

Benign conditions of the uterus,
cervix and endometrium

Uterine cervix

The cervix is the cylindrical lower extremity of the uterus and consists mainly of collagen fibres. The vaginal part of the cervix, called the ectocervix, is lined by thick non-keratinized stratified squamous epithelium and has a pink appearance. The external os is visible in the centre of the ectocervix as a dark circular or slit-like area and is the opening to the endocervical canal, which is lined by simple columnar epithelium. There is a clear demarcation of this transformation between the two types of epithelium, called the 'squamocolumnar junction'

Benign cervical surface lesions

Cervical ectropion

Definition a columnar epithelium visible on the ectocervix as a circular, red area surrounding the external cervical os.

This is a normal finding and should not be called 'cervical erosion' because this erroneously implies it is an ulcer.

An ectropion commonly develops under the influence of the 'three Ps': puberty, pill and pregnancy.

clinical presentation

- Asymptomatic
- Intermenstrual bleeding
- Postcoital bleeding
- Excessive, clear, odourless mucus-type discharge.

Treatment and Prevention

- change from oestrogen-based hormonal contraceptives to non_estrogen based.
- cervical ablation where the visible glandular producing columnar cells are ablated, usually with cryocautery, as an outpatient.

Prior to treatment endocervical and lower genital tract swabs are taken to exclude chlamydia and other sexually-transmitted infections and normal cervical cytology should be confirmed to exclude cervical premalignancy and malignancy

