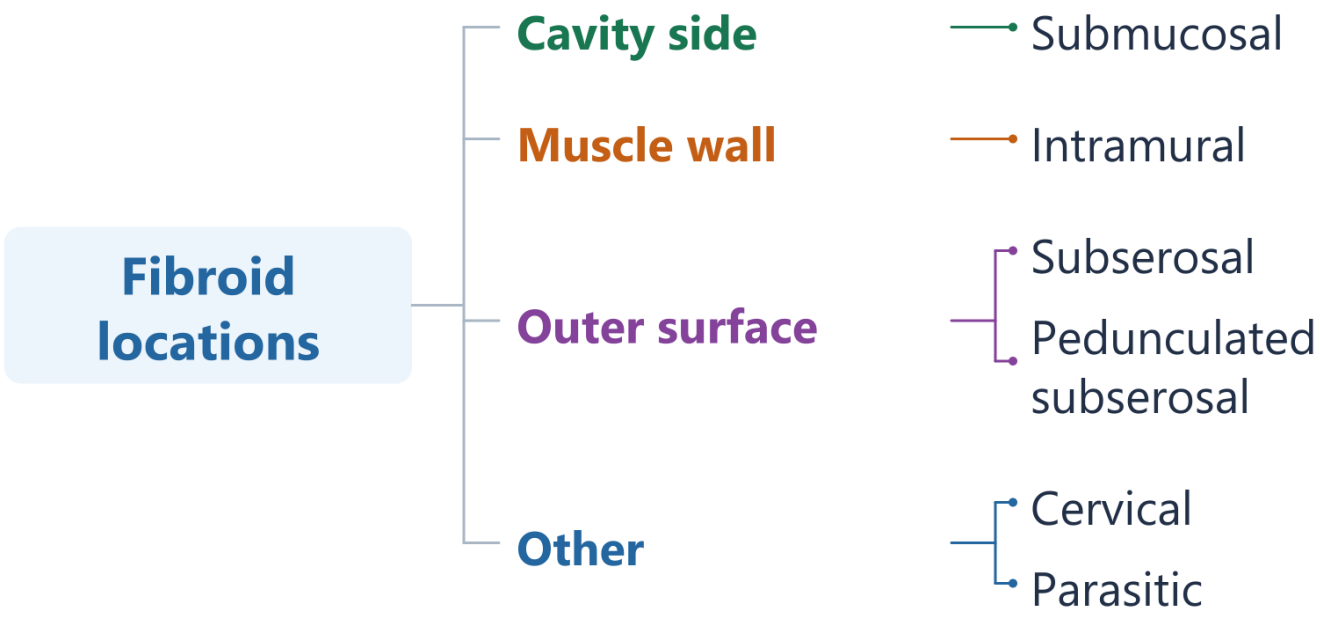
Gross and Microscopic Pathology

- A typical fibroid is a firm, well-circumscribed mass with a pale whorled cut surface.
- Compressed surrounding myometrium forms a pseudocapsule that may provide a surgical plane during myomectomy.
- Microscopy shows intersecting bundles of smooth-muscle cells, while atypia, mitotic activity and tumour-cell necrosis are assessed when malignancy is a concern.
- A smooth-muscle tumour of uncertain malignant potential requires specialist pathological interpretation and follow-up rather than being labelled a routine fibroid.
- Most leiomyosarcomas arise independently; an ordinary fibroid should not be described as routinely turning into cancer.

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Location and Classification

Fibroid Types by Anatomical Position



1. Submucosal Fibroids

- These fibroids contact the endometrium and may project into the uterine cavity.
- They can cause substantial bleeding or affect implantation even when their overall size is relatively small.
- Bleeding can reflect altered endometrial surface and blood vessels, venous congestion and impaired uterine contraction rather than tumour size alone.

2. Intramural Fibroids

- An intramural fibroid lies within the uterine muscle and can enlarge or distort the uterus.
- Its effect on bleeding and fertility depends partly on its size and relationship to the endometrial cavity.

3. Subserosal Fibroids

- A subserosal fibroid projects towards the outer uterine surface and may become pedunculated.
- Pressure symptoms may be more prominent than bleeding when a lesion does not affect the cavity.

4. Other Locations

- Fibroids may arise in the cervix or extend into the broad ligament, altering nearby bladder, ureteric or vascular relationships.
- A parasitic fibroid obtains a blood supply away from its original uterine attachment and can also occur after tissue dissemination during surgery.

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The FIGO System

- FIGO types describe the relationship of a fibroid to the endometrium, myometrium and uterine serosa.
- The classification assists treatment planning, particularly when deciding whether hysteroscopic removal is feasible.

