CEN: Genitourinary, Gynecologic and Early-Pregnancy Emergencies

Ectopic pregnancy and hCG logic, early pregnancy loss, Rh, hyperemesis, adnexal torsion, ruptured cyst, PID, the acute scrotum, priapism, Fournier gangrene, stones, retention and UTI

ICU Basics
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WHO GOES FIRST

PICTURE	THINK	FIRST MOVE
Positive hCG, pelvic pain, tachycardia or syncope, free fluid	Ruptured ectopic pregnancy	Large-bore IV access, type and crossmatch, OR now
Perineal or scrotal pain and swelling, crepitus, looks toxic	Fournier gangrene	Resuscitate, broad antibiotics, surgeon for debridement
Stone plus fever	Infected obstructed kidney	Urgent stent or nephrostomy, antibiotics now
Older smoker, first flank pain, BP below baseline	Leaking AAA, not a stone	Provider now, aortic ultrasound

SAFETY Pelvic pain, bleeding or syncope at reproductive age: pregnancy test first, whatever the history.

EARLY PREGNANCY: HCG PLUS ULTRASOUND

FINDING	MEANS
Gestational sac with yolk sac or embryo in the uterus	Intrauterine pregnancy; heterotopic pregnancy is exceedingly rare
Empty uterus, hCG above about 3,500 mIU/mL	Ectopic or failed pregnancy until proven otherwise
Empty uterus, hCG below the discriminatory level	Pregnancy of unknown location: repeat hCG in 48 h, return precautions
Complex adnexal mass, echogenic free fluid	Ectopic; fluid beyond the pelvis means hemoperitoneum
hCG rising slower than expected or falling	Ectopic or early pregnancy loss

- Ruptured or unstable: IV access, blood, surgery. Normal BP with tachycardia or dizziness on standing is already shock.
- Methotrexate if stable and unruptured: 50 mg/m2 IM, hCG days 1, 4, 7, then weekly to zero. Teach: no folic acid, NSAIDs, alcohol, intercourse or hard exercise; return for severe pain or fainting.
- No methotrexate with breastfeeding, kidney or liver disease, ulcer or cytopenias. Rupture, instability or cardiac activity in the mass: surgery.

BLEEDING, LOSS, RH AND VOMITING

TYPE	CERVIX	CARE
Threatened	Closed	Observe; bed rest does not help
Inevitable or incomplete	Open	Evacuation if bleeding, unstable or infected
Complete	Closed, uterus empty	Follow-up
Missed	Closed, no expulsion	Expectant, misoprostol or aspiration
Septic	Open, fever, foul discharge	Antibiotics and urgent evacuation

- Rh: ACOG 2024 suggests skipping routine Rh testing and anti-D for loss or abortion before 12 weeks (shared decision allowed). Rh-negative ectopic (Merck), or loss at 12 weeks or later: anti-D.
- Hyperemesis (dehydration, ketosis, weight loss over 5%): thiamine 100 mg IV before any dextrose, fluids, electrolytes, antiemetics.

PELVIC PAIN, NOT PREGNANT

CONDITION	CLUES	PLAN
Adnexal torsion	Sudden or on-and-off pain, vomiting, ovary over 4 cm, IVF; up to 46% of adolescents have no mass	Prompt laparoscopy, detorsion, ovary kept; Doppler flow does not exclude it
Ruptured ovarian cyst	Sudden pain, echogenic pelvic fluid, hCG negative	Observe if stable; rising HR, falling Hb or dizziness: report, surgery
PID	Pelvic pain plus cervical motion, uterine or adnexal tenderness	Treat presumptively; partners, HIV and syphilis tests
Tubo-ovarian abscess	PID with a mass, toxic	Admit, IV antibiotics; rupture means surgery

- PID outpatient (CDC 2021): ceftriaxone 500 mg IM once, then doxycycline 100 mg and metronidazole 500 mg twice daily for 14 days. An IUD can stay.
- Admit PID for possible surgical emergency, abscess, pregnancy, temperature over 38.5 C or vomiting, oral intolerance, no response.

THE ACUTE SCROTUM AND PENIS

CONDITION	CLUES	PLAN
Testicular torsion	Ages 12 to 18, sudden pain, vomiting, high-riding testis, no cremasteric reflex	Urology now; salvage 80 to 100% at 6 to 8 h, near zero at 12 h
Appendix testis torsion	Younger boy, upper-pole nodule, blue dot	Analgesia, rest, cooling
Epididymitis	Gradual pain, dysuria or discharge, normal testicular flow	Ceftriaxone plus doxycycline; levofloxacin instead if insertive anal sex
Ischemic priapism	Over 4 h, rigid, painful; injections, sickle cell, drugs	Aspiration and phenylephrine 100 to 500 mcg every 3 to 5 min; BP and HR
Fournier gangrene	Diabetes, alcohol, immune suppression; pain, swelling, crepitus	Early debridement, broad antibiotics, resuscitation

- TWIST: swelling 2, hard testis 2, absent cremasteric reflex 1, nausea or vomiting 1, high-riding testis 1. Low 0 to 2, intermediate 3 to 4 (Doppler), high 5 to 7 (surgery).
- Manual detorsion (outward, "open the book") is a bridge: both testes are still fixed.

STONES AND RETENTION

- Renal colic: an NSAID first (ketorolac) if kidney function, ulcer, bleeding and cardiac history allow; opioids second.
- Urgent urology: fever or infection, solitary kidney or rising creatinine, pain that analgesia does not control.
- Imaging: noncontrast CT in most adults; ultrasound first in children and pregnancy.
- Home: stones under 5 mm usually pass (about 75%); tamsulosin may help distal 5 to 10 mm stones. Strain urine; return for fever, vomiting or uncontrolled pain.
- Tamsulosin: rise slowly (orthostasis, syncope), 30 min after the same meal, swallow whole, tell an eye surgeon.
- Acute retention: drain fully at once; clamping prevents nothing.
- Post-obstructive diuresis: over 200 mL/h for 2 h or over 3 L a day. Replace part of the output, never mL for mL; follow vital signs, weight and electrolytes.

UTI AND PYELONEPHRITIS

SITUATION	DO
Fever, flank pain, CVA tenderness	Pyelonephritis: culture first; nitrofurantoin and fosfomycin are cystitis drugs
WBC casts on urinalysis	Inflammation in the kidney itself
Bacteriuria, no symptoms	Treat only in pregnancy or before urologic surgery
Pyelonephritis in pregnancy	Admit, IV cephalosporin; watch SpO2 and RR at 24 to 48 h (lung injury)
Febrile infant, culture needed	Catheter specimen; bags are unreliable
Older adult, fall or delirium, positive culture only	Look for other causes; no antibiotics for bacteriuria alone

EXAM TIP Late pregnancy and delivery: Obstetric Emergencies. Sexual assault: Forensics, Abuse and Sexual Assault in the ED.

Sources (33) are listed with links at icubasics.com/sheets/cen-gu-gyn.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. ICU Basics is an independent study aid not affiliated with any certifying body.