

Acute Pelvic Pain

Ari M. Lipsky | Danielle Hart

PERSPECTIVE

Epidemiology

Acute pain caused by pelvic pathology is common, and the presenting complaint may be diffuse or lower abdominal pain, pelvic pain, or low back pain. A patient with chronic pelvic pain may also have an acute process related to the chronic condition or arising *de novo*.

Over one-third of reproductive age women will experience nonmenstrual pelvic pain. Among diagnoses for women with pain caused by gynecologic disorders in the emergency department (ED), pelvic inflammatory disease (PID) and lower genital tract infections (eg, cervicitis, candidiasis, Bartholin's abscess) account for almost 50%. Other common diagnoses are menstrual disorders, noninflammatory ovarian and tubal pathology (including cysts and torsion), and ectopic pregnancy. Ectopic pregnancy accounts for up to 20% of diagnoses among women presenting with vaginal bleeding or abdominal pain in the first trimester of pregnancy.

Younger patients and those with multiple sexual partners are more likely to have PID, and a previous episode increases the likelihood of a subsequent episode.¹ The risk of ectopic pregnancy is higher in women who have had PID, pelvic surgery, prior ectopic pregnancy, or are using an intrauterine device. Heterotopic pregnancy is of special concern in women undergoing assisted reproduction. Common nongynecologic diseases such as appendicitis, diverticulitis, urinary tract infection, and urolithiasis remain important considerations in the woman with acute pelvic pain. [Box 30.1](#) lists conditions accounting for most cases of pelvic pain in women.

Some causes of pelvic pain may lead to serious sequelae. PID carries the short-term risk of tubo-ovarian abscess and the long-term risks of impaired fertility, chronic pelvic pain, and increased predisposition to ectopic pregnancy. Rupture of an ectopic pregnancy or hemorrhagic ovarian cyst may be life-threatening. Unrecognized abuse may also have serious or lethal consequences.

Pathophysiology

The female pelvis contains the vagina, uterus, fallopian tubes and ovaries, ureters and urinary bladder, and sigmoid colon and rectum, as well as components of the vascular and musculoskeletal systems. Although pelvic pain often originates from the reproductive organs, it may arise from any structures that lie adjacent to or course through the pelvis. Visceral pain afferents supplying the pelvic organs have common innervation with the appendix, ureters, and colon. Their significant overlap makes accurate localization difficult for both patient and emergency clinician. Pain may be initiated by inflammation, distention, or ischemia of an organ, or by spillage of blood, pus, or other material into the pelvis. Pain may become more localized when the afferent nerves in the parietal peritoneum adjacent to an affected organ are stimulated.

DIAGNOSTIC APPROACH

Differential Considerations

The differential diagnosis of pelvic pain is broad (see [Box 30.1](#)). Most causes of pelvic pain fit into three categories: (1) reproductive tract; (2) urinary tract; and (3) intestinal tract. Because a subset of pelvic pain is found only in pregnancy, the pregnancy test is a key branch point in the diagnostic process. Potential pregnancy-related disorders can be divided into complications of early pregnancy and complications that occur further along in pregnancy. Although the specific cause of pelvic pain cannot always be determined at the initial ED visit, an organized approach usually leads to the confirmation or exclusion of disorders most likely to result in significant morbidity and/or mortality.

Pivotal Findings

It is unlikely that any particular finding on history or physical examination, summarized in [Table 30.1](#), is reliable enough to make or exclude a particular diagnosis conclusively, so ancillary testing beyond a pregnancy test is commonly required in the evaluation of patients with acute pelvic pain.

The pelvic examination may at times provide crucial information. However, some findings on bimanual examination are subjective and may be unreliable; they are perhaps most helpful in localizing the process to one side or the other or in helping to plan the initial evaluation. There are not sufficient data to select reliable women in whom the pelvic examination need not be performed, although the pelvic examination may be deferred in patients who are planned to undergo immediate imaging (usually ultrasound) for a suspected critical condition such as ruptured ectopic pregnancy. Depending on imaging results, a subsequent speculum or bimanual pelvic examination may or may not be necessary.

A sequential approach can progressively narrow the diagnostic possibilities until a reasonable provisional diagnosis is reached.

Symptoms

The location of pain and pattern of radiation often are helpful in focusing the differential diagnosis toward a specific cause or group of causes. Lateral pelvic pain is often related to a process in the tube or ovary. However, with right-sided pain, appendicitis is considered, and in left-sided pain (especially in patients >40 years), the differential diagnosis includes diverticulitis and colitis. Urolithiasis may also manifest as lateral pelvic pain, especially when the stone is at the ureterovesicular junction, or as pain radiating to the labia or vaginal area. Central pelvic pain usually is caused by processes involving the uterus, bladder, or both adnexae. Pain radiating to the rectum may be secondary to pooling of fluid or blood in the cul-de-sac. Diffuse pain may occur with a central or bilateral process such as PID or with diffuse peritonitis from infection or intraabdominal hemorrhage.

