**Presentation(s):**

1.) Sick intact older bitch (> 4 y) in **DIESTRUS** (influence of progesterone)

2.) Sick intact younger bitch, **hx of injection** with
   - **Estrogens** (mis-mate shot, estradiol cypionate) or
   - **Progestins** (estrus delay, megestrol acetate)

3.) Sick intact bitch or queen, **Hx of estrus in last 2 months**

4.) Consider pyometra in **ANY** intact bitch or queen
   with nonspecific illness

Pyometra can present two ways:

- **OPEN:** purulent vulvar discharge
  - +/-normal size uterus
  - Owner may think dog is in heat

- **CLOSED:** NO discharge (common); large uterus, abdominal distension
  **LIFE THREATENING, surgical emergency**

Other signs

- Lethargy, depression, dehydration, anorexia
- Polyuria / polydypsia (PU/PD), vomiting, +/- fever
- Can progress rapidly to shock, death

**Differential Dx:**

Pregnancy, mucometra, cystic endometrial hyperplasia (CES), vaginitis, urinary tract infection (UTI), uterine torsion, postpartum metritis, reproductive tract neoplasia

Other causes of acute abdomen

Other causes of PU/PD: diabetes mellitus, 1° renal dz

**Test of choice:**

- **Abdominal US** (DDx large fluid-filled uterus vs pregnancy)
  - +/- Abdominal radiographs (but rads can't Dx pregnancy if < 45 days)

- Typical database
  - **CBC:** leukocytosis w/ neutrophilia, left shift +/- toxicity (common),
    - if there is sepsis, may see leukopenia instead
    - or normal
  - **Blood chem:** ↑ hepatic & renal values, hyperproteinemia via hyperglobulinemia
  - **Vaginal swab cytology w/ C+S:** degenerate neutrophils; *E. coli* (most common),
    can also see *Staph, Strep, Pseud, Proteus*

  - **Urinalysis w/ C+S:** isothenuria via endotoxin-induced renal tubular impairment & insensitivity to ADH
**Rx of choice:**

**Supportive Rx**
- **IV fluids** (correct fluid, electrolyte, acid-base imbalances)
- **Antibiotics** (broad spectrum, bactericidal)
  - *i.e.*: Amoxicillin/clavulanic acid, enrofloxacin, cephalaxin
  - With medical treatment, continue for 2 weeks post-Rx
- Pain management as needed (i.e.: Buprenorphine)

**Surgical Rx**

**OVARIOHYSTERECTOMY (OVH)** - Rx of choice for Closed and Open pyometra

**Medical Rx** (somewhat complicated—here are basic elements of one protocol)

Prostaglandin F-2α (PGF-2α) + dopamine agonist or progesterone antagonist *i.e.*:
- **PGF-2α**: low, increasing doses 7-10 days or until complete uterine evacuation
  - Dino-prost (Lutalyse®) Dogs, dinoprostone (Dynolytic®) Cats
  - AND
  - A dopamine agonist (inhibits prolactin hastening luteolysis - Dog, Cat)
    - Cabergoline (Dostinex®) or bromocriptine (Parlodel®)
  - OR
  - A progesterone antagonist (mimics luteolysis - Dog)
    - Mifepristone (Mifeprex®) or aglepristone (Alizine®)

Transcervical endoscopic catheterization technique (TECT) hastens uterine evacuation (Dog)
- Monitor w/ US—should see 50% decrease uterine luminal diameter in 5-7 days
- Should be normal in 5-10 days

**Prognosis:**

Good with OVH or successful medical Rx
Guarded if sepsis, liver or renal failure

After successful medical treatment for open pyometra
- 90% of bitches, 70% of queens are fertile
- **MUST ADVISE OWNER: 70% recurrence in bitches within 2 yrs**

**Prevention:**

**OVARIOHYSTERECTOMY**
Post- medical Rx, breed next cycle to prevent recurrence
Pearls:

- NEVER DELAY TREATMENT of CLOSED PYOMETRA even if dog appears healthy
  ("Don’t let the sun set on a pyo” life-threatening)

- Always palpate carefully to prevent uterine rupture

- Pathophysiology
  - Progesterone, 1º hormone of diestrus promotes ideal environment for bacteria
  - Increased endometrial growth, glandular secretion
  - Decreased myometrial activity and WBC response against bacteria
  - So, cystic endometrial hyperplasia (CEH) + 2º bacterial infection = pyometra

- Pyometra less common in queens: Induced ovulators = less progesterone exposure