

## CLINICAL PRESENTATION AND RADIOLOGY QUIZ QUESTION

A 51 year old premenopausal woman presents with a full feeling in her pelvis. Physical examination is challenging because of body habitus, but there is probably an enlarged mildly tender uterus. WBC count is normal.

Which is the imaging examination of choice for the initial evaluation of a possible mass within the female pelvis?

- (a) pelvic computed tomography (CT)
- (b) pelvic magnetic resonance imaging (MRI)
- (c) pelvic plain film examination
- (d) pelvic ultrasound (US)

<b>RADIOLOGY QUIZ QUESTION, ANSWER, AND EXPLANATION</b>
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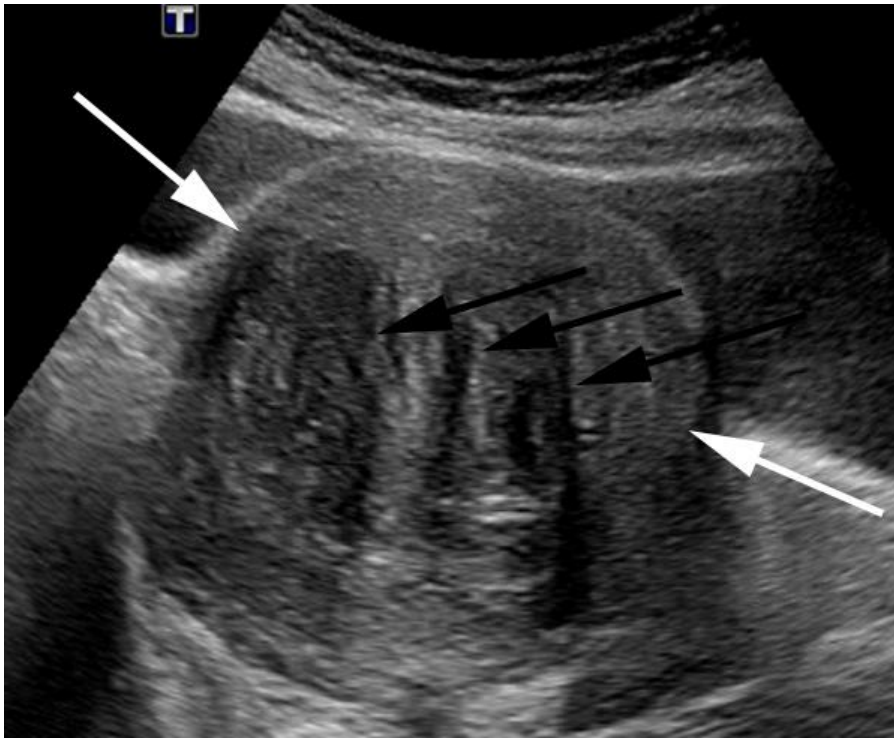
- (a) pelvic computed tomography (CT)
- (b) pelvic magnetic resonance imaging (MRI)
- (c) pelvic plain film examination
- (d) pelvic ultrasound (US)

Answer: (d), pelvic ultrasound. Pelvic ultrasound (US) is the imaging examination of choice for the evaluation of female pelvic masses.

Pelvic computed tomography (CT) may be used in evaluation of some female patients with pelvic pain, particularly when the pelvic ultrasound is not conclusive, but is not the initial imaging study of choice, and (a) is incorrect. Pelvic magnetic resonance imaging may be used in some cases for further evaluation of known pelvic masses (for example, for evaluation of endometriomas) and in evaluation of fertility problems, but it is also not the initial study of choice for the evaluation of pelvic masses, and (b) is also incorrect. Pelvic plain film examination may be used in some instances to document calcification in a fibroid or to evaluate for a possible fracture following trauma, but is not the imaging examination of choice for evaluation of female pelvic masses, and therefore (c) is also incorrect.