Information regarding the onset and duration of pain may be useful. Patients with uncomplicated appendicitis (without

BOX 30.1

Causes of Pelvic Pain in Women

REPRODUCTIVE TRACT

Ovarian torsion
 Ovarian cyst
 Pelvic inflammatory disease
 Salpingitis
 Tubo-ovarian abscess
 Endometritis
 Endometriosis
 Uterine perforation
 Uterine fibroids
 Dysmenorrhea
 Neoplasm

PREGNANCY-RELATED**First Trimester**

Ectopic pregnancy
 Threatened abortion
 Nonviable pregnancy
 Ovarian hyperstimulation syndrome

Second and Third Trimesters

Placenta previa
 Placental abruption
 Round ligament pain
 Labor or Braxton-Hicks contractions
 Uterine rupture

INTESTINAL TRACT

Appendicitis
 Diverticulitis
 Ischemic bowel

Perforated viscus
 Bowel obstruction
 Incarcerated or strangulated hernia
 Fecal impaction or constipation
 Inflammatory bowel disease
 Gastroenteritis
 Irritable bowel syndrome

URINARY TRACT

Pyelonephritis
 Cystitis
 Ureteral stone

VASCULAR

Septic pelvic thrombophlebitis
 Ovarian vein thrombosis
 Sickle cell disease
 Pelvic congestion syndrome

MUSCULOSKELETAL

Muscular strain or sprain
 Hernia
 Abdominal wall hematoma
 Pelvic fracture

NEUROLOGIC OR PSYCHIATRIC

Depression
 Domestic violence
 Sexual abuse
 Abdominal migraine
 Herpes zoster

perforation or abscess) typically are seen within 48 hours of symptom onset. Sudden-onset pain suggests acute intrapelvic hemorrhage, cystic rupture, ovarian torsion, or ureterolithiasis. Gradual-onset pain is more consistent with inflammation such as in PID or appendicitis. PID-associated pain generally begins gradually during or immediately following menses, whereas ovarian cyst pain peaks at midcycle and, if associated with rupture, is of sudden onset. Ovarian cyst pain may also fluctuate through several menstrual cycles before rupture. Chronic or recurrent pain is consistent with endometriosis, recurrent ovarian cysts, or persistent ovarian mass. The quality of pain may differentiate the crampy intermittent pattern of muscular contractions along a hollow viscus (arising from uterine, ureteral, or bowel pathology) from the steady progressive pain associated with inflammatory or neoplastic causes.

Fever and chills are more common with an infectious process. Nausea and vomiting occur more frequently when the process originates within the gastrointestinal tract but may also accompany any pain of visceral origin such as ovarian torsion, ureteral colic, and pregnancy or any severe pain. Dysuria occurs in many local vulvar and vaginal processes such as herpesvirus infection, candidiasis, and other types of vulvovaginitis, but urinary urgency typically signals an irritated bladder or urethra and should focus attention on the urinary tract.

Information about the patient's last menstrual period, pattern of menses, and sexual activity pattern may be useful but does not necessarily exclude pregnancy. In a pregnant patient, the obstetric history may provide some helpful diagnostic clues. Recurrent spontaneous abortion or previous ectopic pregnancy increases the

likelihood of these conditions, respectively. Patients who are actively undergoing infertility treatment are at increased risk for ectopic pregnancy, heterotopic pregnancy, ovarian torsion, and ovarian hyperstimulation syndrome. Round ligament pain is usually noted in the second trimester. Postpartum patients are at increased risk for endometritis.

The presence, quantity, and duration of associated vaginal bleeding should be ascertained (see Chapters 31 and 178). In a nonpregnant patient, bleeding may be associated with abnormal uterine bleeding (eg, from PID, ovulatory dysfunction, cancer) or trauma (eg, vaginal laceration due to pelvic fracture, direct vaginal irritation or trauma). In a pregnant patient, bleeding may also be associated with a subchorionic hemorrhage in an otherwise viable pregnancy, ectopic pregnancy, nonviable intrauterine pregnancy (IUP) (which may continue to cause bleeding after expulsion of the uterine contents, especially if any products of conception are retained), or later in pregnancy with placenta previa or abruption. In some cases, the amount of bleeding may be substantial enough to necessitate blood transfusion and surgical intervention. The presence of vaginal discharge (color, consistency, odor) should also be ascertained.

