Fibroid MRI – What Your Surgeon Wants to Know


Background

Fibroids are the commonest benign uterine tumour affecting as many as 70% of women, and are a major cause of morbidity. They typically present with abnormal bleeding, pressure symptoms or pelvic pain (usually secondary to torsion or degeneration), and fibroids may also be an important factor in infertility. Whilst ultrasound forms the mainstay of imaging, MRIs of use in more complex cases to evaluate surgical options, and assess suitability for Uterine Artery Embolization (UAE). MRI may demonstrate alternative uterine pathologies and is also of use in assessing complications of surgery and UAE. The optimal treatment of challenging cases is best made after multidisciplinary discussion including the surgeon, and radiologist.

Fibroid Size and Location

MRI has been shown to be superior in evaluating large/multiple fibroids and is useful in the management of potentially complex cases. The position of uterine fibroids correlates with symptoms.

- Subserosal: Pressure/bulk
- Intramural: Pressure symptoms, Menorrhagia if submucosal implantation
- Submucosal: Menorrhagia/Integrity

Surgical Management

While hysterectomy is the most effective surgical treatment, myomectomy is an alternative in patients wishing to preserve their uterus. This can be performed via laparotomy, laparoscopy, hysteroscopy or a combination of these, according to the size, site and surgical expertise.

Hysteroscopic reaction

Effective for symptomatic Type 0–2 intramural fibroids. A-Son.

- Submucosal > 50%
- Submucosal > 50% interventional

Fibroid classification of fibroids

- 0: Pedunculated intramural
- 1: Submucosal + 50% intramural
- 2: Submucosal > 50% intramural

Fibroid size and location

- Submucosal: Menorrhagia/Integrity
- Subserosal: Pressure/bulk
- Intramural: Pressure symptoms, Menorrhagia if submucosal implantation

Laparoscopic resection

Fewer complications and faster recovery but usually longer procedure. Laparoscopic resection limited by surgeon expertise but potential difficulties:

- Identification of smaller fibroids
- Large fibroids > 3cm
- Lower uterine segment/pelvic location

Minilaparotony, laparoscopy may be required as an alternative.

Larger posterior lower uterine segment/pelvic fibroid difficult to resect laparoscopically

Morenlation

Large fibroids may need to be broken down (mobilized), prior to laparoscopic, removal or vaginal hysterectomy, a process for which preoperative planning is required.

Adhesions

Surgery may be more challenging in the presence of significant pelvic adhesions, so it is important to indicate this within the radiological report to allow adequate surgical planning.

Axial T1W (a) and axial T2W (b) images demonstrating submucosal fibroid (green arrow) associated with a fibroid uterus.

Multiples fibroids in a patient with previous Caesarean section (right blue arrow). Sagittal T1W (c) and axial T2W images (d) demonstrating abdominal wall adhesions (white arrows).

Uterine Artery Embolisation (UAE)

UAE offers a non-surgical alternative for the treatment of fibroids via devascularisation of fibroid tissue after catheter embolisation of the uterine arteries. UAE offers patients an alternative to surgery, and is an effective alternative treatment when fibroids are less numerous for myomectomy. This includes some cases of infertility preserved secondary to reduce fibroid disease.

Sagittal T1W MRI in a patient with suspicious and extensive devascularisation of the uterus by fibroids. The patient was not considered suitable for surgery and was referred for UAE

What to note prior to UAE

- Vascularity

Fibroids must demonstrate significant enlumination after contrast administration if they are to respond to devascularisation.

Axial T1W image showing small intramural fibroid.

Sagittal T2W image showing submucosal fibroid too large for hysteroscopic surgery.

Axial T1W images showing submucosal fibroid and myometrial cyst.

Uterine Artery Embolisation (UAE)

Patient presenting with uterine pain and fever. Sagittal T2W image (i) and post-contrast (j) imaging demonstrating uterine infection after UAE. Post contrast scan showing a thin rim of normal uterine enhancement (j) but otherwise global infection. The patient was subsequently managed conservatively.

Sagittal T2W demonstrate submucosal fibroid (blue arrow) with hypointensity within the myometrium cavity (yellow arrow).

Axial T2W image showing small intramural fibroid.

Sagittal T2W image showing submucosal fibroid too large for hysteroscopic surgery.

Axial T1W images showing submucosal fibroid and myometrial cyst.

Patient presenting with discharge and fever post UAE. Sagittal T2W image demonstrates submucosal fibroid (blue arrow) with hypointensity within the myometrium cavity (yellow arrow).