## IMAGING STUDY AND QUESTIONS

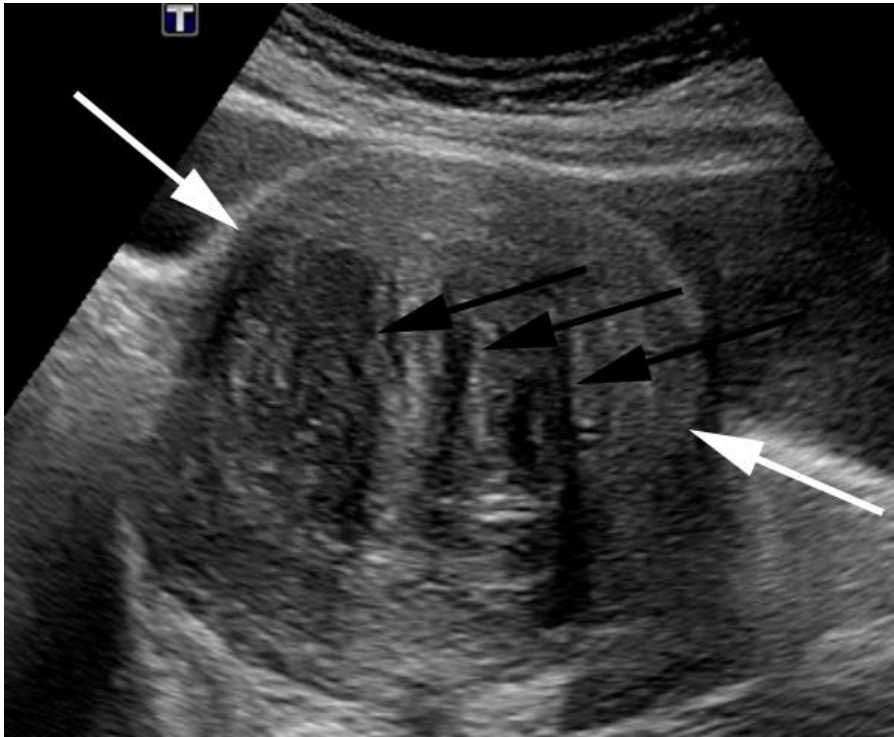
An imaging study was performed.



Imaging questions:

- 1) What type of study is this?
- 2) What is depicted by the white arrows?
- 3) What is depicted by the black arrows?
- 4) What is the diagnosis?
- 5) What is the next step in patient management?

## IMAGING STUDY QUESTIONS AND ANSWERS



Imaging questions:

- 1) What type of study is this? Pelvic ultrasound.
- 2) What is depicted by the white arrows? The uterus.
- 3) What is depicted by the black arrows? “Venetian blind” shadowing within a mass located within the uterus.
- 4) What is the diagnosis? Uterine fibroid.
- 5) What is the next step in patient management? Gynecologic consultation should be considered if the fibroid is tender or has significantly changed in size.

<b>PATIENT DISPOSITION, DIAGNOSIS, AND FOLLOW-UP</b>
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This patient was initially seen by an internal medicine physician and had some low abdomen and back pain. The physical examination revealed some tenderness in the low abdomen and pelvic region, but no dedicated pelvic examination was performed. The patient subsequently underwent ultrasound examination, with the exam results as shown.

The patient was then referred to a gynecologist who performed a pelvic exam and noted a tender fibroid in the uterus. The patient stated that she had prior unremarkable pelvic examinations (one done seven months, and another done four years, earlier) which did not demonstrate any pelvic fibroid.

The patient subsequently chose to undergo a hysterectomy.

## SUMMARY

**Presenting symptom:** Pelvic fullness and a mass in a female must be evaluated to exclude malignancies, particularly ovarian carcinoma. Painless uterine masses typically represent fibroids, although, rarely, sarcomas may occur in the uterus. Adnexal lesions include both simple and complex cysts of the ovaries. Benign and malignant ovarian tumors may also present as a pelvic mass.

**Imaging work-up:** Following the physical exam, pregnancy test (if appropriate), and blood work, such patients will usually require a pelvic ultrasound for further evaluation. Pelvic ultrasound can distinguish between uterine and extrauterine processes and can allow a confident diagnosis of fibroids in most cases. Complex adnexal lesions may represent either benign or malignant tumors of the ovary, and while there are features which may favor one or the other, ultrasound is not 100% accurate in this regard, making close follow-up or surgical intervention necessary in most cases.

**Establishing the diagnosis:** A presumptive diagnosis of uterine fibroids is made on the basis of an enlarged uterus on physical examination with the typical appearance on ultrasound, but a definitive diagnosis relies on pathologic examination of resected tissue. Any lesion of the myometrium is almost certainly a fibroid (statistically), whereas lesions of the endometrium need to undergo further evaluation (often with biopsy) to distinguish endometrial carcinoma from hyperplasia or benign endometrial polyps.

**Treatment:** Asymptomatic fibroids are usually treated expectantly. Treatment of symptomatic lesions is based on the size and location of the fibroids, type of related symptoms (e.g., abnormal bleeding versus pain), menopausal status, and patient preference and includes such options as uterine artery embolization, hysteroscopic myomectomy, laparoscopic hysterectomy, or transvaginal or transabdominal hysterectomy.

**Take-home message:** Ultrasound is the imaging study of choice for evaluation of female pelvic masses.

### FURTHER READING

Pöder, Liina. Ultrasound examination of the uterus. Chapter 27 in Callen PW. *Ultrasound in Obstetrics and Gynecology*. Saunders, Philadelphia, PA, 2008.

Renfrew, DL. Female Pelvis and Male Scrotum. Chapter 2 of *Symptom Based Radiology*, Symptom Based Radiology Publishing, Sturgeon Bay, WI, 2010, available for no charge at [www.symptombasedradiology.com](http://www.symptombasedradiology.com).

Stewart EA. Overview of treatment of uterine leiomyomas (fibroids). UpToDate, accessed 11/23/10.