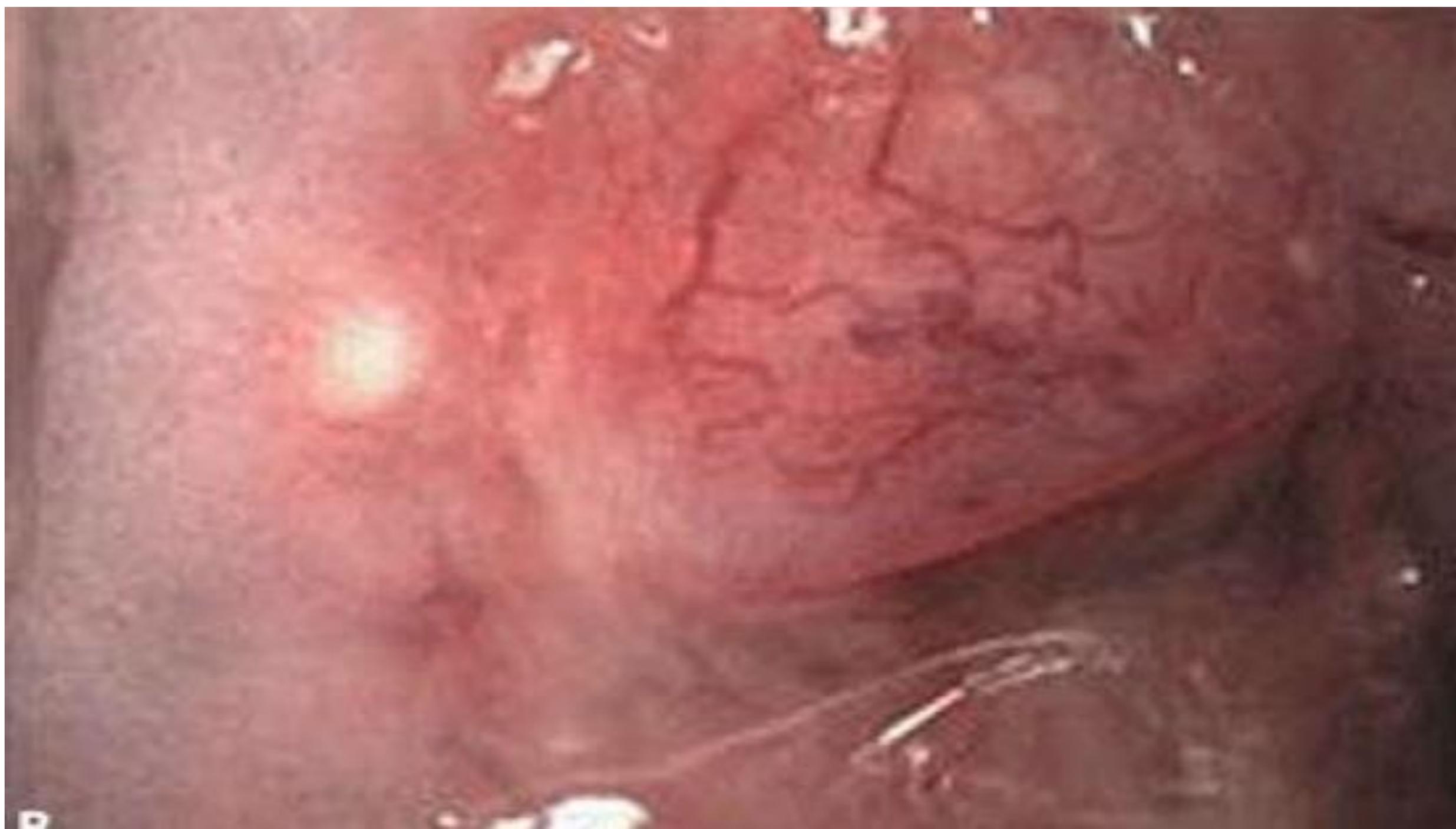


Nabothian follicles

columnar glands within the transformation zone become sealed over, forming small, mucus-filled cysts visible on the ectocervix.

of **no** pathological significance.

No treatment is usually required although extremely large ones can be drained using a large-bore needle



Cervical polyps

are benign tumours arising from the endocervical epithelium and may be seen as smooth, reddish protrusions.

Clinical presentation

- usually asymptomatic, being identified incidentally during a routine cervical smear
- vaginal discharge
- Intermenstrual bleeding
- Postcoital bleeding

Treatment avulsion with polyp forceps as an outpatient procedure

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Cervical stenosis

pathological narrowing of the endocervical canal and is usually an iatrogenic phenomenon caused by a surgical event.

Causes treatment of premalignant disease of the cervix using a cone biopsy or loop diathermy as endometrial ablation affecting the os.

Presentation trapped blood in the uterus (haematometra) causes cyclical dysmenorrhoea with no associated menstrual bleeding.

Treatment is by surgical dilatation of the cervix under ultrasound or hysteroscopic guidance

Benign endometrial lesions

Endometrial polyps

focal endometrial outgrowths containing a variable amount of glands, stroma and blood vessels, which influence their macroscopic appearance.

presentation may be

- asymptomatic
- abnormal uterine bleeding (AUB) (heavy menstrual bleeding [HMB], IMB and postmenopausal bleeding [PMB]) present in around 10–20% of women with AUB.
- adversely impact on fertility, present in around 10% of women with subfertility.



Risk factors for development of endometrial polyp:

- obesity,
- late menopause,
- the use of the partial oestrogen agonist tamoxifen
- possibly the use of hormone replacement therapy (HRT).

Endometrial polyps contain hyperplastic foci in 10–25% of symptomatic cases and 1% is frankly malignant.

The risk of polyps harbouring serious endometrial disease is increased after the **menopause** and with the use of **tamoxifen**.

Endometrial polyps may be pedunculated or sessile, single or multiple and vary in size (0.5–4 cm).

Diagnoses

- Transvaginal ultrasound scan (TVUSS).
- Saline infusion sonography (SIS).
- outpatient hysteroscopy (OPH) gold standard.

Treatment

Smaller endometrial polyps can spontaneously resolve but most persist such that once diagnosed, removal is indicated (polypectomy) in order to **alleviate AUB symptoms, optimize fertility and exclude hyperplasia or cancer.**

Polypectomy can be performed as under general anaesthesia, or as an outpatient with or without local anaesthesia with hystroscope.