Sexual history is important, with emphasis on recent sexual contact and previous history of sexually transmitted disease. A history of any recent gynecologic procedures should be obtained because the onset of pelvic pain shortly after uterine instrumentation increases the possibility of uterine perforation or infection. All women should be interviewed in private to permit disclosure of sensitive information such as sexual history, pregnancy, recent abortion, and abuse.

TABLE 30.1

Differentiation of Common or Potentially Catastrophic Causes of Pelvic Pain

CAUSATIVE DISORDER OR CONDITION	PAIN HISTORY	ASSOCIATED SYMPTOMS	SUPPORTING HISTORY	PREVALENCE IN ED	PHYSICAL EXAMINATION	USEFUL TESTS	ATYPICAL OR ADDITIONAL ASPECTS
Ectopic pregnancy (critical if ruptured)	Classically severe, sharp, lateral pelvic pain, but severity, location, and quality highly variable	Vaginal bleeding (often mild, can be absent)	Missed period; history of previous ectopic pregnancy, infertility, pelvic surgery, PID, or IUD use	Common	Classically, unilateral adnexal tenderness; adnexal mass, CMT	Pelvic US, quantitative β -hCG, T&C, laparoscopy	Cannot reliably exclude diagnosis based on history and physical examination; severe pain, hypotension, or peritonitis suggests rupture.
Ruptured ovarian cyst (emergent—critical with significant hemorrhage; otherwise, urgent)	Abrupt moderate to severe lateral pain	Light-headedness if bleeding is severe; rectal pain arises from fluid in cul-de-sac.		Rupture—common; significant hemorrhage—uncommon	Hypotension and tachycardia if blood loss is significant; possible peritonitis	Pelvic US, CBC, T&C	Physical examination findings often do not correlate with volume of blood in pelvis at US.
Ovarian torsion (emergent)	Acute onset of moderate to severe lateral pain	Nausea and vomiting	History of ovarian mass or cyst	Uncommon	Adnexal mass and tenderness, possible peritonitis	US with Doppler flow studies, laparoscopy	Torsion can be intermittent.
Appendicitis (emergent)	Duration often <48 hr, generalized followed by localized RLQ pain	Low-grade fever, nausea, anorexia	Migration of pain to RLQ from center, abdominal pain before vomiting	Common	RLQ tenderness, possible peritonitis	US, CT, or MRI	Early in course, tenderness may be minimal or poorly localized.
PID, TOA (TOA: emergent; PID: urgent-emergent)	Without TOA, pain usually bilateral; may manifest acutely within 48 hr, but PID may also be chronic.	Fever, vaginal discharge	Vaginal discharge, history of PID, history of unprotected intercourse or multiple partners	PID—common; TOA—uncommon	Pus from cervical os, CMT, adnexal tenderness; peritonitis suggests TOA or severe PID	CBC, ESR, CRP, pelvic US, laparoscopy, cervical cultures, cervical smear for WBCs	History and physical examination may be inaccurate for diagnosis, particularly in patients with subacute presentation.

UTI (urgent)	Pain with urination; patient may have flank pain from associated pyelonephritis.	Urinary urgency and frequency; fever and vomiting if patient has associated pyelonephritis.	Recent urologic procedure, prior history of UTI	Common	Suprapubic tenderness, flank tenderness, and fever with pyelonephritis	Urinalysis, urine culture (if recurrent or complicated)	WBCs can be present in urine with PID and appendicitis; RBCs present in urine with hemorrhagic cystitis.
Ureteral colic (urgent)	Acute onset, manifests within hours; pain is lateral, usually moderate to severe. Often radiates into the groin or costovertebral angle or flank	Nausea and vomiting	Prior history of stones	Common	Patient often appears uncomfortable, but physical examination can be otherwise unremarkable.	Urinalysis—hematuria present in ≈80% of cases; renal ultrasound for hydronephrosis; abdominal CT	If stone is at ureterovesicular junction, patient can have localized pain that can mimic appendicitis or other acute pelvic pathology.
Unruptured ovarian cyst or tumor	Lateral ache, gradual onset	Often minimal	Prior history of similar pain	Common	Lateral pelvic tenderness, with or without a mass	Pelvic US	
Endometriosis	Unilateral or bilateral pelvic pain, often recurrent	Dysmenorrhea, dyspareunia.	Prior history of same type of pain in association with menstrual cycle	Common	Unilateral or bilateral adnexal tenderness, occasionally pelvic mass present, peritoneal findings uncommon	Pelvic US, laparoscopy	Symptoms can mimic other types of pelvic pathology; laparoscopy often is needed for confirmation.