Type	Relationship to the uterine wall
0	It is pedunculated and entirely intracavitary.
1	It is submucosal with less than half of its diameter within the myometrium.
2	It is submucosal with at least half of its diameter within the myometrium.
3	It is entirely intramural but contacts the endometrium without protruding into the cavity.
4	It is entirely surrounded by myometrium.
5	It is subserosal with at least half of its diameter within the myometrium.
6	It is subserosal with less than half of its diameter within the myometrium.
7	It is pedunculated and subserosal.
8	It has another location, such as cervical or parasitic.

- A hybrid lesion is described using two numbers, with the endometrial relationship first and serosal relationship second, such as type 2–5.
- A number alone is insufficient for surgical planning; report size, number, position and the remaining free myometrial margin where relevant.

Clinical Features and Complications

Common Presentations

1. Bleeding and Anaemia

- Fibroids may cause heavy or prolonged periods, while a submucosal lesion can also produce irregular bleeding.
- Chronic blood loss may lead to iron deficiency, fatigue, reduced exercise tolerance and symptomatic anaemia.
- Abnormal bleeding should still be assessed for other causes rather than automatically attributed to a known fibroid.

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2. Pressure, Mass and Pain

- A large uterus may cause pelvic heaviness, abdominal enlargement or a palpable mass.
- Bladder pressure may cause frequency or difficulty emptying, while posterior pressure may contribute to constipation.
- A cervical or large pelvic fibroid can rarely cause urinary retention or ureteric obstruction.
- Menstrual pain or chronic discomfort may occur, but sudden severe pain requires assessment for degeneration, torsion or another acute disorder.

3. Fertility and Pregnancy

- Cavity-distorting fibroids may reduce fertility or contribute to pregnancy loss, but many women with fibroids conceive and deliver normally.
- Pregnancy complications can include pain from degeneration, malpresentation, preterm birth, labour obstruction and postpartum haemorrhage.
- The risk depends on the lesion's size and position, and a fibroid does not automatically require caesarean birth.

Patterns of Degeneration

1. Hyaline, Cystic and Calcific Change

- Hyaline degeneration replaces parts of a fibroid with relatively homogeneous material and is a common degenerative change.
- Cystic degeneration can create fluid-filled areas that change the usual ultrasound appearance.
- Calcification may occur in an involuting or poorly perfused fibroid, particularly later in life.

2. Red Degeneration

- Red degeneration is haemorrhagic infarction that may cause acute pain and tenderness, especially during pregnancy.
- Management is usually supportive after other urgent diagnoses have been excluded, with analgesia and obstetric review appropriate to gestation.

Torsion of a Pedunculated Fibroid

- Torsion of a pedunculated subserosal fibroid is a separate surgical concern and should not be dismissed as ordinary degeneration.

Warning Features

- Severe anaemia, uncontrolled bleeding, acute urinary retention, marked pain or pressure-related organ compromise requires prompt assessment.
- A new or enlarging uterine mass after menopause, or suspicious imaging, needs careful evaluation.

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- Rapid growth alone does not reliably distinguish a benign fibroid from leiomyosarcoma.
- No preoperative test can exclude every occult sarcoma with certainty, which matters when planning tissue removal.

Diagnosis and Differential Diagnosis

History and Examination

- Record bleeding, pain, urinary and bowel symptoms, pregnancy plans and previous treatments.
- Ask about anaemia symptoms and how the problem affects work, sleep, relationships and daily activities.
- Abdominal and bimanual examination may reveal a firm irregular uterine enlargement, but small intracavitary lesions may not be palpable.
- A pelvic mass must be assessed carefully because a large pedunculated fibroid can resemble an ovarian mass.

Blood Tests and Ultrasound

- A complete blood count assesses anaemia, and iron studies are useful when iron deficiency is suspected.
- Exclude pregnancy when relevant before investigation or treatment.
- Pelvic ultrasound is the usual first imaging test and should document the number, size and location of clinically relevant lesions.
- Assess the endometrium and adnexa as well as the fibroids, especially when symptoms do not fit the apparent lesion.

Cavity Assessment and MRI

- Saline-infusion sonography or hysteroscopy can clarify a suspected intracavitary lesion.
- Hysteroscopy shows the cavity surface but does not alone define every deep intramural or outer-wall relationship.
- MRI is useful when ultrasound is inconclusive, anatomy is complex or detailed mapping would change surgery or an interventional procedure.
- Endometrial sampling is selected according to the bleeding pattern, age and risk factors rather than performed solely because a fibroid exists.

Differential Diagnosis

- Adenomyosis often produces diffuse muscle enlargement and tenderness rather than a discrete circumscribed mass.
- An endometrial polyp arises from the lining and may resemble a small submucosal fibroid clinically.

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