Asherman syndrome

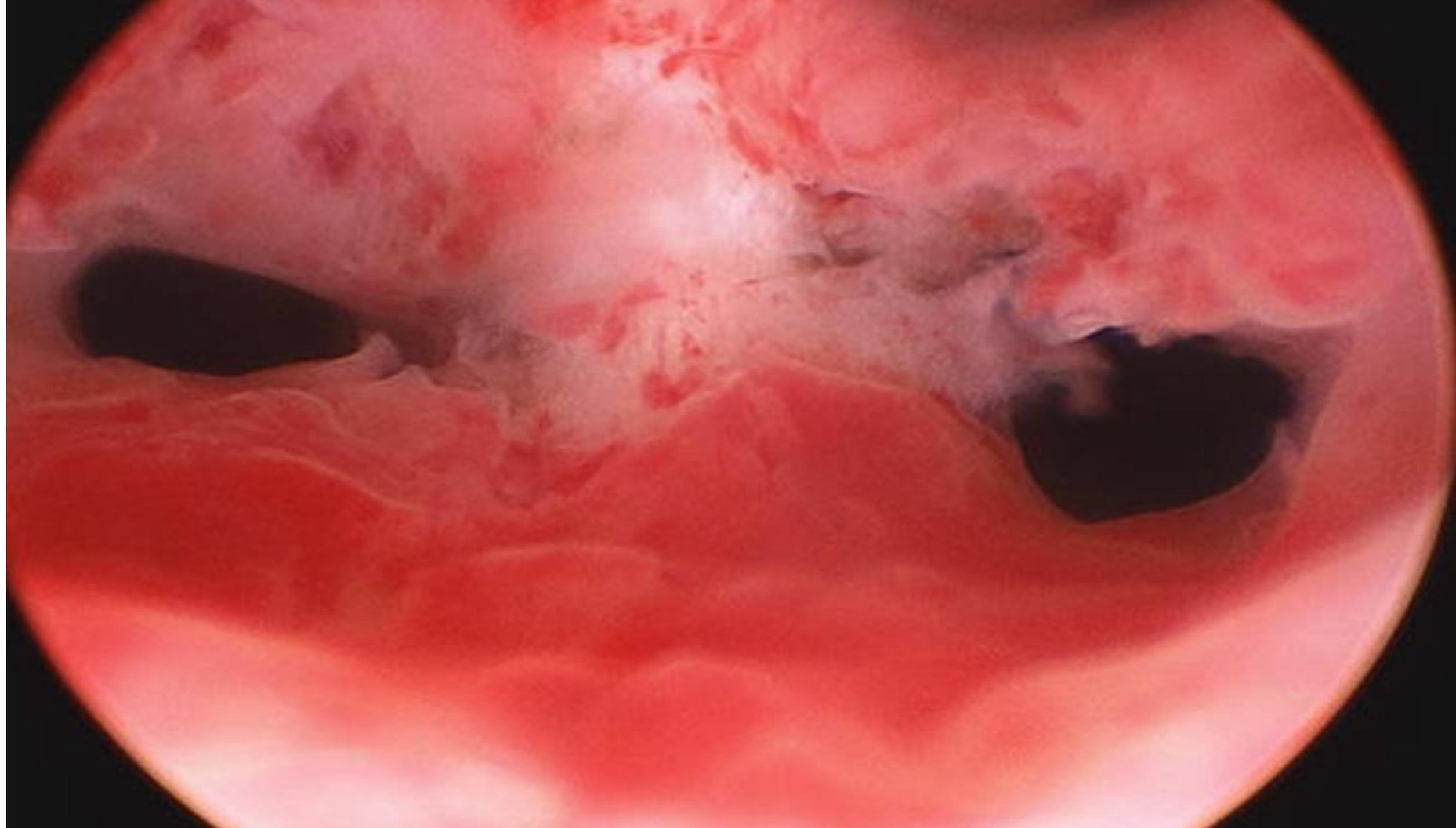
Irreversible damage of the single layer thick basal endometrium does not allow normal regeneration of the endometrium. The endometrial cavity undergoes fibrosis and adhesion formation. The result is reduced, or absent, menstrual shedding and subfertility.

Etiology: usually occurs after

1. pregnancy where there has been uterine infection
2. overzealous curettage of the uterine cavity during surgical management of miscarriage or following secondary postpartum haemorrhage
3. iatrogenic (endometrial ablation for treatment of HMB) .

Prevention by adopting conservative or less traumatic surgical approaches to managing RPOC and preventing endometritis is important given its adverse impact on fertility.

Treatment : hysteroscopic surgical techniques are needed to manually breakdown the intrauterine adhesion).