CBC, Complete blood count; *CMT*, cervical motion tenderness; *CRP*, C-reactive protein; *CT*, computed tomography; *ED*, emergency department; *ESR*, erythrocyte sedimentation rate; *β-hCG*, β-human chorionic gonadotropin; *IUD*, intrauterine device; *MRI*, magnetic resonance imaging; *PID*, pelvic inflammatory disease; *RBC*, red blood cell; *RLQ*, right lower quadrant; *T&C*, type and crossmatch; *TDA*, tubo-ovarian abscess; *US*, ultrasonography; *UTI*, urinary tract infection; *WBC*, white blood cell.

Signs

The physical examination is directed toward the abdomen and pelvis. Pelvic examination is performed in almost all patients, including pregnant patients at less than 20 weeks' gestation. Pregnant patients beyond 20 weeks' gestation with complaints of vaginal bleeding should undergo transabdominal pelvic ultrasound for placental localization before the pelvic examination (see Chapter 178), should have a fetal heart rate measured and documented, and may need timely obstetric consultation.

Abnormal vaginal discharge may be seen in a variety of conditions, including vaginitis, cervicitis, endometritis, PID, and retained foreign body. Cervical motion tenderness usually indicates reproductive tract inflammation but also occurs with irritation of adjacent structures (eg, cystitis, appendicitis). An open os is most consistent with an incomplete or inevitable abortion, but does not definitively exclude an ectopic pregnancy. A large uterus in a nonpregnant patient may indicate fibroids. Fundal tenderness is often difficult to distinguish from cystitis but may suggest PID, endometritis, or necrotic fibroids. Unilateral adnexal masses and tenderness are suggestive of an ovarian cyst, ectopic pregnancy, tubo-ovarian abscess, or ovarian torsion.

The constellation of cervical motion tenderness, uterine tenderness, and adnexal tenderness is classically associated with PID, although only one sign is required to initiate treatment in certain clinical settings per recent Centers for Disease Control and Prevention (CDC) guidelines (2015).²

Ancillary Testing

A pregnancy test is required in almost all patients of childbearing age with a complaint of abdominal or pelvic pain, irrespective of sexual history or reported contraception use. Very few exceptions to this rule exist such as documented hysterectomy or a woman who is known to be pregnant. A positive test result may indicate current or recent intrauterine or extrauterine pregnancy or, rarely, molar pregnancy or cancer. Urinalysis of a clean-catch specimen may identify nitrites and pyuria from a urinary tract infection, or hematuria, consistent with urolithiasis or hemorrhagic cystitis. The absence of hematuria does not exclude the possibility of a ureteral stone, although it lowers the likelihood, and mild pyuria may be seen in extravascular conditions such as appendicitis. Urinalysis should be performed in all pregnant patients with pelvic pain, even if their symptoms do not include urinary tract complaints, because urinary tract infection, including asymptomatic bacteriuria, is associated with significant morbidity for both mother and fetus.

Patients who may be hemorrhaging internally or externally should have their hemoglobin level checked, and type and cross-matching should be performed if the hemorrhage is substantial. Pregnant patients with concern for fetomaternal transfusion (eg, vaginal bleeding) also require blood typing to identify Rh-negative patients who will require Rho(D) immune globulin.

Bedside ultrasound is a core part of the evaluation of most women with pelvic pain and, along with the history and physical examination, should be considered as an integral part of the initial examination.³ Patients with a positive pregnancy test result should undergo a bedside ED ultrasound or formal ultrasound examination to evaluate for ectopic pregnancy. Identification of a definite IUP by ultrasound imaging excludes ectopic pregnancy with a high degree of certainty in patients who are not undergoing assisted reproduction. Conversely, a patient with a positive pregnancy test in whom a definite IUP cannot be seen is presumed to have an ectopic pregnancy until proven otherwise. In addition, the presence of a gestational sac alone is not sufficient to confirm an IUP; experienced sonographers may use the double decidual sac sign, but it is recommended that less experienced sonographers

visualize a yolk sac or embryo for definitive ultrasonographic confirmation of an IUP. A complex adnexal mass, tubal ring, extrauterine yolk sac or embryo, or free fluid is indicative of a probable ectopic pregnancy. The presence of free intraabdominal fluid on ultrasound with a negative urine pregnancy test is consistent with hemorrhage or a ruptured hemorrhagic ovarian cyst. Regardless of cause, intraabdominal free fluid is presumed to be blood and should be addressed expediently.

DIAGNOSTIC ALGORITHM

The algorithm in Fig. 30.1 is designed to focus further testing and progress to a rational provisional diagnosis. It is not unusual, however, to pursue evaluation of gynecologic and intraabdominal causes of pain in parallel, as when the initial history and physical examination do not provide clear direction. It is also possible for common diseases to manifest in uncommon ways, for more than one disease to be present, or for a positive finding not to explain the entirety of the patient's presentation. For example, patients with an abnormal urinalysis may have appendicitis, pregnant patients may also have ovarian torsion or appendicitis, and simple ovarian cysts may be asymptomatic. Tests are therefore interpreted in the context of the individual patient's presentation. With certain diseases such as endometriosis, definitive testing is not available in the ED, and the patient's history may be the most important discriminator.

