



Radiology Techniques Department

Special Radiological Procedures-1

lecture 12

MRI of the female reproductive system

By

MR.T Hussein Ayyed

MS.c Nariman Neamah

MRI of the female reproductive system

Indications

1. Staging of cervical and endometrial cancer
2. Assessment of complex ovarian mass
3. Assessment uterine fibroids (also called leiomyomas)

Pulse Sequences

*A combination of T2 weighted images and dynamic contrast enhanced magnetic resonance (MR) images with diffusion weighted images increases the accuracy of diagnostic interpretation.

1. **Sagittal T2 & T1-weighted images** for assessment midline structures (**uterus and cervix**) and **axial images** perpendicular to the long axis of the uterus or the long axis of the cervix are **helpful for uterine and cervical abnormalities**.
2. **Axial T2 & T1-weighted images** and **coronal images** for assessment the **ovaries**.

Q/ What is types of fat suppression techniques

1. STIR: most common used with examinations of bones
2. SPAIR: most common used with examinations of soft tissue → T2
3. SPIR: most common used with examinations of soft tissue → T1

Anatomy and pathology of uterus

1. **Sagittal T2-weighted** image used to assessment **anatomy & pathology** of uterus including **myometrium**, **junctional zone** (is a region representing the inner myometrium), **endometrium**, and **cervix** (Fig.1).

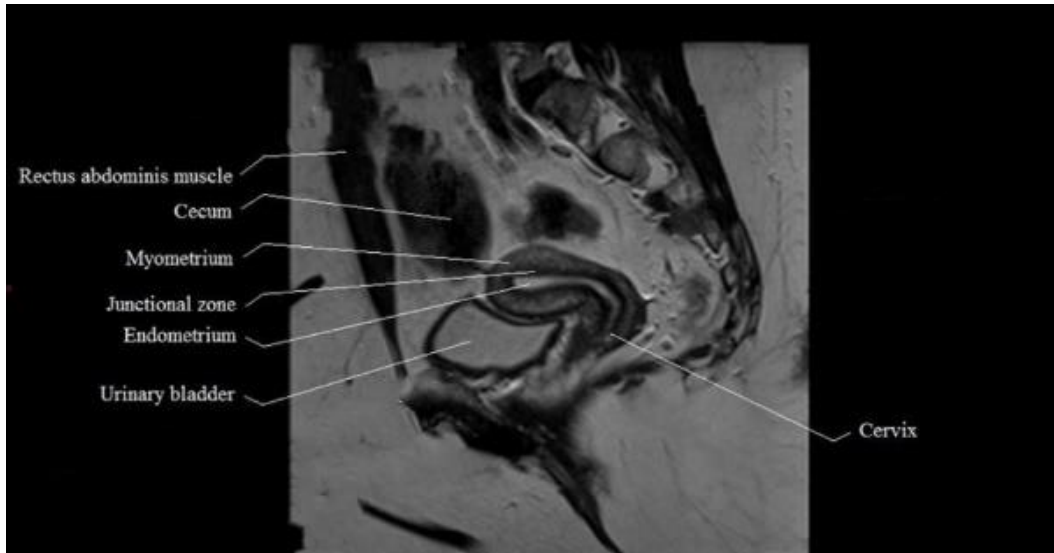
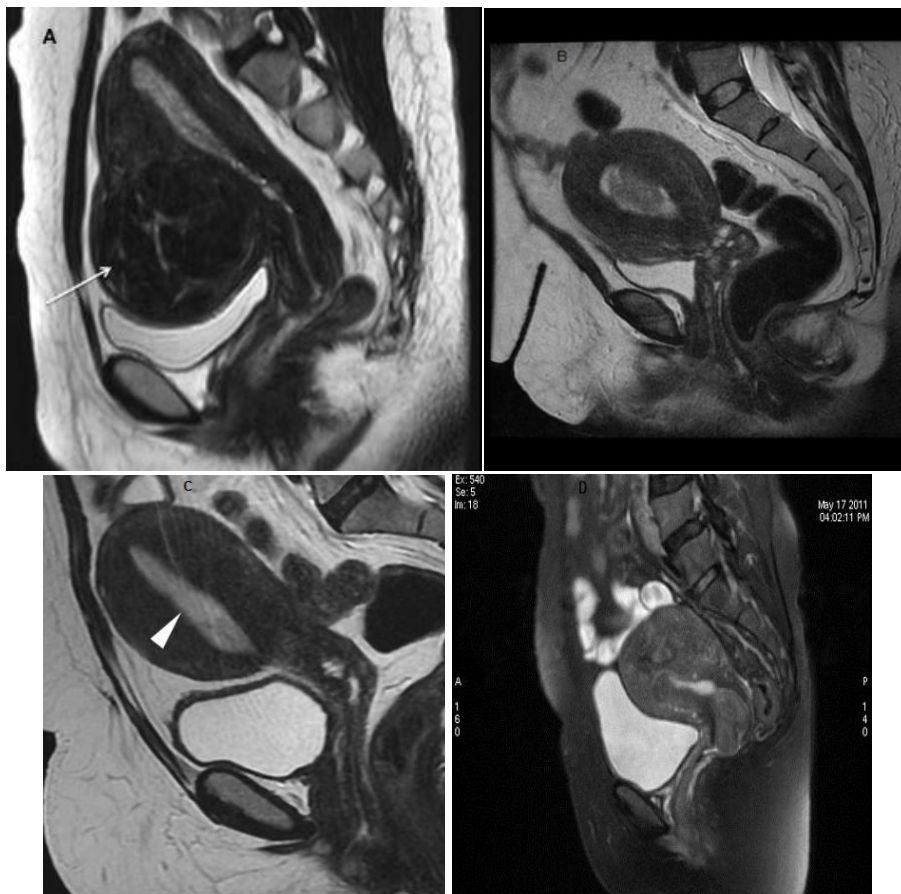