Benign lesions of the myometrium

Fibroids

A fibroid is a benign tumour of uterine smooth muscle termed a 'leiomyoma'. The gross appearance is of a well-demarcated, firm, whorled tumour.

prevalence found in approximately 40% of women overall, and are more common in **nulliparous** and **obese women** and in those with a **family history** or of **African descent**.

They are usually multiple and can substantially increase the size of the uterus. Fibroids are classified according to their location in relation to the uterine wall.

Uncommonly, fibroids can arise separately from the uterus, especially in the adjacent broad ligament, presumably from embryonal remnants.

FIGO classification

0_ pedunculated intracavitary;

1_ submucosal, <50% intramural;

2_ submucosal, \geq 50% intramural;

3_ 100% intramural, but in contact with the endometrium;

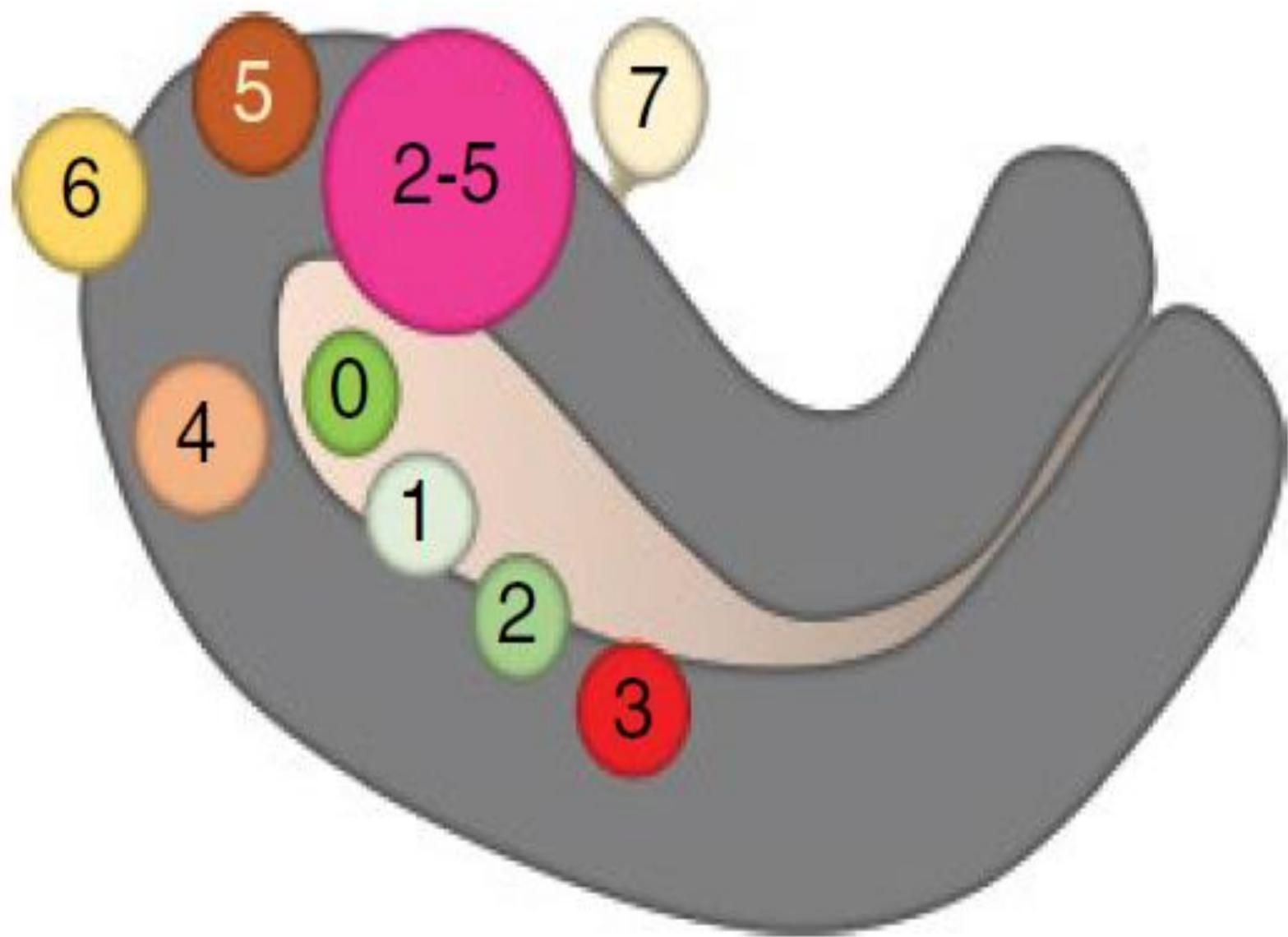
4_ intramural;