After an initial history and physical examination, the pregnancy test determines the subsequent priorities, although pregnant patients are not immune to non-pregnancy-related diagnoses. For example, if a threatened abortion is most likely (ie, there is an IUP on ultrasound imaging), unilateral pain may prompt further evaluation for torsion. An empty uterus on ultrasound imaging, or any ultrasound study that cannot confirm a definite IUP, could be consistent with an ectopic pregnancy, spontaneous abortion, or very early normal pregnancy. Patients past 20 weeks' gestation will likely require observation with fetal monitoring.

Nonpregnant patients with pain that seems to be gynecologic in nature should be assessed for hemorrhage from a ruptured, hemorrhagic ovarian cyst, for ovarian torsion, and for infection, including cervicitis, endometritis, PID, salpingitis, and tubo-ovarian abscess (see Chapters 88 and 90). Although the history and physical examination often are sufficient to diagnose infection, ultrasound assessment is helpful if torsion, tubo-ovarian abscess, or ruptured hemorrhagic cyst is suspected. Ultrasound findings also may support a diagnosis of PID if evidence of salpingitis is noted or a diagnosis of a simple ruptured cyst if a characteristic ovarian appearance is combined with the presence of a small amount of free fluid. Although not as reliable as CT, ultrasound may be able to identify appendicitis.

It is difficult to differentiate some gynecologic origins of pain from intraabdominal causes (eg, right ovarian pathology from appendicitis), so ancillary testing may require an ultrasound study, CT, or both. If the cause is most likely gynecologic, an ultrasound examination of the pelvis, and subsequently the appendix, is reasonable. These studies may be followed by CT if the ultrasound findings are unremarkable and the presentation remains consistent with appendicitis or other concerning diagnoses. Pelvic US performed after CT is unlikely to yield additional useful information.⁴ When ultrasound is nondiagnostic in a pregnant patient suspected of having appendicitis, we recommend magnetic resonance imaging (MRI), which avoids the risks of progression of the disease during a prolonged observation period and obviates the need for ionizing radiation from CT.⁵ Patients whose pain does not seem to be from the reproductive tract often have urinary infections or stones, abdominal sources of pain (see Chapter 24), or musculoskeletal pathology, or may be victims of