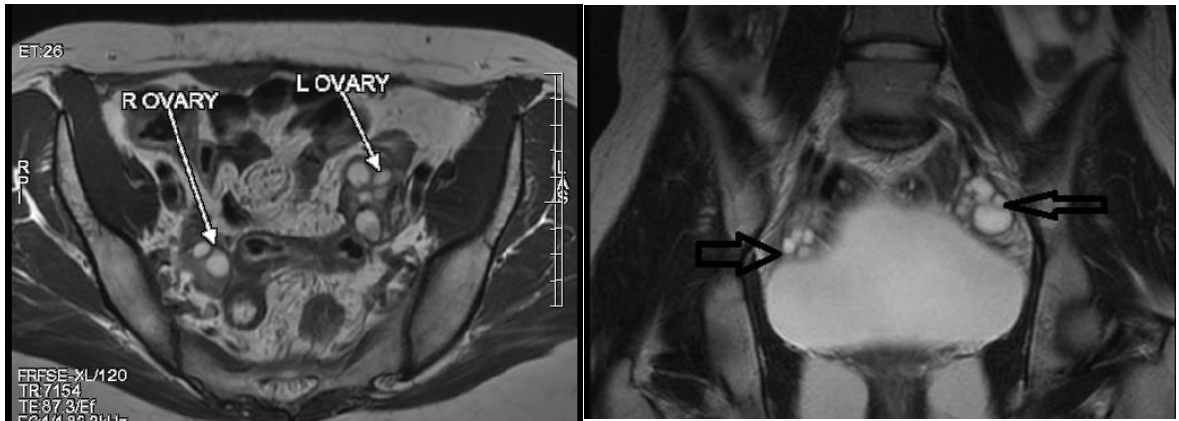
Figure (1). MRI of normal anatomy of uterus

2. **Sagittal T1** -weighted images **and Fat-Suppressed T1-Weighted (SPIR T1) post contrast (CM)** used to assessment *pathology* of uterus including **uterine fibroids** (also called leiomyomas), **endometrial carcinoma**, **endometrial hyperplasia**, and **cervical mass** (Fig 2A, B, C, & D).



Anatomy and pathology of ovaries

1. **Axial & coronal T2** -weighted images used for assessment *anatomy & pathology* of the ovaries.

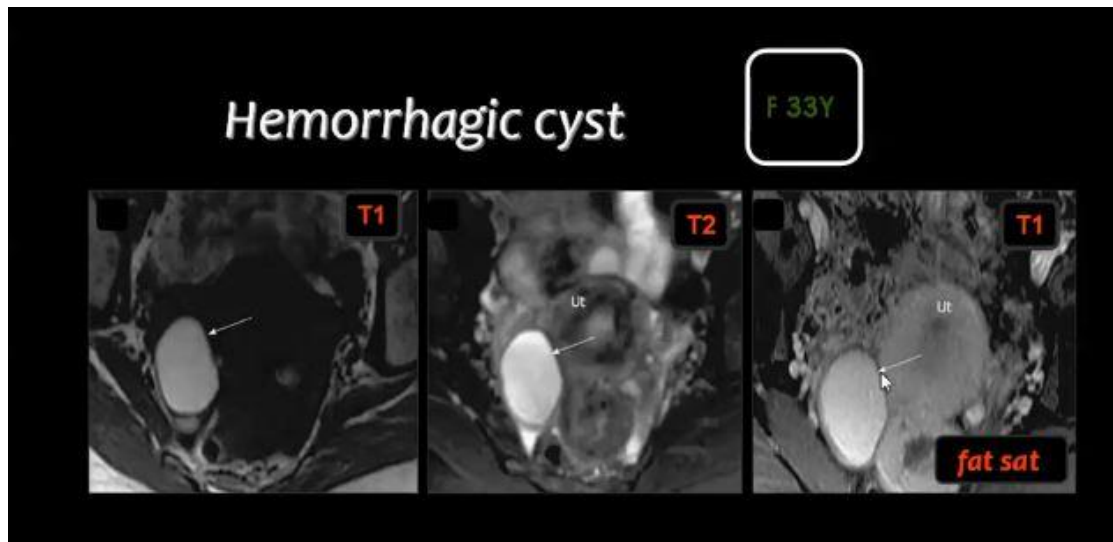


2. **Axial T1**-weighted images and **Fat-Suppressed T1-Weighted (SPIR T1) post contrast (CM)** used to assessment *pathology* of ovaries such as **ovarian cysts**.

***Diffusion weighted imaging** can be used in assessing the extent and staging of gynaecological malignancy.

a. Haemorrhage cyst

The **hemorrhagic cyst** appears as a **high-signal intensity on the T1-w** images as well as of **high-signal intensity on T2-w** images must remain **fairly high-signal on Fat-Suppressed T1-Weighted**, which allow differentiating them from the dermoid cysts in the majority of conditions.



b. Dermoid cyst

Dermoid cyst appears as a **high signal intensity on T1-W** images and is **fairly variable high-signal on the T2W** images while suppressed (**low signal on Fat-Suppressed T1-Weighted**)

***Fat-Suppressed T1-Weighted** sequence are used to identify **haemorrhage cyst & Dermoid cyst**.