5_ subserosal, \geq 50% intramural;

6_ subserosal, <50% intramural;

7_ subserosal pedunculated;

8_ other (e.g. cervical, parasitic).



Clinical presentation

Most fibroids are small and asymptomatic, but they can be associated with the following conditions:

- AUB (usually HMB and IMB).
- Subfertility, Reproductive failure. once a pregnancy is established, however, the risk of miscarriage is not increased. In late pregnancy, fibroids located in the cervix or lower uterine segment may cause an abnormal lie. After delivery, postpartum haemorrhage may occur due to inefficient uterine contraction.
- Bulk effects on adjacent structures in the pelvis.
- Pressure and pain, is unusual, except in the special circumstance of acute red degeneration or torsion of a pedunculated fibroid.
- Bladder and bowel dysfunction.
- Abdominal distension.

Examination findings suggestive of uterine fibroids

- General: signs of anaemia.
- Abdominal examination: visible and/or palpable abdominal mass arising from the pelvis.
- Bimanual examination: enlarged, firm, smooth or irregular, non-tender# uterus palpable

Natural history

Fibroids are benign, oestrogen-dependent tumours that can enlarge during pregnancy in response to the Hyperoestrogenic state, become common with advancing reproductive age and shrink after the menopause when ovarian oestrogen production ceases.

They can undergo degenerative change usually in response to outgrowing their blood supply. These include:

- Red – haemorrhage and necrosis occurs within the fibroid typically presenting in the mid second trimester pregnancy with acute pain.
- Hyaline – asymptomatic softening and liquefaction of the fibroid.
- Cystic – asymptomatic central necrosis leaving cystic spaces at the centre.

- Degenerative changes can initiate calcium deposition leading to calcification.
- Rarely, malignant or sarcomatous degeneration can occur but the incidence of this is 1:350 cases or less. The suspicion is greatest in the postmenopausal period when there is a rapidly increasing size of the fibroid.

Diagnosis

- Often the clinical features will be sufficient to establish the diagnosis.
- A full blood count should be taken in women with HMB; severe anaemia associated with HMB invariably indicates the presence of significant fibroids.
- Abdominopelvic ultrasound (TAUSS and TVUSS) is the mainstay of diagnosis and helps delineate the origin of a clinically-detected pelvic mass (i.e. distinguishing between a uterine fibroid and an ovarian tumour, and locating the position and size of fibroids). In the presence of large fibroids, ultrasonography is also helpful to exclude hydronephrosis from pressure on the ureters.

- MRI is occasionally used to demarcate the shape, size and site of uterine fibroids prior to radiological or surgical intervention
- SIS: good for detecting and locating submucosal fibroids and endometrial polyps.
- Hysteroscopy: good for detecting submucosal fibroids and endometrial polyps;for planning subsequent hysteroscopic surgical treatment.

Management

Management of uterine fibroids should be based on the nature of the symptoms and the reproductive wishes of the individual woman. Asymptomatic fibroids, even if very large, do not routinely require active management

Medical

- Tranexamic acid /non-steroidal anti-inflammatory drugs [NSAIDs]/COCP/LNG-IUS (Mirena[®]): all are simple and fertility sparing (although COCP/LNG-IUS are contraceptive) and avoid more invasive interventions, but they are generally less effective in the presence of submucosal fibroids or a uterus >12 weeks size where an enlarged uterine cavity can be expected.
- COCP: contains oestrogen, which may increase the growth of oestrogen-dependent fibroids.
- LNG-IUS: increased likelihood of expulsion if cavity is enlarged or distorted by submucosal fibroids.