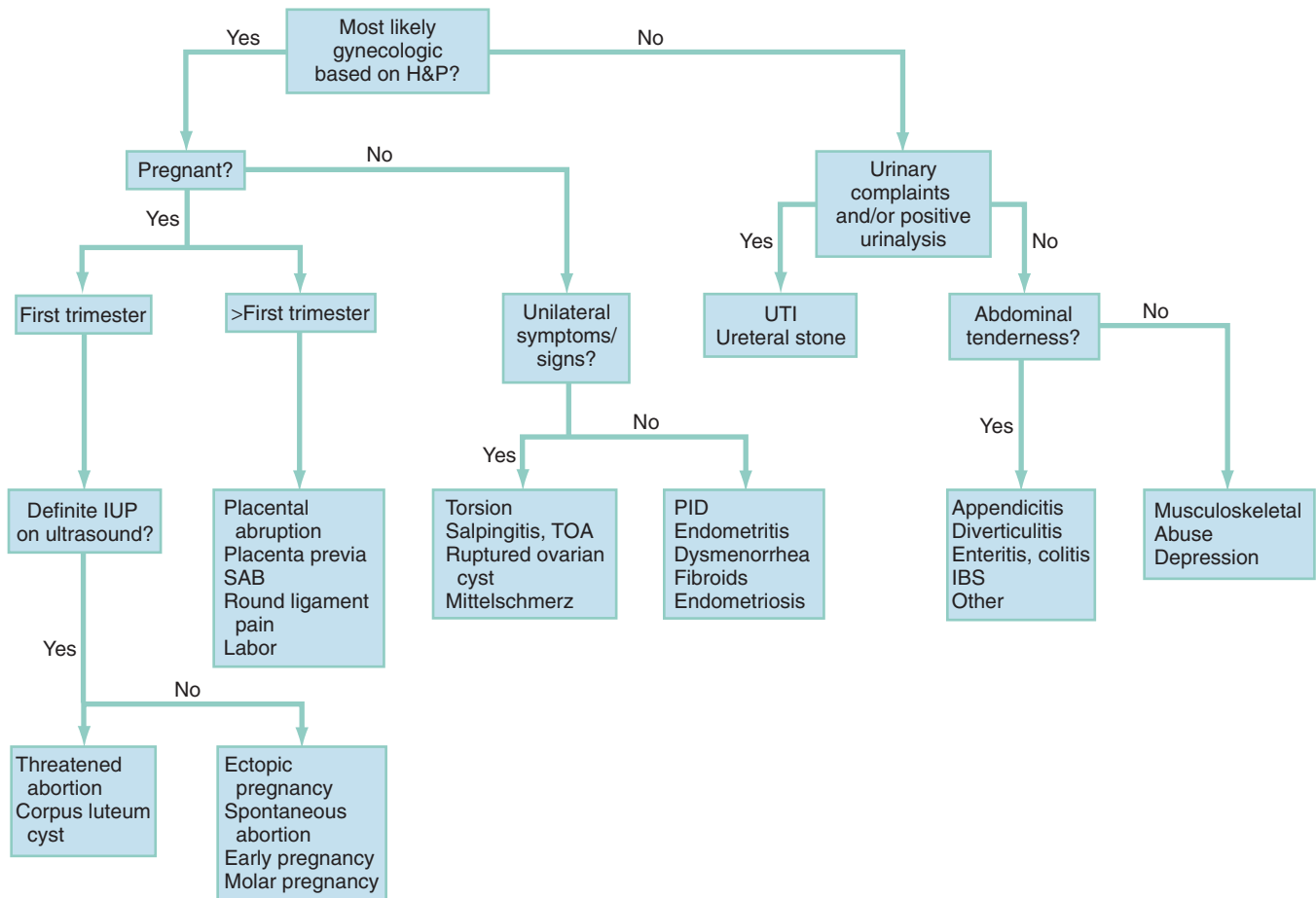


Fig. 30.1. Diagnostic algorithm for acute pelvic pain; see text for details. *H&P*, History and physical; *IBS*, irritable bowel syndrome; *IUP*, intrauterine pregnancy; *PID*, pelvic inflammatory disease; *SAB*, spontaneous abortion; *TOA*, tubo-ovarian abscess; *UTI*, urinary tract infection.

abuse or have depression. Vascular or neuropathic causes of pain are possible but less common.

If the available data do not make sense or conflict with the clinical gestalt, the following three steps should be considered;

1. Ensure that emergent, life-threatening diagnoses have been addressed (eg, ectopic pregnancy).
2. Reassess whether the presentation may be atypical (eg, reconsider appendicitis).
3. If emergent causes are unlikely and sufficient consideration was given to less likely disorders without uncovering a cause, address the possibility of depression or abuse. Follow-up planning for all patients is recommended.

EMPIRICAL MANAGEMENT

An algorithm for the management of patients with acute pelvic pain is presented in Fig. 30.2. Patients in extremis are most likely hemorrhaging, although on occasion septic shock may be the cause. Ectopic pregnancy, placental abruption, and hemorrhagic ovarian cyst may cause life-threatening hemorrhage, with no or minimal vaginal bleeding. Patients with these disorders need rapid treatment with fluid and blood products and may require

surgical intervention before stabilization can be achieved. A bedside ultrasound generally will help the emergency clinician reach these presumptive diagnoses expediently. Septic shock may be a consequence of abdominal or pelvic processes and may require general surgical and gynecologic consultations, as well as admission to an intensive care setting.

We recommend early administration of analgesia for patients with significant pain, a practice that greatly improves patient comfort and the reliability of the physical examination, which is otherwise hampered by the patient's extreme pain, tenderness, or both. For severe pain, intravenous opioids such as morphine or hydromorphone are rapid and effective, titratable, and generally considered safe in pregnancy. After critical and emergent diagnoses have been excluded, well-appearing patients for whom a definitive or reasonable provisional diagnosis is reached may be discharged with close follow-up and appropriate treatment and precautions. Pregnant patients at a stage of fetal viability (20 weeks' gestation or as per institutional guidelines) should be referred to the obstetric service for fetal monitoring before discharge. Pregnant patients who have suffered abdominal trauma, especially those later in pregnancy, should undergo monitoring before discharge (see Chapter 182).