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- **GnRH-agonists**: reduce fibroid volume prior to surgery but induce a temporary oestrogen deficient menopausal' state precluding long-term use.
- **Ulipristal acetate,selective progesterone receptor modulator (SPRM)**: oral medication and, as with GnRH-agonists, it reduces fibroid volume prior to surgery, but more data about safety with long-term use are needed

Surgical

- **Hysteroscopic myomectomy**: minimally invasive, day-case procedure for submucous fibroids that avoids surgical incisions and is effective in resolving HMB and improving fertility. Will not treat other types of fibroid.
- **Myomectomy**: fertility sparing and will treat HMB and bulk symptoms. Usually requires a laparotomy, but a less invasive laparoscopic approach is possible with smaller and fewer fibroids. Associated with intraoperative bleeding from vascular fibroids, a 1% risk of unplanned hysterectomy , an important point for the preoperative discussion during the consent process for myomectomy and postoperative intra-abdominal adhesions.

- **Hysterectomy**: indicated for women with no future fertility desires. May be achieved vaginally, laparoscopically or via open surgery depending on the size of uterus. Definitive, guaranteeing amenorrhoea but as invasive as myomectomy.

Hysterectomy and myomectomy may be facilitated by GnRH agonist pretreatment over a 3-month period to reduce the bulk and vascularity of the fibroids.

Useful benefits of this approach are to enable a suprapubic (low transverse) rather than a midline abdominal incision, or to facilitate vaginal rather than abdominal hysterectomy, both of which are conducive to more rapid recovery and fewer postoperative complications.

GnRH agonist pretreatment can obscure tissue planes around the fibroid making surgery more difficult but, on the positive side, blood loss and the likely need for transfusion are reduced.

Radiological

- **Uterine artery embolization (UAE)** : minimally invasive, avoids general anaesthesia and surgery. Although fertility sparing there are concerns over effect on subsequent reproductive function.

It is a technique performed by interventional radiologists, involving embolization of both uterine arteries under radiological guidance. A small incision is made in the groin under local anaesthesia and a cannula placed into the femoral artery and guided into the uterine arteries. Embolization particles are then injected, reducing the blood supply to the uterus, which induces infarction and degeneration of fibroids such that the overall reduction in fibroid volume is around 50%.

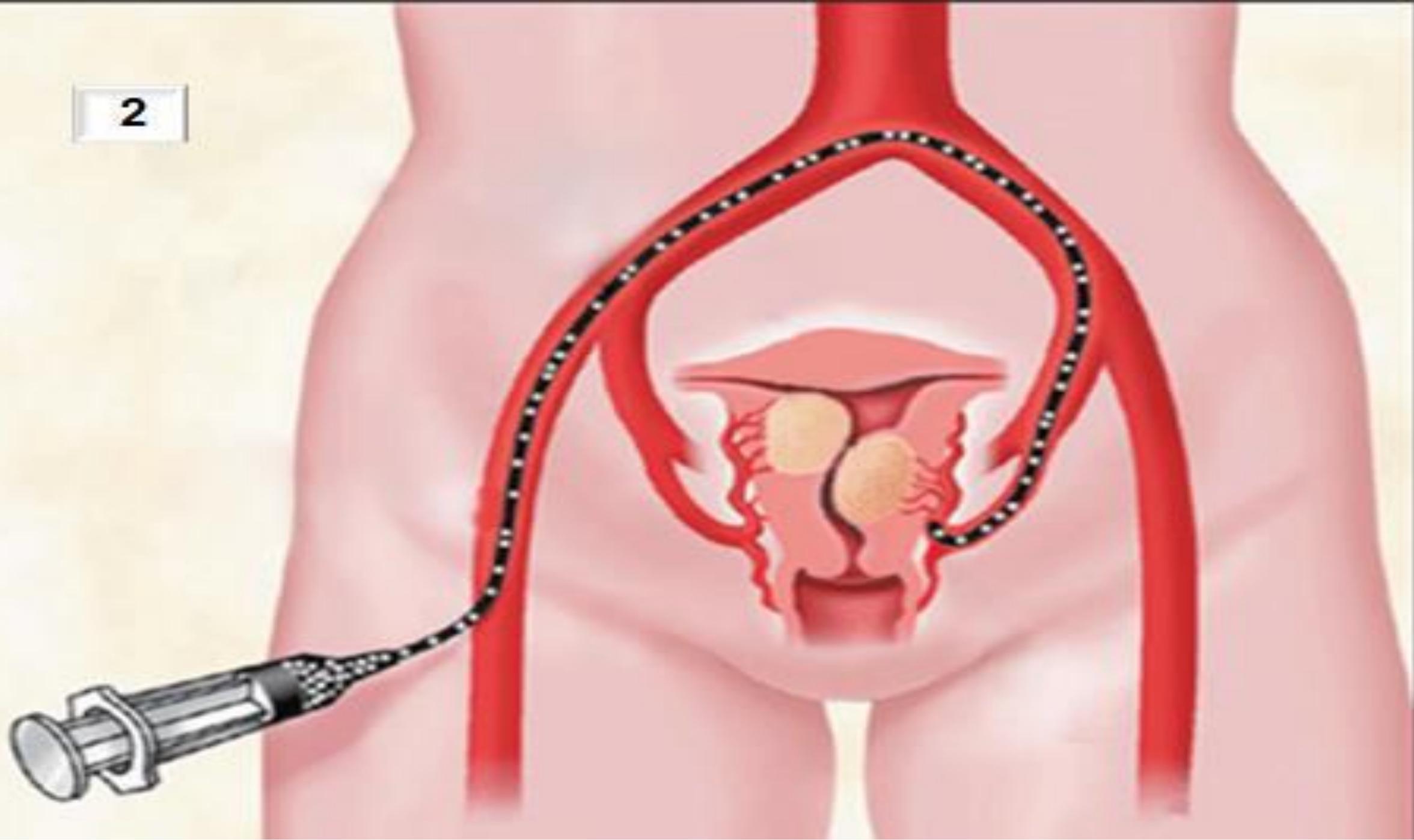
Following UAE, patients usually require admission overnight because of pain following arterial occlusion, requiring opiate analgesia.

UAE is **contraindicated in women with asymptomatic fibroids, those with current or recent pelvic infection and in cases where there is serious doubt about the nature of a pelvic mass.**

patient satisfaction compared with myomectomy but the need for further treatments much higher.

Complication	Incidence
Procedure related:	
Groin haematoma	<1%
Arterial complications	<1%
Non-target embolisation	<1%
Early (within 30 days):	
Post-embolisation syndrome	16–18%
Late (usually after 30 days):	
Septicaemia requiring emergency hysterectomy	<1%
Spontaneous fibroid expulsion	7–10%
Fibroid impaction requiring surgical intervention	3–5%
Prolonged vaginal discharge	12–16%
Endometritis	0.5%
Ovarian failure – all ages	1.5–7%
Ovarian failure under age 45	<1%

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- MRI-guided transcutaneous focussed ultrasound and transcervical intrauterine ultrasound-guided radiofrequency ablation destroy fibroids through thermal ablation.

However, the effectiveness and safety of these interventions need further study before they can be considered for use in routine clinical practice.

Adenomyosis

Adenomyosis is a disorder in which endometrial glands and stroma are found deep within the myometrium.