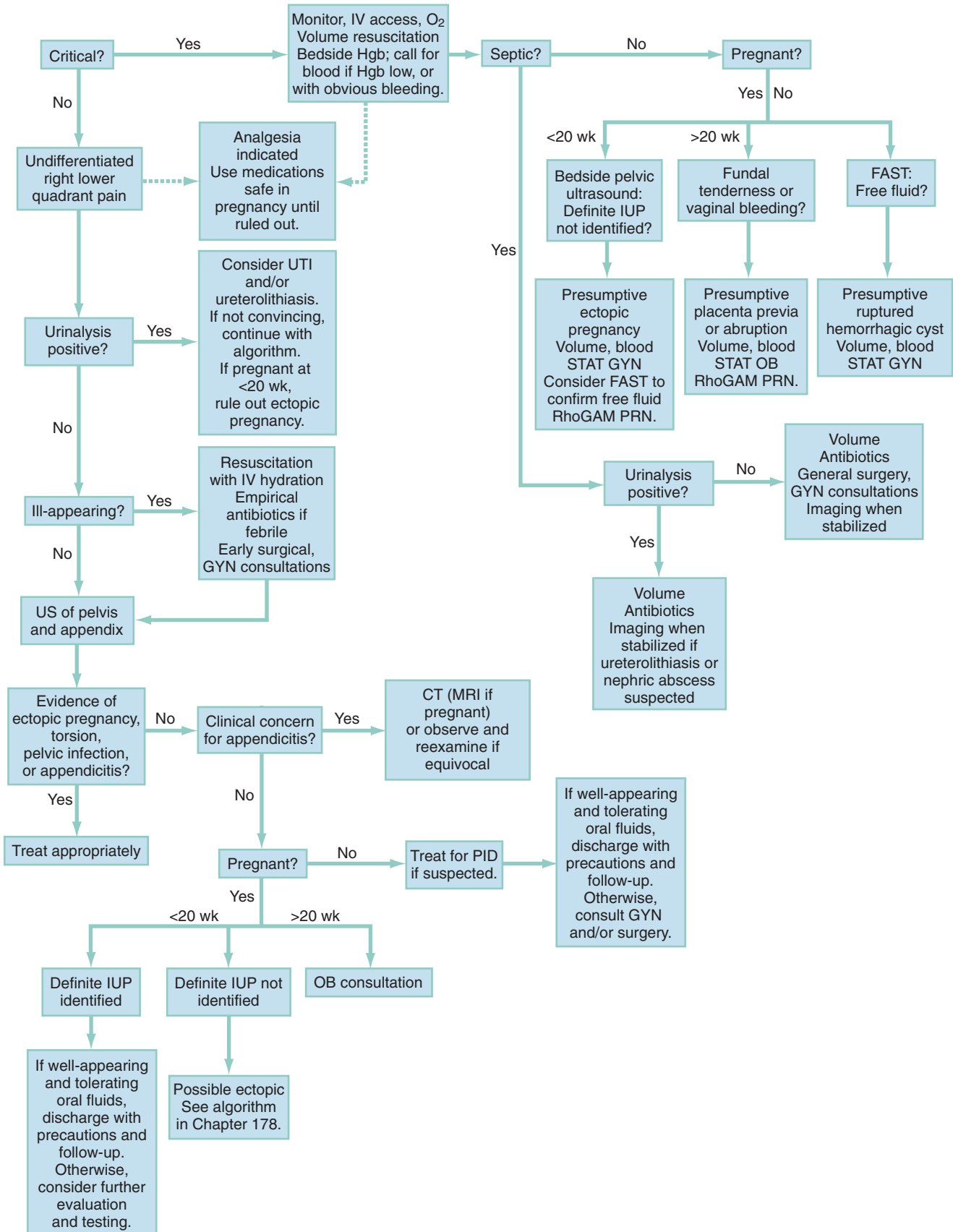


Fig. 30.2. Management algorithm for acute pelvic pain illustrating critical patients and right lower quadrant pain presentations. *CT*, Computed tomography; *FAST*, focused assessment with sonography for trauma; *GYN*, gynecology; *Hgb*, hemoglobin; *IUP*, intrauterine pregnancy; *IV*, intravenous; *MRI*, magnetic resonance imaging; *OB*, obstetric; *PID*, pelvic inflammatory disease; *STAT*, immediately; *US*, ultrasound; *UTI*, urinary tract infection.

KEY CONCEPTS

- Acute pelvic pain in women is often from a gynecologic source, but urinary and intraabdominal sources are also common. Less frequently, the pain may arise from vascular, musculoskeletal, neurologic, or psychiatric sources.
- Potentially lethal diagnoses associated with acute pelvic pain include ectopic pregnancy, ovarian cyst with significant hemorrhage, and domestic violence; highly morbid conditions presenting with acute pelvic pain include pelvic inflammatory disease and ovarian torsion.
- Nearly all women of childbearing age with pelvic pain should have a pregnancy test performed, and most also require a pelvic ultrasound examination.
- Ectopic pregnancy should be excluded in the pregnant patient with pelvic pain. Bedside ultrasound is an excellent test for confirming an intrauterine pregnancy (IUP); it excludes ectopic pregnancy with a high degree of certainty in patients who are not undergoing assisted reproduction.
- In the nonpregnant patient, the pain of PID generally begins gradually and during menses. Ovarian cyst–associated pain is maximal at midcycle, and is usually gradual and cyclic, although it may be sudden and severe if rupture has occurred.
- Pregnant patients with acute pelvic pain may also have non–pregnancy-related disorders; appendicitis, nephrolithiasis, and ovarian torsion remain in the differential diagnosis.
- Many patients with acute pelvic pain require imaging as part of their assessment. If a gynecologic source is suspected, begin with an ultrasound and then progress to CT or MRI, if needed. The presence of an ovarian cyst on imaging does not necessarily explain the patient’s pain, and further evaluation may be required.