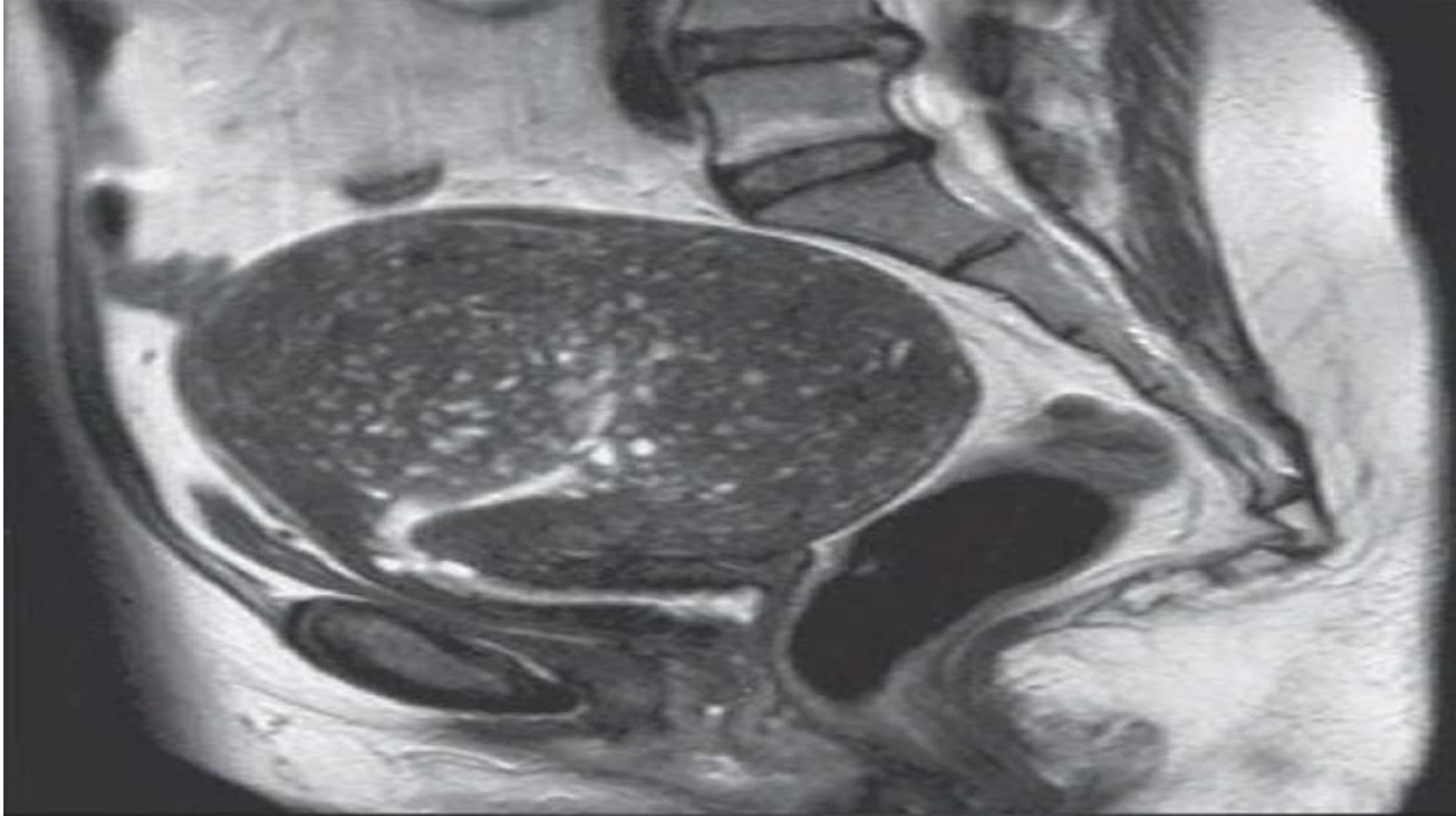
Adenomyosis can only be definitively diagnosed following histopathological examination of a hysterectomy specimen, where it is identified in 40% of uteri from a general female population of reproductive age.

Clinical presentation severe secondary dysmenorrhoea (pain throughout menses), uterine enlargement and HMB. Women with adenomyosis are usually multiparous and diagnosed in their late 30s or early 40s.

Examination may reveal a bulky and sometimes tender 'boggy' uterus, particularly if examined perimenstrually

Diagnoses

- Clinical feature
- Ultrasound examination showing haemorrhage-filled, distended endometrial glands. Sometimes this may give an irregular nodular development within the uterus, very similar to that of uterine fibroids.
- MRI is the investigation of choice although expensive, as it provides excellent images of the myometrium, endometrium and areas of adenomyosis



Treatment

any treatment that induces amenorrhoea will be helpful as it will render the ectopic endometrium quiescent, relieving pain and excessive bleeding. Thus, the use of the progestin-containing long-acting reversible contraceptives such as the LNG-IUS and depot Provera and short term GnRH agonists should be considered. On ceasing treatment, however, the symptoms rapidly return in the majority of patients, and hysterectomy remains the only definitive treatment