The references for this chapter can be found online by accessing the accompanying Expert Consult website.

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CHAPTER 30: QUESTIONS & ANSWERS

- 30.1.** Which of the following is most true regarding the evaluation of patients with pelvic pain?
- A. Ancillary testing can be limited to a urine pregnancy test in most patients.
 - B. Bimanual examinations have been shown to result in highly reliable findings, with substantial interobserver agreement.
 - C. Patients typically localize visceral pain with a high degree of accuracy.
 - D. Thorough history taking is adequate to exclude most life-threatening conditions.
 - E. None of these.

Answer: E. It is rare that any particular finding on history or physical examination is reliable enough to make or exclude a particular diagnosis conclusively in patients presenting with pelvic pain, so ancillary testing (beyond a simple pregnancy test) is commonly required in the evaluation of these patients. The bimanual examination may, at times, provide important information. Unfortunately, however, findings on pelvic examination are somewhat subjective and unreliable and may serve more to localize the process to one side or the other rather than diagnose it or even limit it to the reproductive organs. Although pelvic pain often originates from the reproductive organs, it may arise from any structures that lie adjacent to or course through the pelvis. Visceral pain afferents supplying the pelvic organs have common innervation with the appendix, ureters, and colon. Their significant overlap makes accurate localization difficult for both patient and emergency clinician.

- 30.2.** A 26-year-old patient presents with right lower quadrant (RLQ) abdominal pain. She states her last menstrual period was 8 weeks ago. Bimanual pelvic examination reveals tenderness in the RLQ and right adnexal area. The patient's vital signs include a regular pulse of 120 beats/min and a blood pressure of 110/68 mm Hg. Urinalysis is unremarkable, and the urine pregnancy test is positive. What is the most appropriate next test?
- A. Cervical cultures
 - B. Complete blood count (CBC)
 - C. Computed tomography (CT)
 - D. Magnetic resonance imaging (MRI)
 - E. Pelvic ultrasonography

Answer: E. This follows the algorithms in [Figs. 30.1](#) and [30.2](#). The most life-threatening pathology requiring urgent or emergent

intervention is hemorrhage from a ruptured ectopic pregnancy. A pelvic ultrasound scan is rapid, especially when using bedside ultrasonography, and is the first step in an evaluation of a suspected ruptured ectopic pregnancy.

- 30.3.** A 30-year-old woman presents with lower abdominal pain. She has lower abdominal, uterine, bilateral adnexal, and cervical motion tenderness on pelvic examination. She has a negative urine pregnancy test and urinalysis. What is the most appropriate next step in the patient's management?
- A. Await cervical culture results.
 - B. Obtain a CBC.
 - C. Obtain a CT scan.
 - D. Perform a pelvic ultrasound.
 - E. Treat with antibiotics.

Answer: E. The constellation of uterine tenderness, bilateral adnexal tenderness, and cervical motion tenderness is classically associated with pelvic inflammatory disease (PID), particularly when the pain onset is during or just after menstruation. The diagnosis may be made, however, without the presence of all three signs, and treatment may be initiated with only one sign in an at-risk patient, as given in the 2015 Centers for Disease Control and Prevention (CDC) guidelines.

- 30.4.** A 35-year-old woman undergoing infertility treatment presents with severe lower left quadrant (LLQ) abdominal pain and tenderness isolated to the left adnexal area on pelvic examination. The urine pregnancy test is positive, and the urinalysis is unremarkable. Rapid bedside ultrasonography reveals an intrauterine pregnancy with a gestational age of 6 weeks, 5 days, and moderate free pelvic fluid. Which diagnoses should be further investigated at this time?
- A. Ectopic pregnancy
 - B. Heterotopic pregnancy
 - C. Round ligament pain
 - D. Simple ovarian cyst
 - E. None of these

Answer: B. Women who are actively undergoing infertility treatment are at increased risk for ectopic pregnancy, heterotopic pregnancy, ovarian torsion, and ovarian hyperstimulation syndrome.